

# ADVANCES IN BULGARIAN SCIENCE '2018



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## CONTENTS



### MADE IN BULGARIA WITH EUROPEAN SUPPORT

*VENELIN TERZIEV, NELLY BENCHEVA*

**CURRENT STATUS OF SOCIAL ENTREPRENEURSHIP IN BULGARIA ..... 5**

*YANKA PRODANOVA, JENI STAYKOVA, KAROLINA LYUBOMIROVA,  
NEVENA TZACHEVA, LIDIYA HRISTOVA*

**ESTABLISHING AND IMPLEMENTING/INTRODUCING INNOVATIVE  
EDUCATIONAL PRACTICES IN TRAINING IN OCCUPATIONAL  
MEDICINE AND PUBLIC HEALTH ..... 19**

*MILENA TABANSKA, KAROLINA LYUBOMIROVA, MARIA SAMUNEVA,  
LIDIA HRISTOVA, MILENA STOYCHEVA, NEVENA TSACHEVA*

**METABOLIC SYNDROME AND ITS COMPONENTS AMONG WORKERS  
IN FOUR ECONOMIC SECTORS IN BULGARIA ..... 25**



### BULGARIAN ADDED VALUE TO ERA

*MARIANA GOSPODINOVA, TEODORA CHAMOVA, ANI TANEVA, ALBENA TODOROVA,  
STEFAN DENCHEV, IVAILO TOURNEV*

**CARDIAC INVOLVEMENT IN MUSCULAR DYSTROPHIES ..... 33**

*PENKA HRISTOVA*

**PROJECT DM 10/2 „DEVELOPING COMPETENCES AND IMPROVING SKILLS  
FOR APPLYING NEW RESEARCH METHODS AND METHODOLOGIES BY  
JUNIOR RESEARCHERS”: ACTIVITIES AND RESULTS ..... 45**

*RUMYANA ETOVA, DESISLAVA TODOROVA, MARIYA GEORGIEVA,  
ROSTISLAV KOSTADINOV, ELENA VALKANOVA, TSVETELINA MIHAYLOVA*

**BULGARIAN RED CROSS ACTIVITIES FOR DISASTER RESILIENCE  
ENHANCEMENT ..... 55**



### EQUAL IN EUROPEAN RESEARCH AREA

*MARIA POPOVA, SVETLANA PITKEVICH*

**DISTINGUISHED REPRESENTATIVES OF BULGARIAN  
LANGUAGE STUDIES IN BULGARIA ..... 63**

*PENKA LAZAROVA, VESELA VASILEVA*

**NATIONAL AWARDS FOR ACHIEVEMENTS IN SCIENCE ..... 91**



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## MADE IN BULGARIA WITH EUROPEAN SUPPORT

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### CURRENT STATUS OF SOCIAL ENTREPRENEURSHIP IN BULGARIA

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**Abstract:** *In the last decade the concept of development and promotion of social economy and social entrepreneurship are part of EU policy to tackle the social exclusion of persons in a vulnerable position. Also, the model of social economy is one of the key instruments for achieving social objectives within the framework of the sustainable and inclusive growth. Social benefits are measured by integration and employment of disadvantaged people, the contribution to the process of social inclusion of other vulnerable people, and the economic indicator is expressed by saved public funds for social welfare, on the one hand, and the additional funds compensating the social costs of long-term unemployment.*

**Key words:** *social entrepreneurship, social economy, social enterprises, employers.*

### INTRODUCTION

The promotion of innovative ideas in public policy is crucial to support the values of an active-oriented problem solving social system. These views underlie the ongoing social reforms in various countries and focus on the development of social entrepreneurship and the role of social entrepreneurs. An understanding is underlined that namely social entrepreneurs have the capability through localization of usable resources – human capital, buildings and equipment, to find flexible approaches to satisfy unmet social needs [1].

### CURRENT STATUS OF SOCIAL ENTREPRENEURSHIP IN BULGARIA

Social entrepreneurship is identified at European Union (EU) as a



key instrument for regional cohesion and overcoming the problems of poverty and social exclusion. As part of its policy to promote the social economy and social innovation, social entrepreneurship contribute to achieving the strategic goals set in 2020 [2].

Legally binding definition for social enterprise at EU level has not been introduced. However, in the last 5 years we have seen that the leading strategic and normative documents define uniformly key elements in the definition [3]:

- Social enterprises pursue profit (socially significant) goals

Social enterprises are created to achieve social objectives (overcoming social injustice and social inequalities of vulnerable groups of people or achieve important public goals in the fields of ecology and sustainable development) and subject its economic activity, in contrast goals of profit in favor of individuals. Social enterprises pursue a direct leading goal to create social benefits in the public interest or for their members.

- Activity that carries out an economic / commercial in nature

The activity of social enterprises is expressed in the provision of goods or services in a competitive market, entrepreneurial way. Very often economic activity covers the delivery of services of general interest (eg social, health, educational, etc.) and very often they are in there essence a social innovation. It is possible that the goods / services are not in themselves directly for the needs of vulnerable groups, but the results or revenues to be in direct benefit or directly to support vulnerable groups and to solve socially significant problem.

- Reinvestment of profits from economic activity

All or at least most of the profit of the enterprise is reinvested back into the activity itself (for its expansion or construction fund that also achieves social purpose and which can not be distributed among individual owners of social businesses or during its existence, or by reason of termination) and not being distributed to private shareholders or owners.

- Institutional independence and inner selfgovernance

Social enterprises are institutionally independent of the state authorities at central and local level (ie state institutions and municipalities do not have the ability to influence in inner decision-making social enterprises neither by law nor by virtue of its founding documents). Internal management of social enterprises include mechanisms for participation in the decision-making of representatives of vulnerable groups (such as its employees, users, members) for which it exists or the basis of the mechanism of control laid down the principle of social justice. Internal control is based on the principles of representativeness and transparency.

The social economy develops through various organizational – legal forms of entrepreneurship as co-operatives, mutual societies, associations, social enterprises and organizations, foundations and other existing in different EU member countries entities.

Personality in the social economy have cooperatives, enterprises and organizations duly registered under national law, whose business has a social and humanitarian results and they reinvest profits for social purposes.

On criteria for the identification of the entities in the social economy Bulgaria will adhere to the indicators of the European Parliament to determine the economic and humanitarian activities as part of the social economy [4]:

- rule of community and social activity before profit;
- protection and enforcement of the principles of solidarity and responsibility;
- reconcile the interests of the participants and the general interest;
- democratic control by the participants (one member – one vote);
- voluntary and open membership;
- self-government and autonomy from government authorities;
- use a major part of the economic outturn:
  - to follow sustainable development objectives of the company;
  - to meet the specific needs of participants;
  - in favor of the collective interest.

These indicators contribute to the visibility of social enterprises and activities among businesses from the real economy, but should not be seen as absolute as it can also hamper their activities and development. For example, autonomy to public authorities can be legitimate impediment for state subsidies, if applied to the transparency of the use of public funds, regardless of their size.

There are some guiding criteria for respondents to self-determination as a social enterprise [5]:

1) over 50% of profits regularly invest to achieve social objectives:

- Support for socially vulnerable groups and / or individuals in isolation;

- Environmental protection with impact on society;

- Social innovation;

- Implementation of other activities, production and / or production of goods and services with a social purpose; and / or

2) more than 30% of the staff from vulnerable groups [6].

Legal and organizational forms through which you can develop social entrepreneurship shown in different national documents

National concept of social economy considers the following legal forms through which social entrepreneurship develops:

Social enterprises – legal non-profit organizations doing business with a strong social effect towards members of vulnerable groups in the broadest sense: to improve their standards of living, employment, provision of services and/or other forms of direct support, the end result is their active social inclusion;

Social enterprises – companies (LTD) owned by non-profit organizations as the "in-come from operations of the company is used for social purpose";

Social enterprises according to the Law of Integration of People with Disabilities – cooperatives or specialized enterprises (companies) of and for people with disabilities – "transparent and democratic governance principles make them particularly suitable form of entrepreneurship in the field of social integration";

Social enterprises – cooperatives, but only if they "meet the indicators of social enterprises".

However, OP „HRD“ considers social enterprises along with specialized enterprises and cooperatives for people with disabilities as a tool for creating supported employment for



people „who have difficulties with their integration into the labor market“ [7]. It leads to the conclusion that 1) social enterprises are regarded as a separate group of specialized enterprises and cooperatives for people with disabilities and 2) namely by supporting social enterprises addressing social problems of persons who do not fall within the vulnerable group of people disabilities is promoted. Over social enterprises are mentioned as some of the beneficiaries types of support among NGOs, cooperatives, providers of social, health or educational services.

Bulgaria has not introduced a legal definition of social enterprise, nor is there a clear and explicitly defined regulatory framework. Strategic documents in the field distinguish between „social economy enterprises“ and „social enterprises“, the intention is the first group to cover a wider range of persons, some of which are social enterprises [8]. Moreover, from 2012 onwards statistical information is collected for existing social enterprises in Bulgaria. In 2013, NSI includes guiding criteria for respondents with regard to whether they identify themselves as social enterprise or not. As main features of social enterprise are included:

- achieving social purpose;
- making of economic activity;
- predominantly reinvestment of profits back into the business than distribution among individual partners, shareholders, founders / members.

In terms of the types of legal and organizational forms through which one can develop social enterprise, inconsistencies and discrepancies are observed between different strategic documents and programs

[8]. There is no unified framework and general binding characteristics of social enterprises. This makes it difficult referencing them in each case to an enterprise and determination what is a social enterprises or not. Solving this problem would have been related to more effective planning and efficient spending of public funds to promote the development of social entrepreneurship.

Social entrepreneurship can be carried out under different legal forms. A common and appropriate form (in terms of criteria for defining an enterprise as social enterprises) in Bulgarian context are the NGOs [10]. Reasons that necessitate this conclusion are as follows: 1) achieving non-profit (including social) goal is leading in this legal form and it is a legal due; 2) NGOs are legally able to make direct business that must meet strict criteria [11]; 3) under the laws revenue from economic activity should be used to achieve profit objectives of NGOs; 4) the law prohibits distribution of profit realized from business activities between founders, members, members of bodies or other related or unrelated persons in the organization (as opposed to traders). All these legally guaranteed performance objectives and activities of NGOs identify the potential of the NGOs to develop social enterprises. Next, this potential is complemented by the advantages over other operators available to NGOs in the search of the social effect:

- Their existence is justified by the needs of people in a community, they have been created by themselves and therefore people recognize them as an opportunity to tackle a social problem;
- The relationship with the com-

munity helps to identify social needs and select appropriate interventions for their satisfaction;

- They can generate additional resources and build over using a combination of public resources endowment.

The utilization of this potential must be linked to overcome some weaknesses common in NGOs – insufficient management skills, especially related to activities generating resources; as well as deficits in other important economic field skills such as marketing and sales, people management and accounting – deficits inherent in SMEs in principle and are eventually overcome.

A social enterprise could be set up as a trading company [12]. Current legislation on companies does not provide for restrictions on the purposes and the distribution of profits similar to those of NGOs. Therefore, in order to get closer to the concept of social enterprise, a company must be established either by NGOs or provide for such rules in the internal spatial documents. Recently, we are seeing interest from start-up entrepreneurs, especially young people with jobs in the business sector, environmentally friendly, energy resources or effects on health and well-being. They need to be supported to develop their ideas into a social business with special attention to limiting their private interests in favor of public socially significant goals.

Specialized enterprises and cooperatives of people with disabilities are companies that meet additional criteria concerning employment of people with disabilities [13] and should be entered in a special register at the Agency for people with disabilities. They are recognized as social enterprises by definition.

A social enterprise, acting within the discussed above legal forms, in itself does not require a special registration to be „recognized“ as such. Various laws have provided a number of additional registrations to be made depending on specific goods and services that will provide a social enterprise. Such as: registration as a mediator in employment at the Employment Agency (EA) [14], registration of providers of social services to the Agency for Social Assistance (ASA) [15], registration of hospitals in the regional health inspection [16], registration of training organizations to the National Agency for Vocational education and training (NAVET) [17].

Regardless of the legal form under which social enterprises are established, several major taxes are relevant to their activities. Revenue from economic activities of the social enterprise is subject to annual corporate tax of 10% on profits. In certain cases, the law and representative social costs of social enterprises will be subject to tax costs, withholding tax and value added tax.

Bulgarian legislation provides different categories of preferences that are relevant to the work of social enterprises. Some of them can be used regardless of the legal form. These include tax breaks for donors of certain vulnerable groups (people with disabilities, including technical resources for them, socially disadvantaged persons, children with disabilities or parents, drug addicts for their treatment) [18], tax breaks for employers of long-term unemployed or people with disabilities [19], the possibility of exemption from VAT on certain supplies of goods and services [20].

Social enterprises as NGOs registered in the public interest are exempt from paying local tax donation [21]. Social enterprises – specialized enterprises and cooperatives of people with disabilities [22], may request assignment due to their annual corporate tax and use it entirely for the integration of people with disabilities or for maintaining and creating jobs for hearing impaired people in the next two years.

There are also tax breaks for donors of social enterprises registered as public benefit NGOs, such as a hospital or a specialized company or a cooperative of disabled people [23].

National legislation regulates the possibility of "conservation" of contracts in respect of specialized enterprises and cooperatives of people with disabilities [24]. If the object of the contract is one of those in a special list of the Council of Ministers or it runs programs to protect the employment of persons with disabilities, the contracting authority is obliged to keep only specialized enterprises / cooperatives of people with disabilities the right to apply for contractors.

Existing financing mechanisms for social enterprises, along with the afore-mentioned tax benefits are [25]:

- Bank loans – extremely difficult without special exemptions for certain categories of social enterprises;
- Risk equity financing – available only to merchants, mainly small and medium enterprises. NGOs do not have access to such funding [26].
- Grant funding for the development of social enterprises – such funding has been provided under the

OP „Human Resources Development“ 2007-2013 and is expected within the next programming period. Moreover, to support to the development of social entrepreneurship in the second programming period provided means and within the framework of the Operational Program „Innovation and Competitiveness“. Agency for Persons with Disabilities supports projects of specialized enterprises and cooperatives of people with disabilities.

- Collection of fees for paid services – social enterprises normally can independently make prices. However, given the specifics of vulnerable groups they work, their ability to support themselves solely from business income is likely to be limited.

## CURRENT STATUS OF SOCIAL ENTREPRENEURSHIP

The staging of the problem of social entrepreneurship in Bulgaria is entirely determined by economic and cultural contexts in the country. It can be concluded that the concept of social entrepreneurship is a relatively young both as theory and practice. Undoubtedly there is a misunderstanding of this project, not only by society but also by the authorities of the tax and legislative regulation. In the public perception there is an underlying understanding that social entrepreneurship is a type of social labour readjustment of unprotected groups in commercial enterprises. From the legislative point of view itself Law for Non-profit, albeit allowing the conduct of business by NGOs, is not sufficient to stimulate similar initiatives. On the one hand, the lack of explicit mention of the social enterprise category leads

to a situation in which existing social enterprises are often not perceived in such a quality. On the other hand, the experience of developed countries shows that the majority of social entrepreneurs start a business with a donation of social capital in the form of networks of relationships and acquaintances linked by common values and interests. Fundraising through charity, volunteer work and corporate responsibility entails expansion of capital and thus leads to generation of new products and services [1].

Unfortunately, in Bulgaria donation is more „retail“, which does not apply tax relief. Corporate responsibility, which despite some conventions can be assigned as part of the concept of social entrepreneurship, is gaining momentum in recent years. In this direction a number of good practices can be summarized which provokes some hopes for the development of social enterprises [9, 27].

## FACTS AND FIGURES

Due to the weak development of its subject, the statistics for social enterprises in the country is not well developed. Best data is in terms of specialized enterprises for people with disabilities. Overall the society does not create sufficient and adequate opportunities for social inclusion of vulnerable groups [28]. There is lack of understanding and appropriate responses to the disadvantaged. The activities of social enterprises in Bulgaria are usually not particularly attractive to business areas due to lower earnings and slower return on investment. The most common area of activity of social enterprises in Bulgaria are the services most often social and edu-

cational. Production and trade are less developed. Businesses that deal with production, clothes, food (bread, honey), souvenirs, postcards, carpentry goods, works of applied art and more.

According to the summary data for 2012 of the National Statistical Institute (NSI) 4872 enterprises have identified themselves as „social“. 2717 of them are registered as commercial companies and cooperatives. Social enterprises as commercial companies / cooperatives have generated a total of 3,597,289 lev income and made 3,419,789 lev operating expenses. Economic areas where there are most social enterprises – companies and cooperatives are trade and repair of motor vehicles and motorcycles (964) and manufacturing (395). 2155 by those which define themselves as social enterprises are registered as NGOs with only 253 of them have generated profit from their business.

In 2013, the number of those which define themselves as social enterprises is smaller – 3612. Of these, 2046 are registered as commercial companies and cooperatives. Areas of economic activity of social enterprises – companies/cooperatives remain unchanged. 1381 social enterprises – companies/cooperatives gain. 1566 of self-identified social enterprises are registered as NGOs with only 197 of them have generated profit by business (totaling 22,116 lev). These same NGOs have generated revenues from non-profit activities totaling 179,675 Levs.

According to the Agency for Persons with Disabilities and the National Association of Employers of People with Disabilities at the end of 2012 in the register of APD are included 131 specialized enterprises



for people with disabilities. Of these, 67 are SMEs and 64 – microenterprises. The total number of employees in these amounted to about 1, 200 people, 30% of them are people with disabilities. Only 12% of the total of 465 000 persons with disabilities in the country work (according to the National Association of Employers of People with Disabilities).

In August 2015 in the register of the Agency for Persons with Disabilities there are 281 registered specialized enterprises and cooperatives of people with disabilities. They employ 3364 people with disabilities (i. e. people who have LEDC to % of disability).

Two of the schemes of the OP „Human Resources Development“ 2007-2013 [29] were aimed at social enterprises: „Social entrepreneurship – promoting and supporting social enterprises / Pilot phase /“ and „New Opportunities“. They provided support to 77 new enterprises in the social economy and 87 existing ones. As of 09.30.2013, 3681 persons have begun work in the social economy under the programme.

NSI data [30] for 2012 and 2013 show that the number of companies identified themselves as social enterprises decreased. It should be borne in mind that taking into account the activity for 2012 NSI for the first time includes a question about whether respondents identify themselves as social enterprise, without specifying the guiding criteria for self-determination. For reporting purposes in 2013 were introduced guiding criteria. Next, it must be recognized that in 2013 completed schemes of OP „HRD“ aimed at supporting social enterprises, and a study in the summer of 2014 shows that the majority of fun-

ded enterprises no longer operate [31]. This is a clear indicator that the presence only of project financing is not a good way to achieve financial sustainability of social enterprises, as well as the need for such programs to strengthen requirements to the viability of social enterprises.

The data also show that social enterprises created in the form of commercial companies and cooperatives are more like a number of NGOs. The reasons may be sought in the fact that employment programs and support agency for people with disabilities, directly related to the development of social enterprises, are mainly aimed at companies and cooperatives. Next, the lack of affordable programs for NGOs to develop capacities and skills in business planning and management also affect the numbers.

NSI provides information on the methodology for the statistical survey of social enterprises in Bulgaria, as well as specific information about those which self-identify as social enterprises on certain indicators. The survey was launched in January 2013 as the first reference year is 2012, and it is conducted with annual periodicity. The scope of the study includes all non-financial corporations and non-profit organizations in the country that have developed activities during the reporting year. The main source of information are the annual accounts of non-financial enterprises, compiling and compiling balance sheet and annual report of the non-profit enterprises. To obtain information about the number of social enterprises in Bulgaria, NSI include the following question in the annual activity reports of enterprises (AAR) in „Information for the enterprise“ (Table 1).



**Table 1.** Information for the enterprise.

Questions included in AAR-2012	Questions included in AAR-2013
<p>Section: Social focus</p> <p>Does your company carry out activities with a social purpose?</p> <p>YES / NO</p> <p>The enterprise has a social focus when:</p> <p>1. Over 50% of profits regularly invested in charitable activities:</p> <ul style="list-style-type: none"> <li>- Support for socially vulnerable groups;</li> <li>- Environmental protection;</li> <li>- Social innovation;</li> <li>- Other charitable activities with charitable nature;</li> </ul> <p>and / or</p> <p>2. Over 30% of the staff from vulnerable groups</p>	<p>Category: Social Enterprise</p> <p>Is your business a 'social enterprise'?</p> <p>YES / NO</p> <p>"Social enterprise" is defined as an operator in the social economy whose primary goal is to achieve positive measurable social impact rather than generate profit for owners or shareholders. It operates in the market by providing social services or goods to disadvantaged or used method of production of goods or services that is embedded social purpose.</p> <p>Your enterprise is "social" when:</p> <p>1. Over 50% of profits are regularly invested to achieve social objectives:</p> <ul style="list-style-type: none"> <li>- Support for socially vulnerable groups and / or individuals in isolation;</li> <li>- Environmental protection with impact on society;</li> <li>- Social innovation;</li> <li>- Implementation of other activities, production and / or production of goods and services with a social purpose;</li> </ul> <p>and / or</p> <p>2. Over 30% of staff from socially vulnerable groups.</p>

According to NSI data from the statistical survey of social enterprises, self-identified as social in 2012 for the country are 4872, the largest share of enterprises in Sofia, and the smallest in Kardzhali.

A variety of social enterprises is identified in Bulgaria [32]:

- Private commercial companies that hire people at risk and / or offer products or services for such people;
- Specialized enterprises for people with disabilities who employ these vulnerable groups;
- Non-governmental organizations that develop business within the statutory opportunity to do so or register companies for the development of such activity, providing jobs for people from vulnerable groups;
- Social enterprises to municipalit-

ies that employ people from risk groups (mostly of people with disabilities);

- Social enterprises in the form of public-private partnerships with municipalities;
- Day care centers for people with disabilities who are looking for business opportunities with the aim of socialization and adaptation to its clients;
- Social enterprise within a large industrial holding company established for vocational rehabilitation workers received the degree of injury while working at the plant.

This diversity can be perceived and conceptualized in different perspectives that could help understand the current situation in the country.

From the standpoint of the working definition, they can be organized

into two main groups: Enterprises created as a result of business initiative and operating on a market basis (as we call them „entrepreneurial“ type), or enterprises in which dominant is the social cause and profit in the background.

Entrepreneurial type:

1. Specialized enterprises for people with disabilities – the most common type, sustainable enterprises created under the Integration of Persons with Disabilities.

2. Private companies have started their own resources – several cases arising from authentic business idea. They turned out viable precisely because they do not rely on outside help.

3. Municipal specialized enterprises for people with disabilities – this is an inter-mediate type between single specialized enterprises and municipal social enterprises. They remain profit-oriented and actually work on a competitive basis, but in severe financial situations can rely on the support of the municipalities as important, and in some cases major customers.

With a dominant social cause:

1. Municipal social enterprises (or public-private partnerships involving the municipality) – the difference with the upper type (local specialized companies) is that leading to them is a social cause (eg, improved living and social status of persons from vulnerable groups – most often people with disabilities). They have no right to separate business income from their activities are not sufficient to finance themselves, ie they are supported mainly by the municipal budget and interruption of funding would not be able to continue their activities. As of this type can be assigned and the only case of an under-

taking in a big industrial giant that created it with the aim of vocational rehabilitation workers received the degree of injury while working at the plant. This specific is that the services of a social enterprise is valued, but in practice it can not offer them to external customers and generate revenues.

2. Enterprises of non-profit organizations – several major NGOs have their own businesses that offer products on the market and the profit fund their basic social activities. Legally they can function as a separate business entities registered or in the possibility of independent economic activities of NGOs.

3. Social services for vulnerable groups seeking further or sustained funding through entrepreneurship, along with employment and socialization – mostly day centers for people with disabilities who work for the inclusion of their clients through their involvement in various activities – most often produce cards martenitsi, souvenirs, sculptures and more.

In terms of business objectives, they are clearly expressed in entrepreneurs and present only an abstract in companies with leading social cause.

Other applicable typology is based on the form of assistance to vulnerable groups. From this perspective, one can distinguish four basic groups of enterprises.

- Enterprises that create employment /engage people from vulnerable groups to participate in the production process/ provision of services, ie they are not passive recipients – social enterprises in Bulgaria are concentrated primarily in this group, which is largely a result of the proliferation of specialized enterprises for people with disabilities;

- Enterprises that offer a standard product / service, but social influence – such as social assistants for sick people, even in the Roma neighborhood and others. This group is less common than the first;

- Innovative products themselves are related to social assistance or revolutionary social products - a classic example are the computers for the poor in India, an example of such products in Bulgaria are devices to help drive people with disabilities, imported and installed of social enterprise.

- Enterprises that offer free products / services or support financially vulnerable groups – the first historically established form of assistance, this possibility still exists hypothetically. Currently, this form of assistance is typical rather for border areas of social entrepreneurship – corporate social responsibility and charity.

Although the companies of the first group dominate, it should be noted that in some cases there is a combination of more than one form of the support described above. This occurs primarily in new business from an entrepreneurial type.

From the viewpoint of the development phase:

- Social enterprises which are still at the „conceptual design“ that need funding and support;

- Social enterprises which are at the beginning of its development;

- Social enterprises in the growth phase;

- Established, stable functioning social enterprises;

- Completed projects in pilot phase that concluded and established social enterprises are in the process of completion or are no longer functioning.

## CONCLUSION

The staging of the problem of social entrepreneurship in Bulgaria is entirely determined by economic and cultural contexts in the country. It can be concluded that the concept of social entrepreneurship is a relatively young both as theory and practice. Undoubtedly there is a misunderstanding of this project, not only by society but also by the authorities of the tax and legislative regulation. In the public perception there is an underlying understanding that social entrepreneurship is a type of social labour readjustment of unprotected groups in commercial enterprises. From the legislative point of view itself Law for Non-profit, albeit allowing the conduct of business by NGOs, is not sufficient to stimulate similar initiatives. On the one hand, the lack of explicit mention of the social enterprise category leads to a situation in which existing social enterprises are often not perceived in such a quality. On the other hand, the experience of developed countries shows that the majority of social entrepreneurs start a business with a donation of social capital in the form of networks of relationships and acquaintances linked by common values and interests. Fundraising through charity, volunteer work and corporate responsibility entails expansion of capital and thus leads to generation of new products and services.

Unfortunately, in Bulgaria donation is more „retail“, which does not apply tax relief. Corporate responsibility, which despite some conventions can be assigned as part of the concept of social entrepreneurship, is gaining momentum in recent years. In this direction a number of good practices can be summarized which provokes some hopes for the development of social enterprises.

\* \* \*

This report provides an analysis of the development of social entrepreneurship in Bulgaria according to: International project Social enterprise

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## ESTABLISHING AND IMPLEMENTING / INTRODUCING INNOVATIVE EDUCATIONAL PRACTICES IN TRAINING IN OCCUPATIONAL MEDICINE AND PUBLIC HEALTH

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**Abstract.** *This article presents innovative educational practices in Occupational Medicine and Public Health, integrating academic education, research and applied activities with socially beneficial practice. Based on the results of the project study at the Faculty of Public Health of Medical University – Sofia, a complete training cycle on Occupational Medicine and Public Health was developed and implemented.*

**Key words:** *innovative educational practices, higher education*

### Introduction

The educational policy of the Faculty of Public Health, Medical University – Sofia (MU Sofia), and of the established school of education and science integrates didactic, research and applied methodological approaches in the education of students in Public Health and Health Management, Health Care, Occupational Medicine and Working Capacity, Pharmaceutical Strategic Management, and others. The curricula of these more than 10 programs of the Faculty of Medicine, Medical University – Sofia, cover innovative educational

practices on Occupational Medicine and Public Health. They integrate academic education, research and applied activities with socially beneficial practice. Moreover, they provide effective solutions to challenging and often systemic social issues in support of social progress [5] and are social innovation.

The study is part of the project "EPSILON – European Partnerships for Prevention and Social Innovations for Physicians through Trainings and Science" (BG05M9OP001-4.001-0019-C02 / BG05M9OP001-4.001-0019-C01) with beneficiary – Faculty of Public Health, MU – Sofia.

In line with the objectives, requirements and recommendations of Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work, Directive 2000/78/EC relating to protection of health and safety at work of people with disabilities and workers at risk, the European Agency for Safety and Health at Work (EU OSHA), the study also addresses current acute problems in Bulgaria for people with disabilities and their employability as well as the demographic changes in the workforce.

## Scope and Methodology of the Study

The international project team consisting of experts in the field of Occupational Medicine and Public Health from Bulgaria and Italy has set the main **objective** of identifying and transferring three interrelated innovative practices aimed at improving employability and active inclusion of clearly defined target groups of children / young workers and older workers at risk into the education on occupational medicine and public health.

The objective is also in line with the National Health Strategy 2020, addressing health vulnerability issues and interventions to reduce risk factors for different age and occupational groups [2].

The **tasks** to achieve the objective of the project are related to the team-designed methodology – *an individual case study* that is typical of studies in the field of education and social sciences.

The scope of the study includes the following tasks:

1. Formulation of three innovative practices based on an analytical and critical review of accessible literary sources and the need for an educational policy with practice to solve problems posed by the Bulgarian society in the negative reproduction of labour power.

- 1.1. Study of University of Milan's models and experience with proven contribution to a better understanding of these issues, refining risk factors for socially relevant and work-related illnesses, their impact on health and the importance of children's and early working age and older workers to whom the labour power is driven both in Europe and in Bulgaria in particular.

- 1.2. The identification of the three

innovative practices is related to the association of socially significant and work-related diseases to groups of workers – children /young people /over 16/ and adults /over 54 / in four economic activities differing in nature and labour conditions, occupying a significant share of the country's economic profile.

2. Conducting and evaluating pilot editions of the three innovative practices following pilot training courses and a pilot campaign to eliminate mistakes and incompliances with the objective.

3. First-time introduction in Bulgaria, and respectively in the Faculty of Public Health, Medical University – Sofia, of training courses with curricula combining socially relevant and labor-related diseases in critical community groups and economic sectors, by a team of experts from the universities in Sofia and Milan.

4. First-time development of a module for distance learning and publication of teaching materials, a virtual library intended to broadly cover the professional community and staff. Implementation of classroom and distance learning in the curricula of the Faculty of Public Health and MU – Sofia.

5. Conducting for the first time an integrated information and education campaign based on an entirely new approach. Its aim is to promote the new training courses and recruitment of subjects without limitation of coverage by regions, by groups of socially significant diseases and with target study objects corresponding to the actual state of the workforce in the country.

- 5.1. Implementation of integrated information and educational measures focusing as a priority on target groups: children – high school students, young workers (16 – 25 years old) and adults over 54 at risk.

The methods of analysis, evaluation and applicability of the results achieved by the established and implemented innovative practices include:

1. Analytical and constructive methods for:

- the innovative practices integrated in the curriculum of the Faculty of Public Health;

- the new elements applied in innovative practices, taking into account the specific needs of young and elderly workers as well as of healthcare providers as trainees in two of the innovative programs;

- the degree of satisfaction of the needs of the target groups, the healthcare providers and the teaching staff.

2. Mathematical and statistical methods with identification of:

- a logical matrix for assessing the results achieved in each project activity against the set objectives;

- added value of the innovative practices integrated in the activity of the Faculty of Public Health;

- specifics and "bottlenecks" in the implementation of the project activities;

- recommendations for overcoming the difficulties and challenges in the subsequent, post-project implementation of the trainings and the campaign, etc.

3. Methods of cost effectiveness and efficiency with regard to the project objectives, activities and results, through:

- developing a mechanism to assess cost effectiveness and efficiency with regard to project objectives, activities and results;

- developing indicators to assess the cost effectiveness and efficiency;

- conclusions and recommendations for subsequent optimization of

the costs in the implementation of practices integrated in the Faculty of Public Health, and others.

4. Organizational and managerial methods with institutional measures guaranteeing sustainability of the introduced innovative practices.

## Results and Discussion

This publication presents the process of development of the innovative practices as well as the results of the study, which are related to the introduction of new training courses in the curricula of the Faculty of Public Health, which are introduced in a higher medical school for the first time.

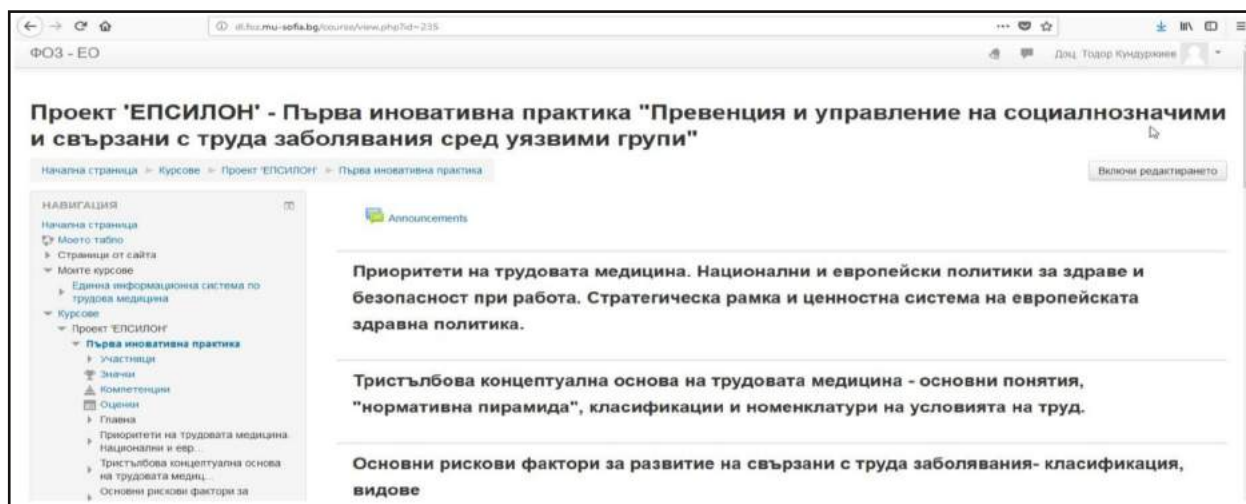
### Identified and implemented innovative practices

**The first innovative practice is a training course for the prevention and management of socially relevant and work-related illnesses of children and adults at risk.** This course teaches employees of healthcare providers (focusing on health managers, managers and directors of hospitals, etc.). The course is process oriented; it introduces new approaches and methods for the prevention and management of socially significant and work-related illnesses, both at the level of healthcare institutions and at the level of future healthcare policies. The training course targeted at managers and managing staff as providers of health services corresponds and somewhat builds on the European and national programs Horizon 2020 with a new focus on effectiveness and efficiency in the educational programs of Medical University-Sofia. The curriculum of the training course focuses on the most vulnerable groups associated with socially significant diseases



in children and young workers (16-25 years old) and adults over 54 at risk. After its implementation, the training course is conducted both in classroom and distance learning form, and for this purpose the existing system for distance learning has been upgraded and extended with a new module covering the role and significance of the risk factors in the development of socially relevant and work-related illnesses, as well as mastering approaches for organizing, conducting and analyzing health pro-

motion programs for the prevention of socially significant and work-related illnesses. The first results are related to a modern understanding of the nature and role of the risk factors in the development of socially relevant and work-related illnesses, a competent analysis of the health status of vulnerable groups of working population, taking adequate management decisions for systemic control of risk factors by organizing, conducting and managing health-promoting programs – fig.1.



**Figure 1.** View of the Moodle Distance Learning System in the first innovative practice

The second innovative practice is a training course for prevention of socially significant and work-related illnesses for children and adults at risk, aimed at specialists who participate in preliminary and periodic preventive medical examinations and work as healthcare providers. At present, this issue is covered by the academic curriculum of postgraduate students in Occupational Medicine and Master's degree students in Occupational Medicine and Work Capacity at the Faculty of Public Health, Sofia. However, practicing physicians who have already completed their higher education and have acquired various specialties

are not systematically covered by this training course. This training is also conducted in a classroom and distance learning form, and for this purpose the existing system for distance learning has been upgraded and extended with a new module. The educational policy of the Faculty of Public Health aims at systematic and targeted coverage of the practicing physicians on public health issues by extending its scope to the Medical Universities in the country in collaboration with the structures of the labor inspectorates, the departments of the NSSI and the Occupational Medicine Office. The expansion of practical skills and the-



oretical knowledge of a wide range of doctors – specialists and non-specialists conducting preliminary and periodic medical examinations, of healthcare providers – medical establishments of different categories as well as of GPs inevitably extend the scope of this innovation to the specific topics of prevention of occupational and work-related illnesses and socially significant diseases. The program scheme is bound to completing the cycle of correct choice as a source of in-

formation for the health of each worker – the electronic integrated health record through the creation of multidisciplinary teams for carrying out the periodic medical examinations of the main risk groups based on the risk assessment analysis and the previous health indicators to an objective analysis of the relation "point prevalence – incidence with temporary disability – incidence with permanent disability"; and with health and economic indicators of incidence damage.



**Figure 2.** View of the Moodle Distance Learning System in the second innovative practice

The third innovative practice, which has already been adapted, piloted and implemented in the Faculty of Public Health is an Integrated National Information and Education Campaign to promote health literacy of target groups of children and adults at risk and the promotion of a healthy lifestyles and work.

The University of Milan has developed the three innovative practices for a more limited range of target groups. The Faculty of Public Health has adapted and expanded the models/practices by focusing them on the prevention of the exceptionally vulnerable target groups in Bulgaria – children, in view of the legal changes for dual training,

young workers (16 – 25 years old) and older workers over 54 at risk.

The conclusions and recommendations from the evaluation of the results with regard to the applicability of the innovative practices are related to the new training courses introduced in the Faculty of Public Health in Sofia, the readiness for new programs and topics for defense of masters and doctoral theses with the practical aim of **promoting the accessibility, flexibility and openness of training in higher medical schools as well as for active inclusion with a view to promoting equal opportunities and real employability of the risk groups in the society.**

The unity of academic education, research and applied and methodological activities with socially beneficial practice, achieved by the established and implemented innovative practices, provide a modern response to the challenges to the development of a new, socially committed healthcare system with a view to protecting health, ensuring safety and creating sustainable working capacity for reproduction of the labour power, conscious and purposeful development of a good and humane corporate policy, preventing professional risks and improving working conditions. At the same time, these practices comply with the requirements of the EUROSTAT Directorate-General for Education, Health and Safety and the Faculty of Public Health's permanent working group on Occupational Health and Safety to update and refine the methodology for education, evaluation and analysis of consolidated data for public and occupational health.

## Conclusion

The nation's health issue is particularly sensitive in the face of a demographic, financial and economic crisis. The most vulnerable groups pay the highest social cost in these conditions – deterioration in quality

of life and quality of working life [2, 4]. Increasing the capacity and motivation of medical professionals (focusing on primary healthcare workers) through trainings and expansion of the competencies for counseling, early identification of risks and the need for early intervention is a key measure that would have a significant impact on the prevention of vulnerable groups of workers from socially significant and work-related diseases, to restrict the dissemination of illnesses and health risk factors.

The innovative educational practices on Occupational Medicine and Public Health established and introduced in the curricula of the Faculty of Public Health, Medical University – Sofia, are an example of the implementation of a complex and integrated approach for the prevention and management of social and work-related diseases by putting into operation and ensuring that all resources that the state and society can provide – educational, health, social, economic and political [3] – are coordinated and unified. The educational policy and school for education and science of the Faculty of Public Health, Medical University – Sofia, is in line with the modern trends in the suitability of educational systems [1].

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## METABOLIC SYNDROME AND ITS COMPONENTS AMONG WORKERS IN FOUR ECONOMIC SECTORS IN BULGARIA\*

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**Abstract.** *The project EPSILON – European Partnerships for Prevention and Social Innovations for Physicians through Trainings and Science, funded under the Operational Program “Human Resources Development”, allowed studying 150 employees from two age groups in four sectors of the economy (construction, clothing industry, hairdressing and cosmetics, and healthcare). Within the study, the prevalence of metabolic syndrome among 115 of the participants was analyzed. It was found that nearly 1/3 of the participants met the criteria for the diagnosis of the metabolic syndrome. The construction sectors (70.97% of the cases) and the clothing industry (29.03% of the cases) were identified as risk sectors, while no such cases were found in healthcare and beauty industry. Additional studies are needed on the relationship between metabolic syndrome, cardiovascular risk and occupation.*

**Key words:** *metabolic syndrome, EPSILON, occupation, diabetes*

### Introduction

Chronic non-communicable diseases are a major challenge to public health because of the significant socio-economic consequences they cause (MS, 2013: 46). This group also includes cardiovascular diseases and type 2 diabetes, the prevalence of which is already pandemic (Borisova et al., 2013: 6-7, Ford, 2004: 2444-2449). The costs ranking places diabetes mellitus on the third position, after cancer and cardiovascular diseases, the expenditures of diabetes mellitus patients are over 2.5 times higher compared to their healthy peers (Tankova, 2013: 56-57). Diabetes mellitus is an independent high-risk factor for cardiovascular morbidity (Borisova et al., 2013: 7). A significant proportion of people suffer from the disease without being diagnosed and treated and as a result they develop micro, macro-vascular and neurological complications of diabetes, leading to blindness, chronic renal failure, diabetic foot, amputation, myocardial infarction, cerebrovascular

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disease (Tankova, 2013: 56-57). A number of lifestyle factors increase the risk of cardiovascular morbidity and diabetes, and a timely adequate change is often sufficient for their effective management (Konsulova, 2014: 201-207; Tankova, 2018: 6-18). Obesity and type 2 diabetes are part of a metabolic syndrome that combines risk factors for cardiovascular mortality (arterial hypertension, dyslipoproteinemia, type 2 diabetes mellitus, abdominal obesity, etc.) (Alberti, 2005: 1059-1062; Alberti, 2009: 1640-1645; Pascot, 2000: 1126-1135). Metabolic syndrome includes the following components: visceral obesity – waist circumference for men over 94 cm, for women – over 80 cm; and at least two of the following components: fasting blood sugar over 5.6 mmol/l, blood pressure above 130/85 mmHg, triglycerides – above 1.7 mmol/l, HDL cholesterol – less than 1.0 mmol/l for men and under 1.3 mmol/l for women. Identifying people at increased risk for disease development is facilitated by existing non-invasive methods that are easy to apply and are perceived positively by most people. In the work environment where time is limited, and often there is no opportunity for more in-depth reviews, these methods are particularly adequate. Overweight and obesity, and above all abdominal (visceral) type obesity, are associated with an increased risk of developing type 2 diabetes mellitus (Alberti, 2005: 1059-1062; Alberti, 2009: 1640-1645; Borisova et al., 2015: 82-88, Rayanova, 2014: 139-143). The metabolic syndrome is also associated with other diseases, such as chronic lung diseases (Lozanov, 2011: 140-148). The work environment and the occupation often lead to an increased risk for the development of various chronic non-communicable diseases including type 2 diabetes mellitus, whose professional

aetiology is difficult to prove (Hedén Stahl, 2014: 674-680). There are questionnaires for assessing the risk of developing diabetes mellitus, such as FINDRISK (The Finnish Diabetes Risk Score) (Janghorbani, 2013: 283-292). In the framework of Project EPSILON – European Partnerships for Prevention and Social Innovations for Physicians through Trainings and Science financed under the Operational Program "Human Resource Development" the prevalence of metabolic syndrome was studied in four economic sectors (construction, clothing, hairdressing and cosmetics, and healthcare), among two age groups of employees (up to 25 and over 55). The study of serum lipids and fasting glycemia – a common screening for diabetes in the annual prophylactic examinations (Prodanova et al., 2012: 14-17), organized by the Occupational Health Services, enabled the identification of workers meeting the criteria for the diagnosis of metabolic syndrome. A number of factors in the work environment can accelerate the development of type 2 diabetes, which are both lifestyle-related, such as the eating behavior, sports and heredity, some of which are related to the abdominal obesity (Alavi et al., 2015: 34-40; Maty et al., 2005: 1274-1281). In the framework of Occupational Health Surveillance carried out by the Occupational Health Services, identifying people with high cardiovascular risk is essential for their inclusion in adequate prophylactic programs aimed at long-term sustainable work ability and health. The current comparative study of two age groups employees, working in four economic sectors, funded under the Human Resources Development Operational Program, EPSILON – European Partnerships for Prevention and Social Innovations for doctors through training and science aims at identifying links



between occupational employment and metabolic syndrome.

### The aim

The aim of the study is to identify the prevalence of metabolic syndrome among two age groups of workers, employed in four sectors of the economy, thus identifying the hazardous occupations within the EPSILON Project and to determine the need for additional preventive measures.

### Materials and Methodology

A total of 115 respondents (60.87% male and 39.13% female) participated in the study, 26% aged up to 25 years and 74% over 55 years. Metabolic syndrome includes the following components: visceral obesity – waist circumference for men over 94 cm, for women – over 80 cm; and at least two of the following: fasting blood sugar over 5.6 mmol/l; blood pressure – above 130/85 mmHg, triglycerides – above 1.7 mmol/l; HDL – cholesterol – less than 1.0 mmol/l for men and less than 1.3 mmol/l for women. The diagnosis metabolic syndrome is accepted at the presence of visceral obesity and at least two other compon-

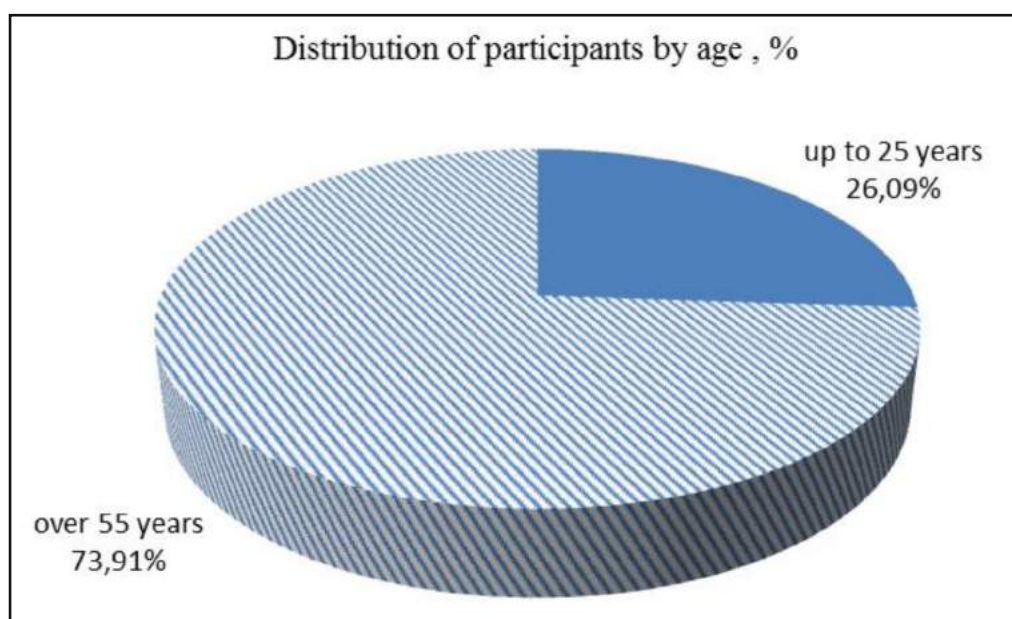
ents of the syndrome (Andreeva-Gateva, 2014: 168-185; Tankova, 2013: 482). The risk of developing Type 2 diabetes mellitus increases with age and a screening for early diagnosis is recommended (Chakarova et al., 2014: 28-46, Finnish Diabetes Association, 2003: 89 (Vandersmissen, 2015: 587-591) The prevalence of essential arterial hypertension in the Bulgarian population is significant, which leads to a higher probability of the presence of this component of the metabolic syndrome (Borisova et al., 2015: 76-81).

The statistical analysis of the results was done by SPSS (Tsacheva et al., 2015: 183).

### Results

In the framework of the project EPSILON – European Partnerships for Prevention and Social Innovations for Doctors through Trainings and Science, funded under the Human Resource Development Operational Program, the prevalence of metabolic syndrome was studied among 115 employees from two age groups in four economic sectors. The distribution by age of the participants is given in Figure 1. Only a quarter of them are

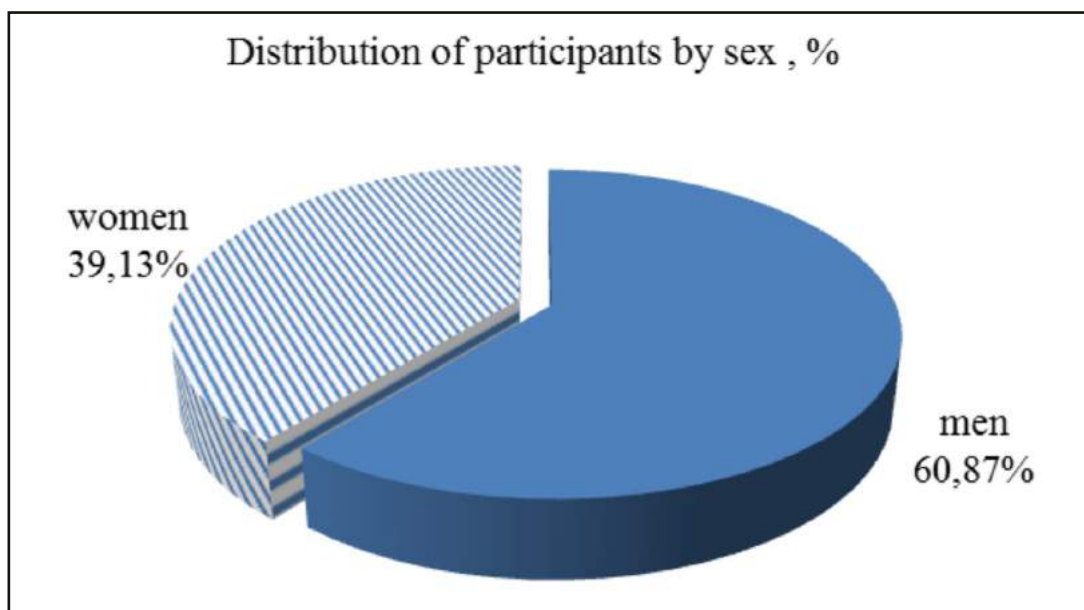
young workers, up to 25 years of age, the likelihood of developing metabolic syndrome in them is low.



**Figure 1.**  
Distribution of participants by age, %

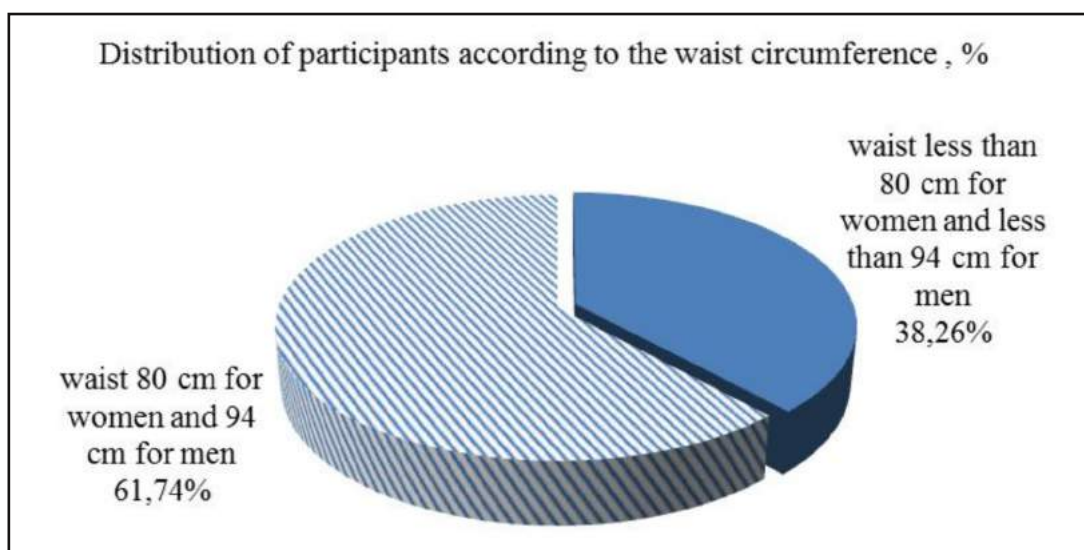


The majority of those surveyed were men with an expected higher cardiovascular risk, Figure 2.



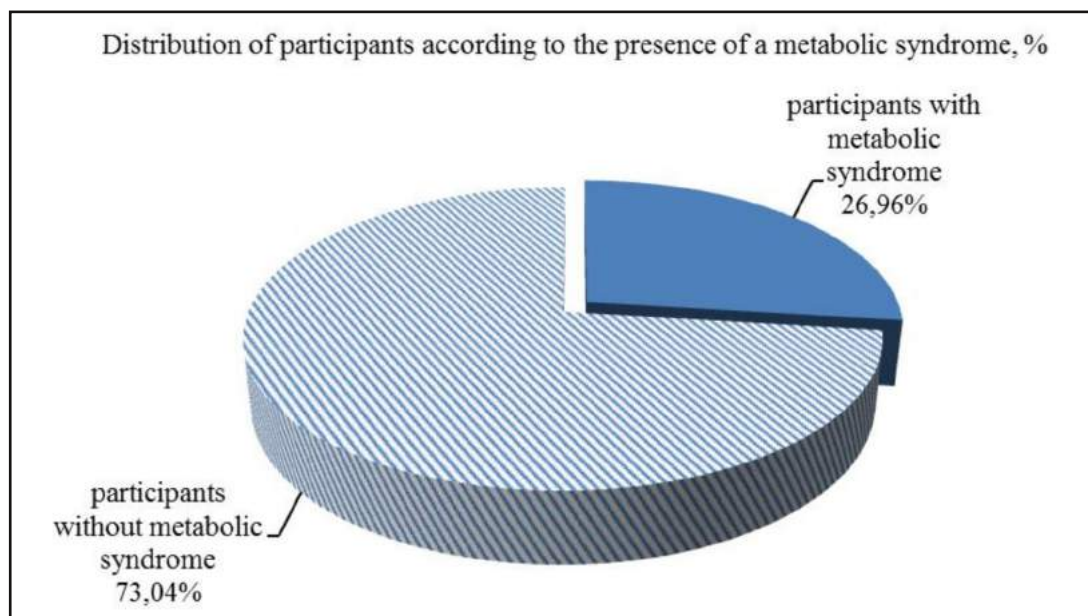
**Figure 2.** Distribution of participants by sex, %

The distribution of workers according to their waist circumference is shown in the following figure (Figure 3).



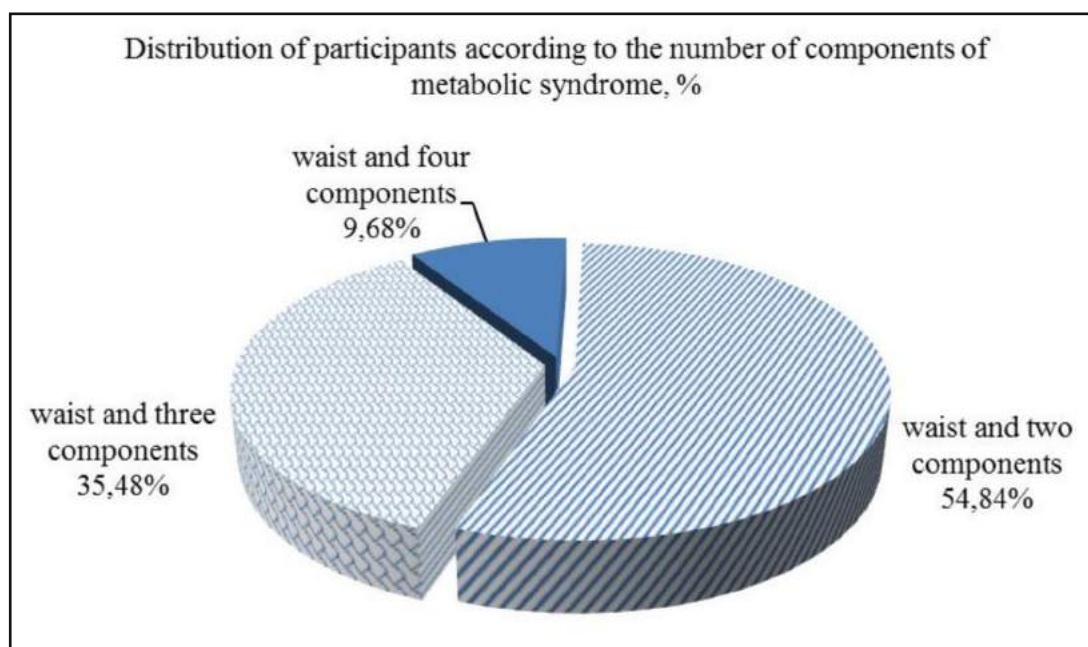
**Figure 3.** Distribution of participants according to the waist circumference, %

Over one-quarter of the respondents covered the criteria for metabolic syndrome, which determines a high cardiovascular risk in them and the need for preventive measures and treatment (Figure 4).



**Figure 4.** Distribution of participants according to the presence of a metabolic syndrome, %

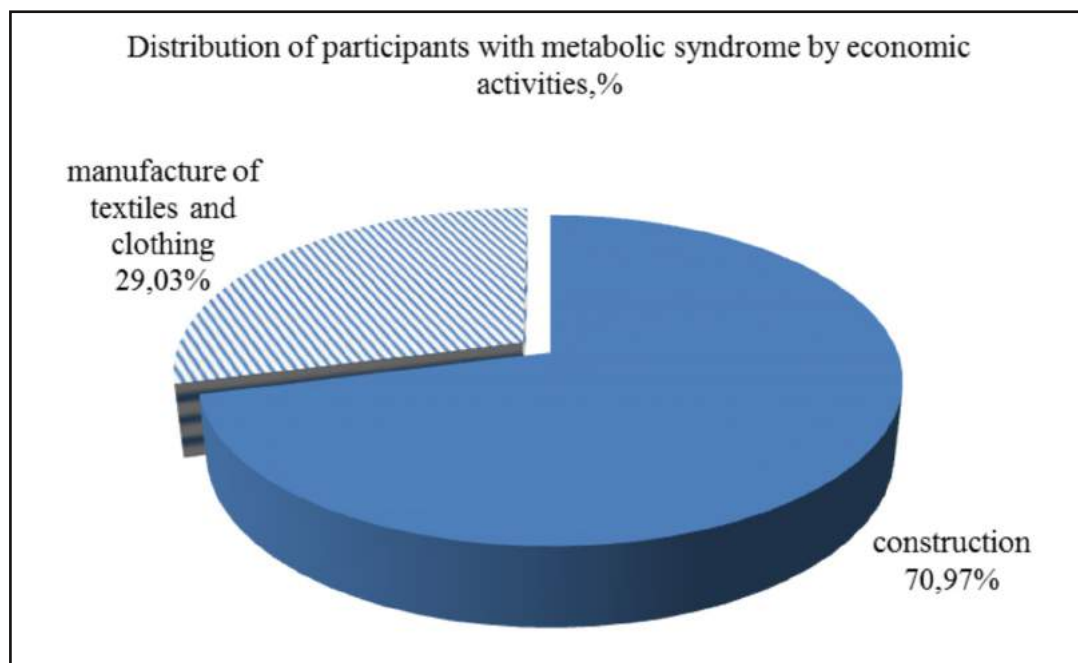
Men with metabolic syndrome are significantly more than women, 67.74% of all identified. On the other hand, 60% of women and 63% of men have abdominal obesity, related to metabolic syndrome. The distribution of participants with metabolic syndrome according to the number of components available to them is shown in Figure 5.



**Figure 5.** Distribution of participants according to the number of components of metabolic syndrome, %

Work environment and hazards, typical of the studied economic sectors, such as shift work, night shifts, prolonged sitting, and unhealthy eating behavior, often under poor hygienic conditions, stress and immobilization in some profes-

sions explain the higher incidence of metabolic syndrome, (Figure 6). A change in lifestyle and adequate management of occupational risk factors is needed. The prevention of chronic non-communicable diseases should start as early as the start of the workers' professional road, which is particularly important for the construction and clothing industry.



**Figure 6.** Distribution of participants with metabolic syndrome by economic activities,%

## Conclusion

Significant numbers of people with metabolic syndrome and correspondingly high cardiovascular risk have been identified, requiring immediate treatment and control measures. Timely preventive measures applied to these workers are often sufficient to prevent the development of cardiovascular complications and should be part of prophylactic programs at the workplace (Alberti et al, 2007: 451-463). Further research is needed to identify the risky professions.

The present data draws attention to those employed in the construction and clothing. Causes of this phenomenon may also be some of the typical working conditions in these sectors of the economy, such as occupational stress, night shifts, monotony, sedentary work in clothing, unhealthy and irregular eating, etc. Cardiovascular diseases are a major problem of the contemporary health-care, their prevention from the young people career start is a guarantee for a healthy, efficient and effective workforce and in adulthood.

## Notes

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## BULGARIAN ADDED VALUE TO ERA

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### CARDIAC INVOLVEMENT IN MUSCULAR DYSTROPHIES

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**Abstract.** Muscular dystrophies are rare genetic diseases, affecting the peripheral muscles and frequently the heart.

180 patients with seven, genetically verified muscular disorders were evaluated for cardiac involvement. A clinical examination, ECG, and heart ultrasound were conducted.

Highest frequency of left ventricular systolic dysfunction was observed in patients with dystrophinopathies (24% in Duchenne muscular dystrophy and 50% in Becker). Rhythm and conduction disturbances were most common in myotonic dystrophy (55%). Impairment in the diastolic function and subclinical ECG changes were observed throughout the evaluated cohort.

Pathological ECG changes, arrhythmias, conduction defects and cardiomyopathies were observed in the

evaluated patients with muscular dystrophies. An early identification and follow up is crucial for timely and proper management. An increased awareness among cardiologists is needed.

**Key words:** hereditary muscle diseases, cardiac involvement, cardiomyopathy, arrhythmia

#### Introduction

Muscular dystrophies are a group of genetic disorders, caused by mutations in different genes [3, 41, 46, 50]. A wide spectrum of proteins, participating in the structure and function of muscle fibers are involved. The skeletal muscles are predominantly affected, but cardiac manifestations are common. The myofibrils are replaced by adipose and connective tissue, which

reduces their mass and causes muscle weakness [18]. The same process is seen also in the myocytes, which leads to fibrosis and impaired cardiac functions [15]. The cardiac manifestations present mainly with dilated and hypokinetic cardiomyopathy in dystrophinopathies, Emery-Dreifuss muscular dystrophies, and limb girdle muscular dystrophies; hypertrophic in Friedreich ataxia, mitochondrial diseases; and restrictive in myofibrillar myopathies. Rhythm and conduction disturbances constitute a major phenotype in myotonic dystrophies [1]. A precise characterization of cardiac involvement is crucial for proper management and improved prognosis. An early initiation of treatment with ACE inhibitors and beta blocker slows down the adverse left ventricular (LV) remodeling and the progression to dilated cardiomyopathy in dystrophinopathies [4, 8, 10, 11, 41]. A pacemaker or ICD implantation prevents complications from life threatening conduction defects and arrhythmias [6, 14, 20, 24, 30, 53].

The aim of our study was to characterize cardiac involvement in a

group of patients with distinct hereditary muscular disorders.

### Patients and Methods

One hundred and eighty patients with hereditary muscular diseases were included in the study. The diagnosis was defined through DNA analysis. Fifty three patients with dystrophinopathies were evaluated – 45 with Duchenne muscular dystrophy (DMD) and 8 with Becker muscular dystrophy (BMD), 42 patients with Myotonic dystrophy type 1 (MD1), 21 patients with distal myopathies (DM), 13 patients with limb-girdle muscular dystrophies (LGMD) -7 with LGMD2G and 6 with LGMD2C, 34 patients with facio-scapulo-humeral muscular dystrophy (FSHD) and 17 patients with mitochondrial myopathies (MM). The DM cohort included 12 patients with GNE myopathy, 2 with vocal cord and pharyngeal weakness, one with desminopathy and 6 with filamin C deficiency. The baseline clinical characteristics are summarized in Table 1.

**Table 1.** Baseline clinical characteristics according to the disease

Diseases*	DMD	BMD	MD1	DM	LGMD	FSHD	MM
Patients, n	45	8	42	21	13	34	17
Age, years	11±4	28±10	38±15	47±16	28±9	37±15	42±16
Males, n (%)	45 (100)	8 (100)	15 (35.7)	13 (61.9)	9 (69.2)	15 (44.1)	7 (41.2)
Height, cm	142 ±20	173±5	168±8	169±7	171±7	167±9	166±10
Weight, kg	43 ±17	68±10	63±11	77±17	66±17	69±18	63±15
HR, beats/min	97±16	73±12	74±15	77±16	83±15	76±12	73±13
SBP, mmHg	114± 11	120±12	112±13	128±16	118±8	116±9	120±12
DBP, mmHg	75± 5	78±8	68±10	82±12	76±6	74±9	80±7

Table legend: HR – heart rate; SBP –systolic blood pressure; DBP – diastolic pressure

\*Abbreviations of muscular dystrophies are given in the text – section “Patients and methods”

A comprehensive clinical assessment including patients' history and physical exam was conducted. Twelve lead electrocardiograms (ECG) were performed. An ECG was considered abnormal when it revealed one or more of the following signs: different from sinus rhythm, atrioventricular (A-V) block, all types of intraventricular block: left bundle branch block (LBBB), right bundle branch block (RBBB), left anterior fascicular block (LAFB), left posterior fascicular block (LPFB), low or high voltage of the QRS complex, deviations in the ST segment and T wave, pathological Q wave or a prolongation of QT interval.

Heart ultrasound, including 2D, M-mode, spectral and color Doppler techniques, pulse wave tissue Doppler imaging (TDI) was conducted. The echocardiographic studies were performed and recorded, and all the measurements were done in accordance with internationally approved standards [29]. The assessment of the left ventricle (LV) included end diastolic and end systolic dimension (EDD, ESD) and volumes (EDV, ESV), fractional shortening (FS) and ejection fraction (EF). The EF was measured using the Simpson method and for abnormal, values below 55% were accepted. TDI measured septal and lateral mitral annular myocardial systolic velocity (s) were used for LV longitudinal function assessment. We used the Z score in patients under the age of 16 for the evaluation and comparison of the LV dimensions. Pathological Z score > 2 was accepted and body surface area (BSA) was taken in consideration [32]. The indices used for LV diastolic function assessment were transmitral maximal early diastolic velocity (E wave), maximal late diastolic velocity (A wave), E/A ratio, deceleration time (DT). Pulsed TDI was used to measure early and late mitral annular diastolic velocities (e'

and a') at septal and lateral mitral valve annulus, following which the E/e' ratio was calculated, where e' is the average value of septal and lateral e'. The severity of the diastolic dysfunction was defined as per the recommendations of the American Society of Echocardiography [36]. Right ventricular (RV) assessment was performed in accordance with the recommendations [25].

### Ethics approval

The study was approved by the Ethics Committee of the Medical University in Sofia, Bulgaria. Before initiating this study, a written informed consent was obtained from all patients or for children <18 years from their parents. The study protocol conforms to the ethical guidelines of the 1975 Declaration of Helsinki (6<sup>th</sup> revision, 2008) as reflected in a priori approval by the institution's human research committee.

### Results

#### Duchenne muscular dystrophy

Heart failure symptoms were reported in 2 patients (4,4%) at the age of 16 and 20 years respectively. Specific ECG changes – tall R wave in V1, V2 with pathologic R/S ratio and deep Q waves in I, II, III, aVL, aVF, V5, V6 were registered in 41 (91,1%) of the evaluated patients. No rhythm and conduction abnormalities were registered on ECG.

Echocardiography revealed normal dimensions, volumes, EF and FS (Table 2) in the group as a whole. After dividing the patients in different age groups we found increased ESD (z-score > 2) in 6 (13,3%) patients in the age groups of 16, 21 and 23 years and increased EDD in one 16 years old patient. In 10 (22,2%) patients we observed FS < 30% and EF < 55%. i.e. LV systolic dysfunction



tion – mild (EF 45%-55%) in 7 patients, moderate (EF 35% -45%) in 2 and severe (EF<35%) in one patient. LV systolic dysfunction was present in all the patients after the age of 15 (Table 3). Regional wall motion abnormalities (inferolateral hypokinesia) were observed in 5 (11,1%) patients (one patient at the age of 15 and 4 at the age of 16 years), all with LV systolic dysfunction.

Abnormalities in some of the parameters of LV diastolic function were present. The patients were divided in 4 age groups – 1<sup>st</sup> (6-9 years), 2<sup>nd</sup> (10-13 years), 3<sup>rd</sup> (14-18 years), 4<sup>th</sup> (19-23 years). Diastolic function abnormalities were found in 24 (53,3%) patients, including all the patients with systolic dysfunction (Table 4). Reduced E/A ratio was present in all 13 (28,9%) patients from the 3<sup>rd</sup> and 4<sup>th</sup> age groups. Reduced early diastolic velocities (e') at the lateral mitral annulus were re-

gistered in 24 (53,3%) patients from the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> groups and at the septal annulus in 4 (8,9%) patients from the 4<sup>th</sup> group. Impaired relaxation was the predominant type of LV diastolic dysfunction. A restrictive filling pattern with increased E/e' ratio>15 was found in two patients – one with severe LV systolic dysfunction, the other with LV hypertrophy. In 7 (16%) patients reduction of tricuspid annular systolic velocity (s'<10 cm/s) was observed.

### Becker muscular dystrophy

Heart failure symptoms and signs were not observed. Left ventricular systolic dysfunction was established in 4 patients (Table 2). Mild reduction of EF was measured in two patients, 50% and 52% respectively, in one – moderate reduction with EF 39% and in another one severe with EF 26% was found.

**Table 2.** Echocardiographic findings according to the disease

Diseases*	DMD	BMD	MD1	DM	LGMD	FSHD	MM
LVEDD, mm	39,8±6,7	50,8±5,1	44,6±4,5	48,0±5,0	44,2±4,0	46,1±4,4	46,0±4,6
LVESD, mm	27,3±7,1	37,8±6,8	28,3±4,0	32,1±5,7	27,5±3,0	29,2±4,1	28,9±4,9
LVEF, %	59,3±9,3	52,4±14	64,1±6,1	61,5±8,2	37,5±5,0	63,2±6,2	66,8±5,7
LVFS Teih, %	32,2±6,7	26,4±6,3	35,9±5,9	33,9±6,3	66,7±3,3	36,6±4,9	37,8±6,0
sseptal, cm/s	8,6±1,3	8,9±1,6	9,8±2,2	9,5±2,9	9,9±1,6	9,2±1,3	9,1±1,8
s lateral, cm/s	8,9±1,9	11,8±3,1	11,1±3,1	10,3±4,2	11,5±2,4	11,4±3,1	10,6±2,5
E/A ratio	1,7±0,5	1,8±0,4	1,4±0,5	1,1±0,3	1,6±0,5	1,3±0,4	1,6±0,8
DT, ms	160±29	180±35	209±40	220±40	186±25	201±40	205±49
e'septal, cm/s	12,6±3,7	12,0±3,2	12,6±4,5	11,0±2,5	13,5±2,3	12,4±3,1	11,1±2,4
e' lateral cm/s	15,9±4,9	18,5±6,5	14,5±4,5	13,1±4,2	15,1±3,0	15,1±4,5	13,7±4,5
E/e'av. ratio	6,8±2,0	5,4±1,8	5,3±1,2	5,8±1,1	5,5±1,0	5,3±1,0	5,9±1,6
RV, mm	18,4±4,7	25,9±3	21,3±3,3	23,5±5,1	23,2±3,7	22,5±3,2	24,2±2,6
TAPSE mm	22,4±3,5	21,4±2,5	22,4±3,5	21,1±3,0	23,1±4,0	21,3±2,3	23,4±3,2
s (RV) cm/s	13,8±2,4	11,8±1,3	13,8±2,4	13,0±1,1	12,2±2,3	13,2±1,7	12,7±3,1

Table legend: LVEDD – left ventricular end-diastolic diameter; LVESD – left ventricular end-systolic diameter; LVEF – left ventricular ejection fraction; LVFS – left ventricular fractional shortening; DT – deceleration time; RV – right ventricle; TAPSE – tricuspid annular plane systolic excursion

\*Abbreviations of muscular dystrophies are given in the text – section "Patients and methods"

**Table 3.** LV systolic function parameters in relation to the age

Age / years	N	HR beats/ min	EDD mm	EDD z- score	ESD mm	ESD z- score	FS Teih %	EDV ml	ESV ml	EF Sim %
6	3	115	36	0,2	22	-0,1	38	45	17	61
7	4	108	38	0,4	25	0,5	35	55	23	58
8	5	90	34	-1,1	22	-0,6	31	49	19	61
9	5	90	36	-0,7	24	-0,2	33	54	18	66
10	6	97	38	-0,4	25	-0,3	36	83	36	57
11	6	87	38	-0,9	25	-0,2	33	64	24	61
12	1	88	41	-0,4	26	-0,4	38	76	23	65
13	2	108	42	-0,9	26	-1,8	36	63	25	61
14	2	89	41	-0,6	28	0,3	32	62	23	64
15	2	99	39	-1,9	28	-0,03	28	68	30	53
16	4	101	53	2,2	43	4,5	20	137	83	41
17	1	88	46	0,19	34	1,77	27	96	48	54
20	2	107	38	-2,4	26	-0,93	33	69	30	62
21	1	118	45	-0,12	37	2,75	18	75	42	44
23	1	87	5	1,56	40	3,2	23	110	56	48

HR – heart rate; EDD – end-diastolic diameter; ESD – end-systolic diameter; FS – fractional shortening;  
EDV – end-diastolic volume; ESV – end-systolic volume; EF – ejection fraction

**Table 4.** LV diastolic function parameters in relation to the age

Age/Years	6-9	Normal values	10-13	Normal values	14-18	Normal values	20-23	Normal values
Number	17		15		9		4	
E, cm/s	100±4,7	94±14,8	87±5,3	94±16	84±7,5	90±17,8	63±16,9	60-80
A, cm/s	57±7,8	49±12,5	59±5,6	49±13,8	58±7,3	45±13,2	57±12,2	19-35
E/A	1,9±0,4	2,0±0,5	1,5±0,2	2,0±0,6	1,6±0,1	2,1±0,7	1,2±0,5	1.5±0.4
DT, ms	147±9		185±28		166±24		195±34	166±14
e' septal cm/s	14,1±1,1	13,4±1,3	11,7±2,1	14,5±2,6	12,0±3,2	14,9±2,4	9,0±2,7	15.5±2.7
e' lateral cm/s	18,5±2,5	17,2±1,3	13,5±4,3	19,6±3,4	14,7±2,3	20,6±3,8	12,3±1,5	19.8±2.9
E/e'	6,6±0,9	6,5±1,8	7,2±1,4	5,8±1,4	7,0±2,1	5,6±1,4	8,2±3,7	

DT – deceleration time

The most severe LV systolic dysfunction was found in the youngest patient – 15 years old. Reduced septal mitral annular systolic velocities were measured in 3 patients and lateral in 2 patients. There was no data for any RV involvement.

### **Myotonic dystrophy type 1**

Pathological ECG changes were registered in 23 (55%) patients with MD1 – sinus bradycardia in 3 (7,1%), atrial fibrillation in 1 (2,4%), A-V block 1st degree in 7 (16,7%), LBBB in 4 (9,5%), incomplete RBBB in 1 (2,4%), LAFB in 4 (9,5%), nonspecific intraventricular delay in 10 (23,8%) and repolarization abnormalities in 4 (9,5%) patients.

In two patients (5%), mild LV systolic dysfunction was observed. These patients demonstrated LBBB on the ECG. Borderline septal annular systolic velocities (s wave) ( $7,1 \pm 1,1$  cm/s) were established in 11 patients (26,2%) and slightly reduced lateral ( $7,7 \pm 1,3$  cm/s) in 12 patients (28,6%). Mild symmetric LV hypertrophy was observed in 3 (7,1%) patients, two of whom with history of arterial hypertension (AH). Impaired relaxation was found in 11 patients (26,2%). Reduced early septal diastolic velocities ( $7,9 \pm 1,5$  cm/s) and lateral ( $8,3 \pm 1,5$  cm/s) were revealed. Mitral valve prolapse was found in 2 patients without significant regurgitation. Pathological RV changes were not established.

### **Distal myopathies**

Pathological ECG changes were registered in five (23,8%) patients with DM – a non-specific prolongation of the QRS complex (up to 112 msec) in 3, in one – LAFB and in the other – A-V block 1<sup>st</sup> degree. Heart ultrasound-

demonstrated normal LV dimensions, volumes, FS and EF as a whole. In 5 (23,8%) and in eight (38,1%) patients respectively, reduced septal and lateral annular systolic myocardial velocities were observed. A diastolic dysfunction was found in eleven (52,4%) of the examined patients, but we should take into account the presence of concomitant AH in six patients and diabetes in one patient. No deviations in the parameters for RV function were established.

### **Limb-girdle muscular dystrophies**

Pathological ECG changes were observed in 3 (23,1%) patients with LGMD- tall R wave in V1, V2 with a ratio of R/S > 1 similar to the changes in DMD. A subclinical LV longitudinal systolic dysfunction was observed in 3 patients (23,1%) and a mild LV diastolic dysfunction in one.

### **Fascio-scapulo-humeral muscular dystrophy**

Pathological ECG changes were registered in 10 (29,4%) patients with FSHD muscular dystrophy: a nonspecific intraventricular delay (QRS 100-120 msec) in 7, in one – negative T waves in V1-V3, in two – premature supraventricular contractions and in one – premature ventricular contractions. In ten (29,4%) patients, a reduced LV longitudinal systolic function was observed and in nine (26,5%) a mild LV diastolic dysfunction.

### **Mitochondrial myopathies**

Pathological ECG changes were established in 4 (23,5%) patients with MM: in one – sinus bradycardia (heart rate of 45 beats/min), in 3 – a non-

specific intraventricular delay. A reduced EF was not observed. Reduced LV longitudinal systolic function was established in 8 (47,1%) patients. LV diastolic dysfunction was found in nine (52,9) patients.

## Discussion

DMD is the most common and severe muscular dystrophy with early loss of ambulation, restrictive ventilator failure and dilated cardiomyopathy. The reduction of respiratory-related deaths due to nocturnal ventilation and spinal stabilization has contributed to the increase of DMD cardiomyopathy due to the increased survival and advanced age of patients with DMD [8, 12]

The results from our study revealed cardiac involvement as early as 10 years with increasing frequency and severity with age. Heart failure symptoms were uncommon, maybe because of loss of physical activity. ECG changes were registered early in the course of the disease, which is in line with previous reports [26, 47]. The most common findings were the tall R waves in V1-V3 leads with pathologic R/S ratio. It is supposed that this is due to the loss of electrical forces as a result of fibrosis in the posterior basal wall. As the fibrosis expands to the lateral wall, deep Q waves appear in I, AVL, V6 and more rarely in II, III, AVF and anterior (V1-V4) leads [43, 52]. Our study revealed normal values of EF and FS in the evaluated group as a whole, due to the fact that half of the patients were under the age of 10 and another one third under the age of 15 years. We found increased end systolic dimensions and volumes and a smaller increase in the end diastolic parameters in the patients with reduced left ventricular EF and FS.

Changes in the diastolic function preceded the systolic dysfunction. The first signs of LV impairment were the reduced early diastolic velocities at the lateral mitral valve annulus after the age of 10, i.e. preceding the systolic dysfunction [51]. This finding correlates with histological data showing myocyte degeneration and replacement fibrosis and fatty tissue at the inferior-lateral wall of the LV [18]. These data is confirmed by CMR in DMD patients [35]. According to previous reports, reduced myocardial velocities in DMD patients are found as early as 8.8 years of age [20]. Other authors describe reduced diastolic myocardial velocities at inferolateral and anterolateral LV wall earlier, in patients at the mean age of 7,9 years [33, 34]. These studies show the presence of subclinical LV impairment, before the reduction of EF and FS. The reduced early diastolic myocardial velocities may be used as an early marker of cardiac involvement and can draw our attention to close follow-up. This is important because timely initiation of treatment with ACE inhibitors and beta-blockers improves the prognosis in DMD patients with cardiomyopathy [4, 10, 11].

In patients with BMD, cardiac involvement could precede peripheral muscle weakness and dilated cardiomyopathy might be the leading cause of death [9]. Our data reveals LV systolic dysfunction in one half of the evaluated individuals, but the number of patients is small.

Our results confirm the published data, demonstrating high frequency of pathologic ECG changes and rhythm and conduction disturbances in patients with MD1 [16, 22, 40, 45]. We found a prolonged PR interval and increased duration of the QRS complex in 61,9% of the patients. In one female patient, a pace-maker was implanted



because of A-V block II degree. Non-specific intraventricular delay was found in 23.8%, LBBB, incomplete RBBB and LAFB in 21.4% of the patients. Published data reports prolonged PR interval in 20-40% of the patients and wide QRS complex in 5-25% [42]. In our cohort we found a higher rate of intraventricular delay in comparison with other studies. In 19% of the patients sinus bradycardia was registered. The frequency of sinus bradycardia varies between 5 and 25% in other studies [16, 38, 44]. In our patients, the frequency of atrial fibrillation and flutter was 6%, significantly lower than reported in other studies (about 25%) [5, 42]. LV dysfunction is not common in patients with MD1, subclinical impairment have been described [2, 42]. Our results also did not demonstrate clinically significant LV dysfunction, but some impairment of the longitudinal systolic function was found. The established diastolic dysfunction may be due to impaired relaxation, because of myotonia [17]. Microvascular dysfunction may be found in patients with MD1 [23]. Our patients did not report symptoms of angina, nevertheless in some of them (9,5%) changes in the repolarization on ECG were registered. The frequency of mitral valve prolapse is lower in our cohort than the reported in the literature [44, 49].

DM are a heterogeneous group of diseases and in some a cardiomyopathy has been described [8]. We observed diastolic dysfunction in 4 patients with filamin C deficiency, but these were older patients with concomitant arterial hypertension. In another patient with filamin C deficiency, without a concomitant heart disease, a reduced EF was found [19]. GNE myopathy represents the other greater group of patients in our cohort with

DM. The results show subtle changes in the LV function and the ECG in some of the patients. The ECG findings include nonspecific intraventricular delays, LAFB and A-V block 1<sup>st</sup> degree. In 5 of the evaluated GNE patients an impaired relaxation was established, but three had a history of arterial hypertension and one of diabetes mellitus. The other two patients did not have a concomitant cardiac history. In 3 of the patients, borderline EF and in 5 impaired longitudinal systolic function was observed. Lower systolic myocardial velocities of the lateral mitral annulus in comparison with the septal annulus were registered, findings that were described in other muscle diseases [8, 20, 39].

We did not find significant cardiac involvement in the evaluated patients with LGMD. The most important determinant of the presence and severity of cardiac involvement is supposed to be the causative mutation. A cardiomyopathy and rhythm and conduction disturbances have been reported in LGMD2B, LGMD2I and LGMD1B [27].

We could not find clinically significant heart involvement in patients with FSHD. The most common ECG abnormality was a nonspecific prolongation of QRS complex, also described in the published literature [13, 28]. In a study with 30 patients with FSH muscular dystrophy, an impaired AV nodal or infra-nodal conduction time was found in 27% of the patients on ECG or during electrophysiology study (EPS). Atrial fibrillation or flutter was induced in 10 from 12 patients during EPS. In 3 patients a sinus node dysfunction was found [48]. In our cohort we did not register atrial fibrillation or flutter, but a shortcoming of our study was the absence of Holter ECG recordings or EPS. The results from

the echocardiography revealed preserved systolic function in all patients.

The diseases, caused by mutations in the mitochondrial genome reveal a significant clinical heterogeneity with involvement of different organs and systems. As the heart, the brain and the peripheral nervous system are very much energy dependent, they are mostly susceptible to the mitochondrial defects [31, 37]. We found LV hypertrophy, the most common manifestation, according to the literature in 3 patients (2 with history of arterial hypertension) [31]. A predominant LV diastolic dysfunction and subclinical impairment of the systolic function by TDI was observed. The most common ECG change registered was nonspecific intraventricular delay.

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## Conclusion

Pathological ECG changes, arrhythmias, conduction defects and cardiomyopathies were observed in the evaluated patients with hereditary muscle diseases. Cardiomyopathy is most common in the patients with DMD and BMD, while arrhythmias and conduction defects are frequently found in patients with Myotonic dystrophy. An early identification and follow up of cardiac involvement is of utmost importance for timely and proper management of these patients. Further studies are needed to determine the role of the subclinical changes in LV function and the ECG in patients with hereditary muscle diseases.

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## PROJECT DM 10/2 „DEVELOPING COMPETENCES AND IMPROVING SKILLS FOR APPLYING NEW RESEARCH METHODS AND METHODOLOGIES BY JUNIOR RESEARCHERS”: ACTIVITIES AND RESULTS\*

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**Abstract.** *The project includes study of the methods and methodologies for implementing research in the humanitarian and social studies. The project activities include theoretical analysis and analysis of normative documents, work meetings between the project coordinator and the participants and scholars and lecturers; expert meetings, at which scholars, researchers, authors of books and of scientific research present the condition of the scientific research in their fields; semi-structured interviews, through which are clarified the attitudes and expectations of the participants in the doctoral process and in the research. Also, there have been accomplished interactive communication formats, such as seminars, academic presentations, a scientific conference, analysis of the achievements by scholars and by colleagues, reviews and guidelines by scholars and experts. The project results have been popularised in front of external and internal audiences through various conference presentations and reports and publications in scientific journals.*

**Key words:** *junior researchers; methods and methodologies; project activities; results.*

### Introduction

The raised criteria for evaluating the scientific production of scholars, research teams as well as of junior researchers, on the one hand, and the participation of junior researchers in scientific projects as early as during their doctoral training, on the other hand, implies the formation, development and then the constant improvement and renewal of research experience, skills, as well as attitudes for scientific work. This raises the question about the adequate training of the junior researchers, especially in the area of research methods and methodologies. That is how came the idea of setting up the Project DM 10/2 „Developing competences and improving skills for applying new research methods and methodologies by junior researchers”, with Sofia University “St. Kliment Ohridski” as the base organization.

Preliminary project research has shown that there can be seen certain fragmentariness in the information about the contemporary research methods and methodologies, in the search of the most recent methods when using to a certain extent and following routine research procedures,

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which are not always relevant to the research objects. There is application of the methods by certain researchers, teams and departments under the existence and striving for assisting junior researchers and scholars from various scientific fields and units, but still there is a lack of a comprehensive study of the methods and methodologies at a fundamental level.

The project is particularly focused on covering this deficit of knowledge and skills among junior researchers to implement successfully research on a personal level, as well as in teams, groups, collective bodies and networks of scholars from various scientific fields, generations and states.

The project includes study of the methods and methodologies for implementing research in the humanitarian and social studies. It envisages ascertaining trends in the area of social studies research and systematical provision of knowledge for the junior researchers for implementing scientific research from the organisation, design, selection of methods, research completion, preparation of scientific publications and their evaluation at a content, structural and scientific level and until the distribution and popularisation of results.

### **Team**

The project team consists of junior researchers, postdoctoral researchers, doctoral students and senior scholars. Most of them are from the Faculty of Philosophy of Sofia University „St. Kliment Ohridski“. There has been achieved continuity between the different generations of researchers, as in this way has been created sustainability of the project results.

### **Objectives**

Project objectives include studying the processes in doctoral training and in particular at the level of humanitarian and social sciences in Sofia University „St. Kliment Ohridski“, as there will be outlined the areas requiring intervention; providing opportunities for junior researchers to use methods and methodologies for analysis and research in the field of humanitarian studies; enhancing the competence of junior researchers at a methodical and methodological level; developing and improving their skills to implement research in a given area and developing skills for working in research teams and networks with the use of contemporary and reliable research methods.

### **Activities**

The project activities are grouped into six work packages and include theoretical analysis and analysis of normative documents, work meetings between the project coordinator and the participants and scholars and lecturers; expert meetings, at which scholars, researchers, authors of books and of scientific research present the condition of the scientific research in their fields; semi-structured interviews, through which are clarified the attitudes and expectations of the participants in the doctoral process and in the research. Also, there have been accomplished interactive communication formats, such as training seminars, academic presentations, a scientific conference, analysis of the achievements by scholars and by colleagues, reviews and guidelines by scholars and experts. The project results have been popularised in front of external and internal audiences

through various conference presentations and reports and publications in scientific journals.

## Results

The project achieved to a great extent the results that have been envisaged and, generally speaking, they include creating scientific teams and scientific networks, attracting and keeping the junior researchers in the scientific field and expanding their opportunities to continue with their research and forming and developing attitudes among the junior researchers towards work in scientific teams and scientific projects recognising the current environment, the technological and technical conditions, the new trends and the established traditions.

If we go into greater details, however, the following concrete results are worth mentioning:

### Theoretical literature review and analysis

First, there has been done a review and analysis of theoretical literature (articles, monographs, reports, etc.) related to the methods and methodologies in the research areas of the participants in this work package. Also, there have been developed lists with publications and annotations of bibliography in the area of research methods and methodologies.

### Analysis of the documentation related to the regulation of the doctoral studies

There has been done an analysis of the documentation related to the regulation of the doctoral studies on a European, national and institutional level. Some important conclusions

have been drawn that can serve for improving the processes in the studies at doctoral level. It can be seen from the analysis that there are common normative texts in terms of the doctoral thesis form and content. It is important to note that although with its legal acts the EU cannot make harmonization of the Member States national legislation, due to the more and more enhanced cooperation between the Member States and the intensive academic mobility, in one natural way there can be seen a gradual harmonisation in the practices and quality of doctoral studies. On the basis of the analysis, there have been made recommendations on the organisation of the doctoral studies related to the more active inclusion of the departments in the development of articles and in ascertaining the acquired knowledge at the courses; methodological assistance for developing articles and reports provided by the scientific advisors to the doctoral students; enhancing the control and communication between the doctoral students and the scientific advisers in terms of the research methods; and more methodological courses and more seminars and exchanges between doctoral students and junior researchers.

### Conducting focus group surveys with doctoral students

Another result achieved by the project is conducting a focus group survey with 50 doctoral students from the Faculty of Philosophy, the Faculty of Journalism and Mass Communication, the Faculty of Geography and Geodesy, the Faculty of History and the Faculty of Classical and Modern Philology of Sofia University „St. Kliment Ohridski“, the purpose of which was to ascertain the attitudes and expectations in relation to the doctoral



study. On the basis of this, there have been developed methodological guidelines on the training of the doctoral students.

### Training seminars for junior researchers and doctoral students

In the period October – December 2017 under the project there were held three training seminars on the application of contemporary methods (qualitative and quantitative) for a scientific research. More than 20 people participated in the seminars, among whom there were experts, project team members, doctoral students and junior researchers from various institutions (from several faculties of Sofia University, from New Bulgarian University, from the Institute of Public Administration and from the Institute of Soil Science, Agrotechnologies and Plant Protection “Nikola Pushkarov”). The seminars have been developed on the following principles: from the general to the particular, from the theoretical knowledge to the practical application, from perceiving scientific information, through its analysis and internalisation towards the independent application of various research methods by the participating junior researchers.

The first seminar was held on 26th October 2017 and the topic was “Qualitative and quantitative methods”. The lecturers were senior scholars from the Faculty of Philosophy at Sofia University specializing respectively in quantitative and qualitative research methods – Assoc. Prof. Kaloyan Haralampiev and Assoc. Prof. Petya Slavova. At this seminar the participants were acquainted with leading theories in the field of the contemporary research methods and methodologies.

The second seminar was held on 10th November 2017 and the topic

was “Good practices – qualitative and quantitative methods”. At this seminar some of the project team members (Prof. Ivanka Mavrodieva, Assoc. Prof. Nikolina Tsvetkova, Assist. Prof. Penka Hristova and Dr. Stella Konakchieva) presented methods and methodologies applied in their research and scientific projects.

The third seminar was held on 15th December 2017 and the topic was “Approbation of scientific research elements”. The participants in the seminar presented their own research and methodologies, as they had the opportunity to receive feedback from lecturers and scholars in the field of research methods. In this way sustainability was achieved in the process of acquiring knowledge about contemporary methods, preparing a research design, approbation of methods and presenting results.

### Developing a design of own research and its implementation

The skills developed within the seminars, related to creating a design for a scientific research by using established and contemporary methods, are actively applied for creating a design of own research by junior scholars and doctoral students. The junior scholars managed to further develop and improve their skills for implementing their own research in the field of humanitarian and social sciences. In the course of their work they have had consultations with senior scholars from Sofia University „St. Kliment Ohridski”.

### Developing, editing and publishing articles with scientific results

On the basis of the previous two activities, there have been created,

edited and presented texts with scientific results in academic journals. Besides, the junior scholars and the doctoral students had the opportunity to present their articles for the Conference Proceedings „Contemporary methods and methodologies for scientific research” (which is a separate project activity). The junior scholars and doctoral students have formed and improved skills for developing final versions of scientific texts. The following articles of them (in the field of humanitarian and social studies) have been published in scientific journals:

Николова, А. (2018). Особенности на електронното обучение в MOOCs – В: Електронното обучение във висшите училища, сборник с научни доклади, София: УИ „Св. Климент Охридски“, с. 273 – 279.

Николова, А. (2018). Специфики на виртуалната академична комуникация в MOOCs и Coursera – В: Дигиталната революция в културните и социалните процеси. Благоевград: УИ „Неофит Рилски“, с. 217 – 229.

Hristova, P. (2018). English as a lingua franca for Bulgarian participants in the EU Comenius programme. *Rhetoric & Communications*, 34.<sup>1</sup>

Антова, Д. (2017). Фалшивите новини и новите слухове в интернет. // Медии и обществени комуникации. Изд. УНСС; Алма комуникация. 2017, № 33.<sup>2</sup>

Абрашева, Т. (2017). Приложение на реторичната теория и ораторство в киното. // Медии и обществени комуникации. Изд. УНСС; Алма комуникация. 2017, № 33.<sup>3</sup>

### Informational messages

There have been published regular informational messages (press releases) on the website of Sofia University „St. Kliment Ohridski” and on the website of the Faculty of Philosophy, Sofia University, popularizing the project results. Besides, the informational messages are published in other academic websites (The Online Rhetoric Guide, The Academic Blog of Ivanka Mavrodieva). In 2019, a message about the successful conference under the project will be published in English in the Annual Report of NACID „Advances in Bulgarian Science” – 2018, where this article (Hristova, P. (2019). Project DM 10/2 „Developing competences and improving skills for applying new research methods and methodologies by junior researchers”: activities and results. *Advances in Bulgarian Science*) is also going to be published.

### Video publications

There have been created eleven video publications with some of the project results – the training seminars and the scientific conference. The videos have been published on the YouTube channel of the project<sup>4</sup> and they have been disseminated to the stakeholders (junior researchers, doctoral students, lecturers, etc.) via email and in the social networks (Facebook).

### Participation at national and international scientific forums

The project team members par-

<sup>1</sup> <http://rhetoric.bg/penka-hristova-english-as-a-lingua-franca-for-bulgarian-participants-in-the-eu-comenius-programme>

<sup>2</sup> <http://www.media-journal.info/?p=item&aid=342>

<sup>3</sup> <http://www.media-journal.info/?p=item&aid=341>

<sup>4</sup> [https://www.youtube.com/channel/UCwts1u8dXQncLOTdly-F1Uw/videos?view=0&sort=dd&shelf\\_id=0](https://www.youtube.com/channel/UCwts1u8dXQncLOTdly-F1Uw/videos?view=0&sort=dd&shelf_id=0)

participated with reports and presentations in six prestigious national and international scientific forums – conferences and a summer school:

1) Participation of Anita Nikolaeva, PhD Candidate, in **the Seventh National Conference on E-Learning in Higher Education**, held in Borovets, in the period 20 – 22 September 2018 with the report „Specifics of e-learning in MOOCs”.

2) Participation of Assit. Prof. Penka Hristova in the **Third International Conference „Linguistics: history, challenges, perspectives”**, held at South-West University „Neofit Rilski”, Blagoevgrad, in 21-22 June 2018, with the report: „Impact of EU exchange programmes on the language skills of the participants: the experience of some Sofia schools”.

3) Participation of Prof. Ivanka Mavrodieva and Assist. Prof. Nikolina Tsvetkova in **Second Lisbon International Conference on Social Studies and Humanities**, held in Lisbon, Portugal, on 21-22 May 2018, with a joint report: *Enhancing social capital through participation in virtual student communities*.

4) Participation of Anita Nikolaeva, PhD Candidate, in the **Fifth International Scientific Conference on Digital Culture and Society**, held at South-West University „Neofit Rilski”, Blagoevgrad, on 3-4 November 2017, with the report: „Specifics of the Virtual Academic Communication (MOOCs and Coursera”.

5) Participation of Assit. Prof. Penka Hristova in the international **4th ESTIDIA Conference – Dialogues without borders: Strategies of Interpersonal and Inter-Group Communication**, held at Sofia University „St. Kliment Ohridski”, Sofia, in the period 29-30 September 2017, with the report „English as a lingua franca for Bulgarian participants in the EU Comenius programme”.

6) Participation of Assit. Prof. Nikolina Tsvetkova, PhD, Stella

Konakchieva, PhD, and Nadya Birezhakli, PhD Candidate, in the Summer Doctoral School EUROMEC and in an International Conference in Trinity College, Dublin, Ireland, held on 10-15 July 2017, with a presentation „EU Regional policy during the programme period 2014-2020 – new dimensions of developing a positive identification with the EU” (Nadya Birezhakli) and „The role of free movement of persons in the EU for formation of models of European identity” (Stella Konakchieva).

Besides, the project team members took part in the training seminars focused on qualitative and quantitative research methods described above and in the scientific conference organised under the project.

Thus, the project results have been disseminated on a national and international level among junior researchers and scholars from various EU countries (Portugal, Ireland, France, Great Britain, Poland, Czech Republic, Slovakia) and non-EU countries (China, Brazil, Russia, India, Israel, Turkey, the USA and others). There is achieved an exchange of theoretical and practical ideas on a national and international level. The junior scholars have developed complex skills for preparing, participating and evaluating the results from scientific forums and skills for presenting and defending the scientific results they have achieved. Also, international scholars have been attracted to publish in Bulgarian scientific journals (Rhetoric and Communications E-Journal) – Zhanna Mingaleva from Perm National Research Polytechnic University, Russian Federation, and Alisa Tigchelaar from Calvin College, Michigan, USA.

#### Scientific Conference

Within the project was held a scientific conference „**Contemporary**

***Methods and Methodologies for Scientific Research***". The event took place on 30th March 2018 in the building of the Faculty of Philosophy (Campus East) of Sofia University "St. Kliment Ohridski" with the participation of 20 junior and senior scholars and doctoral students from various departments of the University – the Faculty of Philosophy, the Faculty of Theology, the Faculty of Biology, the Faculty of Classical and Modern Philology, the Faculty of Journalism and Mass Communication, as well as independent researchers from other institutions. A key lecturer at the Conference was Prof. Dr. Habil. Ivanka Mavrodieva, who presented her own methodology related to writing scientific articles. She presented the main stages and steps, as well as the specific features in preparing and publishing scientific articles.

The other participants in the panels presented the results of their scientific research focusing on the methods and methodologies used by them (Q-methodology, in-depth interviews, cyberethnographic research, questionnaires, historical review, multi-factor analysis, comparative analysis, etc.). The scientific event accomplished the set aims for achieving succession in relation to the previous three seminars in the area of the qualitative and quantitative methods for scientific research. The doctoral students and the junior researchers who have participated in the seminars successfully demonstrated the acquisition of knowledge on methods and methodologies, as well as abilities for implementing scientific research.

#### *Conference Proceedings*

As a result of the abovementioned Conference, conference proceedings with the conference reports

have been published. The original title is: ***Сборник с доклади от научна конференция на тема „Съвременни методи и методики за научни изследвания“, 30 март 2018 г. Университетско издателство „Св. Климент Охридски“, ISBN 987-954-07-4572-5.***

The Conference Proceedings includes 18 texts, which have been reviewed and edited by senior scholars. The edition is divided into several sections/rubrics, which are differentiated on the basis of scientific and problematic areas. In this way there can be differentiated basic and specific methods and results from scientific research. The rubrics are the following:

- Research in Political Science and European Studies;
- Research in Psychology;
- Research in Librarian Studies, publishing and mass communication;
- Research in Education and Philological Studies;
- Research in History and Theology;
- Research in argumentation, gender theory and social networks;
- Research in sciences.

The methods used by the junior researchers include established methods, such as analysis and synthesis, critical analysis and historical review. Also, the authors use qualitative (observation, discourse analysis, etc.) and quantitative methods (questionnaire, language diagnostics, etc.).

#### *Publications in refereed journals*

Some of the project team members managed to publish their articles with scientific results in prestigious, refereed journals. These are the publications:



Hristova, P. (2019). Impact of EU exchange programmes on the language skills of the participants: the experience of some Sofia schools. In: „Лингвистични проблеми“. Сборник с докладите от конференция „Лингвистиката: история, предизвика-телства, перспективи“. Blagoevgrad: „Neofit Rilski“ University Press (upcoming).

Антова, Д. (2019). Съвременни проявления на виртуалната реторика в онлайн медии в България. *Реторика и комуникации*, 38.<sup>1</sup>

Tsvetkova, N. & Mavrodieva, I. (2018). Social Capital and Participation in Virtual Student Communities. *PEOPLE: International Journal of Social Sciences*, 4(2), 800-819.<sup>2</sup>

Mavrodieva, I., Simeonov, T., Nikolaeva, A. (2017). Features of the Academic and Pedagogical Communication in Virtual Environment. *US-China Foreign Language*, September 2017, Vol. 15, No. 9, 593-601 doi:10.17265/1539-8080/2017.09.008.

In this way, the project results have been disseminated to prestigious editions and the reputation of Sofia University as a research centre has been enhanced.

### Online edition

As part of the project activities, there has been developed an online edition with eleven articles containing methodological guidelines for implementing scientific research. The online edition is a specialized issue (Issue 36/2018) of the academic peer-reviewed e-journal *Rhetoric and Communications*. The e-journal is indexed in ERIH PLUS and in 4 more indices.<sup>3</sup>

The scientific publications in Issue

36 are evidence of sustainability in the process of forming, developing and improving skills for implementing research. As a result of their participation in the project, the junior researchers have got involved into scientific research and have gradually presented results. After the approbation of their methods and methodologies, the participants in the seminars and in the conference have prepared academic articles.

All the articles in the online edition have been reviewed by the reviewers of the e-journal, as well as by scholars in the authors' fields. The texts of the articles have been developed and edited in accordance with the standards of *Rhetoric and Communications e-journal*, which has been indexed in ERIH PLUS and in 4 more indices since August 2018.

The rubrics of the online edition are the following:

- Research methods;
- Academic communication, competences and writing scientific articles;
- Results from research of social topics;
- Results from research of media.

The authors are from Sofia University „St. Kliment Ohridski“ (Kaloyan Haralampiev, Ivanka Mavrodieva and Nikolna Tsvetkova (from the Faculty of Philosophy), Tsvetan Davidkov, Ilya Gurbalova and Zdravka Andonova (from the Faculty of Economics and Business Administration), Penka Hristova and Petya Yaneva (from the Faculty of Classic and Modern Philology) and Maria Momchilova (from the Department for Language Teaching), South-West Uni-

<sup>1</sup> <http://rhetoric.bg/десислава-антова-съвременни-проявление>

<sup>2</sup> <https://grdspublishing.org/index.php/people/article/view/1498>

<sup>3</sup> <http://rhetoric.bg/срп-реторика-и-комуникации-брой-36-се-2>

versity „Neofit Rilski” (Mariana Petrova), Veliko Turnovo University (Yosif Nunev), Institute of Rhetorics and Communications (Todor Simeonov) and Perm National Research Polytechnic University, Russian Federation (Zhanna Mingaleva). The authors present qualitative and quantitative research methods in the humanitarian and social sciences, such as Bayesian statistics, empirical survey using questionnaires, Q-methodology, cyberethnography, longitudinal analysis, content analysis, analysis and synthesis.

#### Career development

Most of the project team members have had development in their academic career in the course of the project. Todor Simeonov, Dessislava Dobрева and Stella Konakchieva successfully defended their PhD theses and already have a doctoral degree from Sofia University. Moreover, Stella Konakchieva has attained a double degree from Sofia University and Liege University (Belgium). Dessislava Antova and Metin Ibriamov are going to have their internal defences in the early 2019. The Project Coordinator Dr. Penka Hristova has become a Chief Assistant Professor in Western Languages Department, Faculty of Classic and Modern Philology, Sofia

University, and Chief Assist. Prof. Dr. Nikolna Tsvetkova has become an Associate Professor at Sofia University.

#### **Conclusion**

In conclusion, it can be said that Project DM 10/2 „Developing competences and improving skills for applying new research methods and methodologies by junior researchers”, with its various project activities, has a very positive effect on the junior researchers involved in it. On the one hand, they have managed to improve their skills in applying qualitative and quantitative methods in their research, to present their results at scientific forums and to develop academic texts. On the other hand, the participants have enhanced their abilities to work in a team and have become part of an academic network developing a sense of belonging to the academic groups. In this way, the junior researchers have increased their confidence and motivation to participate in scientific forums, journals and editions where they can present their scientific results. As a result, there have been formed sustainable models for self-development by the junior researchers in the context of the internationalisation of scientific research in humanitarian and social studies.

### **A SCIENTIFIC CONFERENCE DEDICATED TO THE CONTEMPORARY METHODS AND METHODOLOGIES FOR SCIENTIFIC RESEARCH TOOK PLACE IN ALMA MATER ON 30TH MARCH 2018**

The conference „Contemporary Methods and Methodologies for Scientific Research” was held within the project „DEVELOPING COMPETENCES AND IMPROVING SKILLS FOR APPLYING NEW RESEARCH

METHODS AND METHODOLOGIES BY JUNIOR RESEARCHERS”, coordinated by Asst. Prof. Dr. Penka Hristova and supported by the National Science Fund (Agreement № DM10/2 of 14.12.2016).

The event took place in “The Egg” (“Yaytseto”) Hall in the building of the Faculty of Philosophy (Campus East) of Sofia University “St. Kliment Ohridski” with the participation of 20 junior and established scholars and doctoral students from various departments of the University – the Faculty of Philosophy, the Faculty of Theology, the Faculty of Biology, the Faculty of Classical and Modern Philology, the Faculty of Journalism and Mass Communication, as well as independent researchers from other institutions.

A key lecturer at the Conference was Prof. Dr. Habil. Ivanka Mavrodieva, who presented her own methodology related to writing a scientific article. He presented the main stages and steps, as well as the specific features in preparing and publishing scientific articles.

The other participants in the panels presented the results of their scientific research focusing on the

methods and methodologies used by them (Q-methodology, in-depth interviews, cyberethnographic research, questionnaires, historical review, multi-factor analysis, comparative analysis, etc.). There were also commented specific aspects of the work with sources, databases, online resources, the analysis of manuscripts, authentic texts, documents, etc. within the research process.

The scientific event accomplished the set aims for achieving succession in relation to the previous three seminars in the area of the qualitative and quantitative methods for scientific research implemented with the project supported by the National Science Fund. The doctoral students and the junior researchers who have participated in the seminars successfully demonstrated the acquisition of knowledge on methods and methodologies, as well as abilities for implementing scientific research.



## BULGARIAN RED CROSS ACTIVITIES FOR DISASTER RESILIENCE ENHANCEMENT

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**Abstract.** *The Bulgarian Red Cross (BRC), part of the international Red Cross and Red Crescent Movement, supports governmental activities in disasters.*

*Purpose: The aim of this study is to analyze some BRC capabilities to enhance the disaster resilience.*

*Materials and methods: Research of the legal framework and scientific publications on the topic, as well as a survey on BRC disaster relief activities were performed. The subject of the research is the interaction between the institutions, population and the Bulgarian Red Cross. 309 respondents from Plovdiv, Pazardzhik and Septemvri participated voluntarily in survey regarding BRC activities.*

*Results: The analysis of the obtained data reveals that only 36.6% of the respondents are aware of the Bulgarian Red Cross activities. Representatives of the Regional Health Inspectorates (RHI) are the less informed – 24%. Awareness is also extremely low among the respondents from the other institutions that act to-*

*gether with the Bulgarian Red Cross in the area of damage, according to the action plans. Surprisingly, 57.9% of the respondents are willing to become BRC volunteers.*

*Conclusion: The conducted study highlights the available possibilities for expanding the interaction between BRC, institutions and the population. In order to increase the disaster resilience comprehensive and continuous educational activity regarding BRC activities and capabilities among the institutions, organizations and the population is required.*

**Key words:** *Bulgarian Red Cross, Disaster Resilience, Flood, Humanitarian Activities, Interaction*

### Introduction

Earth's population is constantly exposed to the negative impact of disasters of both natural and man-made origin. During the last decade their number has increased in Bulgaria, as well as world-wide [1]. Disasters could have consequences of immense scope and impact, resulting in death,



diseases and damages to the stricken population and the economics in the affected region or country. It's always necessary for the population, rescue and medical teams to have a constant level of readiness for protection, self- and mutual aid [2].

During disasters the population is extremely vulnerable. Increasing the resilience is a primary concern that can be fulfilled by prognosticating; planning the activities on lessening the impact of the damaging and the risk factors; dealing with the consequences and restoring the damages on the population and the country. These combined and coordinated efforts of the citizens, the institutions, the governmental and non-governmental organizations and agencies, partake in the prompt and efficient overcoming of the negative results [3].

The Bulgarian Red Cross (BRC) is an autonomous, voluntary organization that actively participates in the disaster mitigation. BRC assists the government and state in humanitarian activities on public health protection and support in afflictions of different nature [4].

BRC activities in Republic of Bulgaria have long history. The organization is establishing and training teams for provision of extended volume of disaster first aid and also is performing humanitarian activities on population health protection and support before, during and after disasters, accidents and catastrophes. According to the BRC law, Ch. 1. S. 1 "BRC is a RC national organization on the territory of Republic of Bulgaria and is a part of the International Red Cross and Red Crescent Movement" [5]. BRC, established as war-time acting organization, in times of peace redirects its efforts to

humanitarian support to disasters, accidents and catastrophes' (DAC) casualties [6]. BRC constantly expands its scope of activities – not only supports goods and first aid provision but also prepares the population for more adequate reaction in DAC by conducting courses for theoretical and practical education [7]. Lately BRC has particular considered the vulnerability of elderly, chronically ill and disabled people in DAC, therefore started to educate them on self- and mutual aid as part of the program "Home care" [8].

BRC regulation act depicts part of its objectives:

- Preparing BRC structures to play supportive partnership role to the institutions, governmental and non-governmental organizations and agencies for adequate DAC reaction on national and local level to ensure, protect and restore casualties' life.
- Supporting community resilience and extended first aid training for handling different kind of injuries, as well as educate and train population on healthy behavior in case of disasters.
- Optimization of the logistic capabilities for humanitarian support to the most vulnerable.

For the sake of accomplishing these objectives, the respective structure of BRC is established on the territory of Republic of Bulgaria. It consists of 28 regional organizations, 268 municipal/local organizations, over 2700 companies, 140 716 members and over 13 000 volunteers [9]. BRC capabilities are included in the national plan for disaster population protection [10].

## Objective and goals

The objective of the current research is to analyze certain BRC capabilities for enhancement of the population disaster resilience. To accomplish this, two tasks are set: research on regulatory framework and scientific publications on the topic, as well as survey among the population.

## Materials and methods

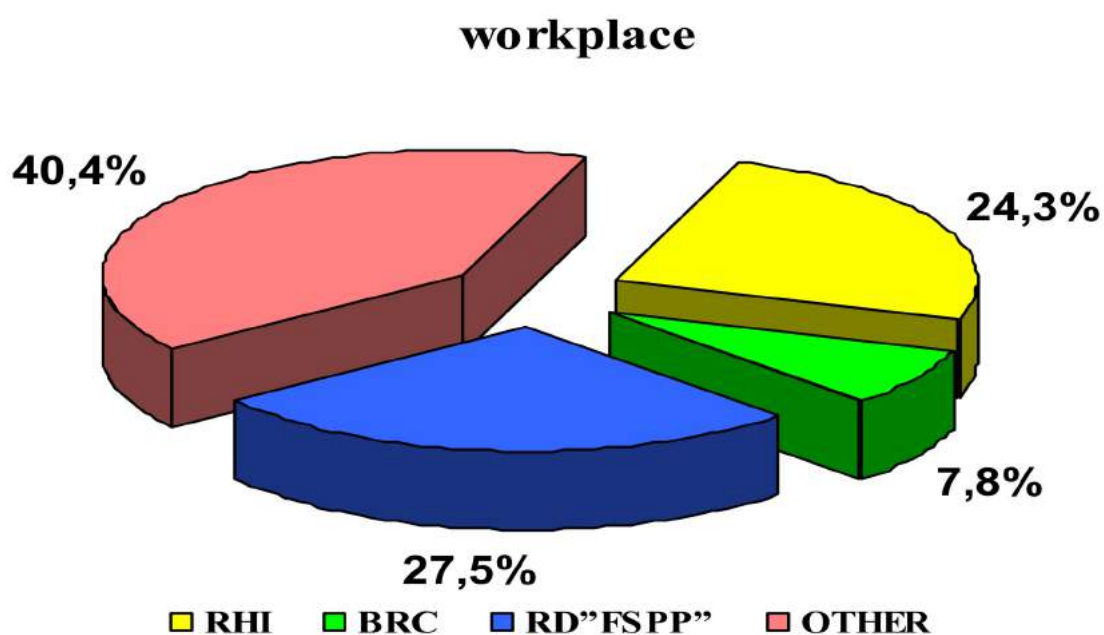
The object of this research are BRC activities during floods in particular towns: Plovdiv, Pazardzik and Septemvri. The subject of this research is the interaction between BRC and the population in these towns. Data is collected from the regulatory framework and scientific publications on the topic. A survey is performed among 309 people between February and June 2015 in the towns of Plovdiv, Pazardzik and Septemvri that are on the banks of the Maritsa River. The surveyed are

employees of BRC, as well as public servants working in institutions that participate in disaster population protection – Regional Directorate “Fire safety and population protection” (RD “FSPP”) and Regional health inspections (RHI), as well as control group whose occupation is not related to population protection in DAC.

## Results

### *Social-demographic characteristics of the interviewed*

Based on the age participants are divided in four groups. The age group 46-55 years predominates – 29,1% (n=90), followed by age group 36-45 and under 35 – both 26,2% (n=81). The fewest are the respondents over 56 years – 8,4% (n=57). Based on the occupation criterion (fig.1) the interviewed are working in RD “FSPP” – 27,5%, RHI – 24,3%, BRC – 7,8% and other occupation – 40,4%.



**Fig. 1.** Distribution of the interviewed based on occupation criterion

### Information about BRC activities in floods

The analysis of the national and international publications presents constant trend towards an increase in flood's frequency. Most of the experts consider the climate changes to be directly related to the raise in the catastrophic floods world-wide [11]. Every such event threatens the lives of the people in the flooded area [12]. On the other hand, the complicated epidemiologic situation resulting from the worsening sanitary-epidemic conditions, is a predisposition for epidemic outbursts. The observed increase in infectious morbidity after floods is also related to the damages on the critical infrastructure that differ in scope [13]. Destructions of private property, life and health threats and critical infrastructure damages have profound negative impact on the psychological state of the casualties and the witnesses [14, 15].

BRC actively supports the institutions, governmental and non-govern-

mental organizations and agencies in the disaster management activities.

Regarding BRC activities in floods, the interviewed were asked the following question: **"Are you informed about BRC activities in case of floods?"**.

The survey shows that only one third of the interviewed (36,6%) are familiar with BRC activities in floods. Partially informed are 37,2% of the respondents and 26,2% are not informed at all. These results express the need for more specific and direct communication between the management and members of BRC and the population.

Statistically significant correlation is established between the answers and the occupation of the respondents (fig. 2). The highest percentage of positive answers (83,3%) is given by the BRC employees. The analysis of the acquired results from the other respondents shows that 40% are informed or partially informed about BRC activities. The lowest percentage is recorded by those working in RD "FSPP" (40%) and in RHI (only 24%).

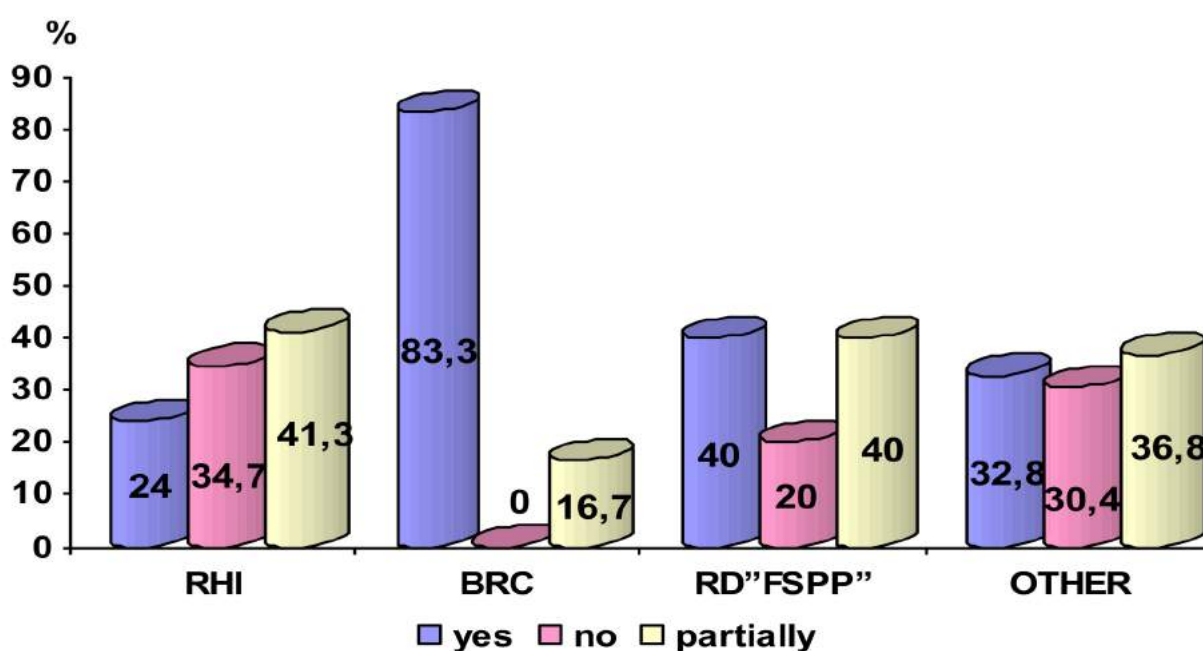


Fig. 2. Interviewed distribution based on thier knowledge about BRC activities

Data presents that representatives of the institutions (RHI, RD"FSPP") that collaborate with BRC in the area of damage poses insufficient information regarding BRC activities.

BRC's basic objective is to train volunteers that are going to support the casualties. Voluntary teams are established, trained and supplied by the structures of BRC. In the process they are trained on their role and duties as well as their tasks during the disaster mitigation that are in accordance with the national, regional and local plans. Familiarity with BRC's objective and

tasks is a prerequisite for active cooperation and involvement of the population in the voluntary operations.

The next question presents the level of readiness among the population to do volunteer work for BRC: **"Would you become a BRC volunteer?"**

The results depict that more than half of the respondents (57,9%) are willing to register as BRC volunteers. The sex of the interviewed has no significant influence on the declared readiness for active participation. This confirms the historic traditions for female contribution to BRC endeavors.

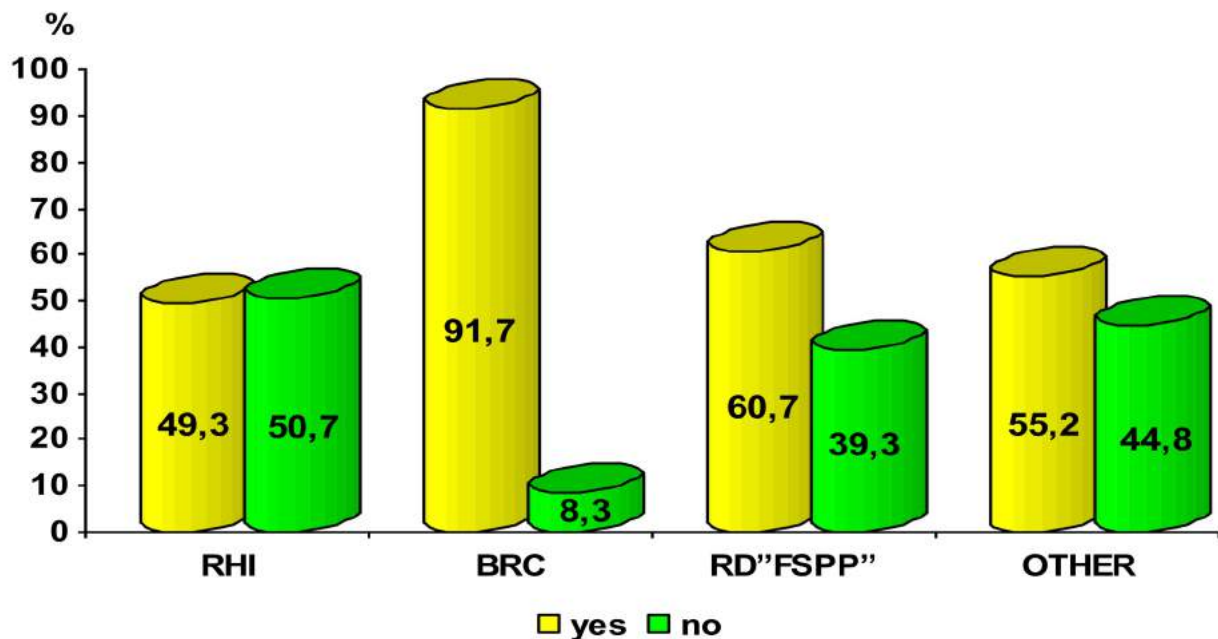


Fig. 3. Willingness to volunteer for BRC

Every second interviewed (fig. 3), regardless the occupation, is willing to register as volunteer but the highest is the relative share of those working in BRC – 91,7%. The lower percentage of positive answers given by the RHI employees might be due to the specific medical activities they are to perform in DAC.

A correlation is established between this question and the age of the respondents (fig.4). The majority in

all three age groups below 55 years of age (over 59%) are willing to register as volunteers. Among the interviewed in the age group over 56 years predominates (58,9%) the reluctance to participate in BRC activities. This result is considered to be in consistence with physiological changes and physical performance, typical for aging. The respondents under 55 years (around 40%) that have no interest in voluntary work for BRC might



be poorly informed about the organization's objectives and tasks, hence more information regarding BRC

activities should be provided to the public, especially to those in the age group under 35 years of age (40,7%).

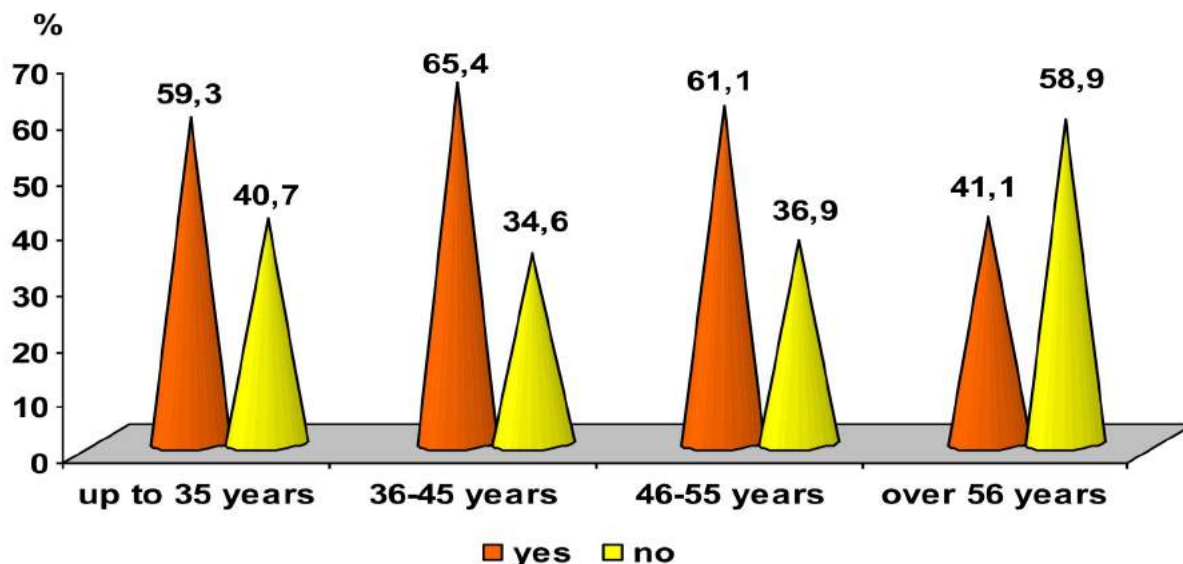


Fig. 4. Respondents distribution on age criterion

The analysis on the subject shows that volunteering is well accepted by most of the population but those in active age have some concerns. The increase in the volunteer's number will enhance BRC's capabilities for provision of first pre-medical and humanitarian aid to the casualties, which is going to increase the disaster resilience in general.

## Results

This research on BRC activities shows low awareness regarding BRC activities among the respondents – only 36,6% are informed and 63,4% are partially informed or not informed at all about the matter.

Data presents insufficient knowledge about BRC activities among representatives of the institutions (RHI, RD"FSPP") that cooperate with BRC in the area of damage.

Least informed are those working in RHI (24%).

More than one half of the interviewed (57,9%) are willing to register as volunteers, mostly age groups under 55 years of age (over 59%).

Detecting the target groups and informing them about the subject is to increase the preparedness, and as a result, the population resilience during disasters, in particular the resilience during floods.

## Conclusion

Every country has the need for preventive measures, first pre-medical and humanitarian aid provision for all the affected by disasters, accidents and catastrophes. Despite the long history and the multiple humanitarian activities of BRC, still there is the necessity for constant, vast educational endeavors among

institutions, organizations and parts of the population. Prerequisites are available for enlarging the interac-

tion between BRC and the population for increased disaster resilience.

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## EQUAL IN EUROPEAN RESEARCH AREA

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### DISTINGUISHED REPRESENTATIVES OF BULGARIAN LANGUAGE STUDIES IN BULGARIA\*

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**Abstract.** *The goal of this article is to present the intellectual inheritance of some of the most eminent Bulgarian linguists (born before 1930), i.e. Acad. St. Mladenov, Corr. Member K. Mirchev, Acad. V. Georgiev, Corr. Member L. Andreychin, prof. St. Stoyanov, prof. St. Stoykov, prof. K. Cholakova and prof. Y. Zaimov. They are all representatives of the historical-comparative period in the development of Bulgarian, Slavic and Indo-European studies and have created both the image of contemporary Bulgarian linguistics and the Institute of Bulgarian Language.*

**Key words:** *Bulgarian Studies, linguistics, history of literary language, Slavic, Balkan, Indo-European*

The focus of this paper is on several Bulgarian linguists whose study of Bulgarian has “undoubtedly contributed to the posing, elucidation or solving of practical and theoretical questions concerning the linguistic reality and has been widely recognized within the scientific community and in the society as a whole. Without those names the development of Bulgarian linguistics and, more precisely, of the linguistic Bulgarian studies would be incomplete” [1, p. 6].

The scholars presented in this overview are not just authors of different theories in the field of linguistics – they are also iconic in their attitude to study itself, iconic in understanding its role in social life and in the very life of the scholar himself.

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\* Note: The following article is a combined and extended version of two papers originally published in Bulgarian, see: Мария Попова, Светлана Питкевич. Забележителни наши езиковеди и българисти, в НАУКА, 5/2017, 53-59; Мария Попова, Светлана Питкевич. Забележителни наши езиковеди и българисти (II част), в НАУКА, 6/2017, 39-44.



That is the reason why in times when we hear talk about humanitarian studies being endangered, when the need for academic studies is being questioned, it is especially urgent to remember and make sense of their work and their life in service of knowledge.

The inclusion criteria are strictly technical and boil down to 1) their being born before 1930; 2) their working in The Bulgarian Language Institute as heads of departments; 3) to be personally known to at least to one of the authors of this article.

The scholars are presented according to their birthdate.

**ACADEMICIAN  
STEFAN MLADENOV  
(1880 – 1963)**

Stefan Mladenov was born on Dec. 15 1880 in Vidin. He graduated from the Sofia University "St. Kliment Ohridski" in Slavonic Philology. Later on, he specialized in Vienna (1903-1904), St. Petersburg (1904), the Prague (1905), Paris (1911) and Munich (1912). His Ph D thesis "On the changes of the grammatical gender in the Slavic languages" was defended in Prague. In 1929 he became a Member of The Bulgarian Academy of Sciences (academician). This same year he was elected Correspondent Member of The Academy of Sciences of The USSR in Leningrad and he is the only Bulgarian scholar who was awarded with this honorary title before Spt. 9 1944. And in this year he became a

Correspondent Member of The Polish Academy of Sciences in Krakow (Poland), of the Slavic Institute in Prague, of The King's College in London and in 1942 he was elected a Correspondent Member of The German Academy of Sciences.

**Monographs**

"A Tribute to the Study of the Bulgarian dialects in Eastern and Western Thrace" („Принос към изучаването на българските говори в Източна и Западна Тракия)<sup>1</sup>

Comparative Indo-European Linguistics („Сравнително индоевропейско езикознание")<sup>2</sup>

"The Contemporary Bulgarian Literary Language and Our Folk Dialects" („Съвременният български книжовен език и народните ни говори")<sup>3</sup>

"Introduction to General Linguistics" („Увод по всеобщо езикознание")<sup>4</sup>

"History of Bulgarian" (История на българския език)<sup>5</sup>

**Essays**

"On the Border Dialects of Eastern Serbia" („За пограничните говори в Източна Сърбия")<sup>6</sup>

"Is the Language Spoken between Iskar and Morava Serbian or Bulgarian" („Сръбски или български се говори между Искър и Морава")<sup>7</sup>. 1908 г.

„К вопросу о границе между болгарским и сербским языком". Русский филологический вестник. 1914 г.

<sup>1</sup> Published in 1935.

<sup>2</sup> 1936.

<sup>3</sup> 1943.

<sup>4</sup> 1943.

<sup>5</sup> Translated and edited from the German by I. Duridanov, 1929, 1979.

<sup>6</sup> 1904.

<sup>7</sup> 1908.

"First Bulgarian, not Pecheneg is the so-called Attila Golden Treasure of Nagyszentmiklós" („Първобългарско, а не печенежско е т. нар. Атилово златно съкровище от Наги-Сент-Миклош" // Годишник на Соф. унив. Историко-филолог. фак. XXXI, 5)<sup>8</sup>

"The Unity of Bulgarian Dialects" („Единство на българските народни говори").

"The Role of Semantic Parallels in the Indo-European Linguistics" („Значението на семантичните успоредици в индоевропейското езикознание")

"Bulgarian Cultural Words of Ancient Indo-European Origin" („Български културни думи от старинен индоевропейски произход")

"Themes in Slavic Etymology" („Из славянската етимология")

"The Names of Seven Bulgarian Capitals" („Имена на седем български столнини")

"Last Objection to the Old-Bulgarian Name of the Language of Cyril and Methodius" („Последни възражения против старобългарското име на Кирило-Методиевия език")

"The Language of the St. Brothers Cyril and Methodius and Contemporary Bulgarian" („Езикът на светите братя Кирил и Методий и днешният български език")

"The Bulgarian Language of Thessalonica and Its Skirts" („Българската реч в Солун и Солунско")

"Ohrid and Bulgarian Language" („Охрид и българската реч").

## Dictionaries

"Etymological and Orthographic Dictionary of Literary Bulgarian" („Етимологически и правописен

речник на българския книжовен език")<sup>9</sup>

"Bulgarian Lexicon. With a Reference to the So-Called Dialects" („Български тълковен речник. С оглед към нар. Говори")<sup>10</sup>

## Scholarly Work

The respect and praise acad. Stefan Mladenov has received throughout his whole life are well-deserved [2]. His contributions to Indo-European linguistics have been studied by acad. Vladimir Georgiev, prof. L. Selimski has praised his work in Old-Bulgarian, prof. I. Kochev has written about his attainments in dialectology, corr.-member M. Popova has paid attention to the linguistic terminology in his works, prof. V. Murdarov has described the Vienna period of his life, and so on, and so forth, but we would like to look behind the mask of the usual admiration and see the face of the scholar and the man as it is seen today.

From a contemporary point of view on the work in linguistics he appears to be incredibly versatile: etymology, lexicology, Slavistics, Indo-Europeistics, dialectology, history of Bulgarian, studies of Cyril and Methodius, general linguistics, philosophy of language, all have been covered by his greed for knowledge and understanding. What amazes especially is the fact that he has read courses in history and dialectology of Bulgarian or Polish, or Czech (which is "normal" with his Slavistics' background) alongside with Greek morphology with respect to the main Indo-European languages (almost

<sup>8</sup> 1935.

<sup>9</sup> 1941.

<sup>10</sup> 1951. In co-authorship with A. Teodorov-Balan.

“normal”), Monuments of Gothic and Old-German, Old- Upper German and Sanskrit ... and that is not all [3].

Not the least amazing is the number of the languages he knew actively (from Sanskrit to Old-German)<sup>11</sup> and the very thematization of his courses (e.g. General Linguistics with respect to the Epic Sanskrit of the Mahabharata or Indo-European Names of Rivers and Waters). The very titles make you wish to travel back in time to listen to the courses themselves!

The works mentioned at the beginning reflect the same tremendous scope of scholarly interests and (!) results. We could simply talk of a very prolific author and this would be true, of course, but very superficial as all similar evaluations are. We could talk of outstanding intellectual generosity which is also true and even a bit deeper mainly because it presupposes an idea of the others who must have listened to or read this flood of ideas reverently and not ironically for example. At the end of this quest for the right qualification we shall arrive probably at the key idea of the Bulgarian National Revival – it seems that the author of the books and courses as well as his students and readers equally believed in the absolute power, the absolute value of knowledge and this faith created the intellectual symbiosis between them. It appears that this symbiosis led to the never-ending pursuit of giving more and more, and even more and doing more and more, and more!

<sup>11</sup> He spoke over 30 languages. As acad. I. Duridanov recalls: “His learning was stunning. Over the course of his lectures without any notes at hand he wrote on the board examples not only from the classical languages (Greek and Latin), but from Sanskrit, Avestan, Lithuanian, Gothic, Albanian and other Indo-European languages”.

As we have already mentioned, numerous scholars have analyzed the diverse contributions of acad. Stefan Mladenov to linguistics, that is the reason why we will try to show here something not so very well known. There is the so familiar to every expert in general linguistics scheme of speech production<sup>12</sup> (from p. 100 of S. Mladenov’s General Linguistics<sup>13</sup>):

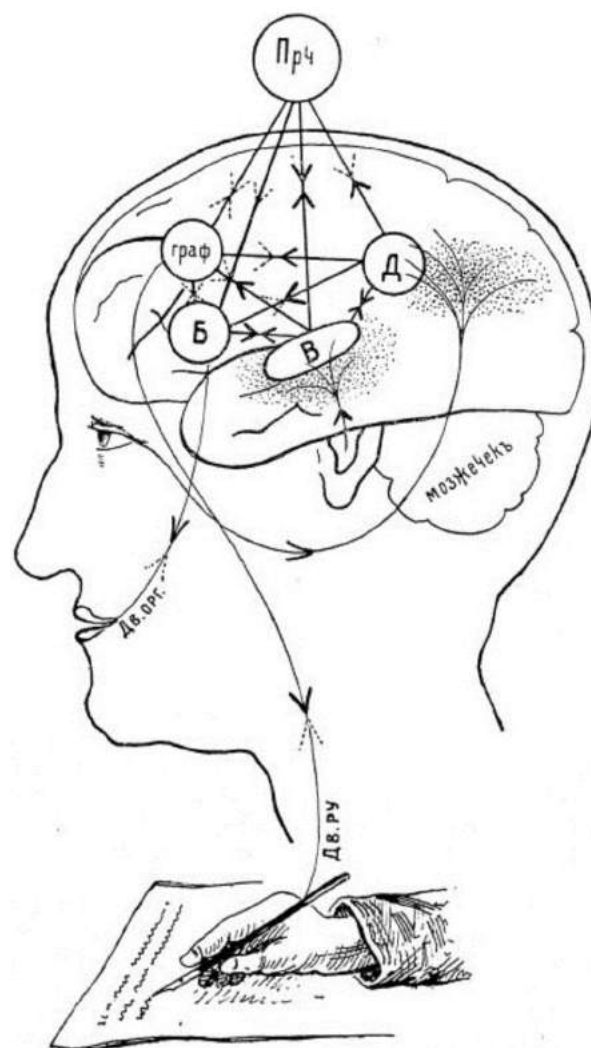


Figure 1.

<sup>12</sup> We use here the original drawing from the Russian original of Thompson. Дв.ру = hand movement, мозжечок = cerebellum, дв.орг. = movements of the organs of speech.

<sup>13</sup> This is the result of his earlier avant-garde article “Language and Thought” (Младенов, Ст. „Мисъл и език“// Философски преглед, 1, 3, pp. 269 – 275.)

How very familiar and how very contemporary in the light of the growing interest in the psychophysiological mechanisms of speech production. The fact that the problem is set in the modern in those days context of historical language study and not in the terms of biolinguistics for example does not influence the value of the ideas themselves. The tastes of the epoch should not mask the very presence of a unique theoretical instinct prompting its owner the importance of the implications of the study of the brain to linguistics.

In the 1942 edition this scheme follows the discussion on linguistic monogenism as opposed to polygenism, i.e. the belief in the differences in racial and linguistic development of humans. Mladenov refutes polygenism on the grounds of the identical function of speech in the brain of all Homo sapiens. That decision turns the problem of psychophysiology of speech from simply contemporary to pressing and makes it into a brave civilian action! Knowledge becomes a motive for action, and turns into real humanity, i.e. humanitarian knowledge is transformed into humanism! As is easy to observe our "hero" was not only a man of great erudition but was also a man of high moral standards that are equally admirable and disconcerting with raising the question of whether you yourself could be equally brave?

And one more thing, if one "googles" the name Stefan Mladenov, there will be besides the boulevard in Sofia the following piece of information: Acad. Stefan Mladenov has donated the Bulgarian Academy of Sciences with 140 000 golden leva [4]. And the quote in

the subtitle: "Compared to what I should have done for half a century, I have done very little". Everyone could experiment asking oneself or somebody younger for an interpretation of the truthfulness of those words – the lack of understanding or the hypocrisy of the answer would show the long distance from the Revival ideals of Mladenov's life and scholarship. And again, the same disquieting question: "And what about me?"

That says what is most urgent to know and understand about this unique man who sets one of the golden standards in cultural history of Bulgaria.

**CORRESPONDING MEMBER**  
**CYRIL MIRCHEV**  
**(1902-1975)**

Prof. Mirchev was born on Dec. 3 1902 in Bitola (Macedonia). He has graduated from Sofia University in Bulgarian Philology. Later on, he has specialized in Slavonic Studies in The Jagellonian University in Krakow (Poland).

The creative work of Corr.-Member Mirchev was focused on the study of Bulgarian in all the historical periods and in all the forms of its existence. His achievements in the field are as numerous as they are versatile and all of them are essential to the development of linguistics." The object of his study has been the development of Bulgarian in its relationship to the Slavic and the Balkanic languages with the ideas of unity and continuity of that development always present in his mind together with the considerations of the multiplicity of territorial dialects and the diversity of genres in the literary language" [5, p. 226].



His "Historical Grammar of Bulgarian" („Историческа граматика на българския език“) first published in 1958 is considered the most fundamental of his works. It is the laconic synthesis of what has been in reality long years of study of the history of Bulgarian. As stated by acad. P. Dinekov "the appearance in 1958 of the historical grammar of prof. Mirchev can be considered a major event in Bulgarian linguistics. [...] a new stage in the scholarly study of Bulgarian" [6, p. 78].

The "Historical Grammar" consists of an introduction and three extensive parts dedicated to the study of phonetics, morphology and syntax of Bulgarian as seen in the perspective of their historical development. Apart from the questions traditionally covered in similar studies prof. Mirchev has turned his attention to themes like the periodization of the Bulgarian language history, the evolution of Bulgarian script, and the sources for the historical study of the language. That interest leads to the differentiation of two important chapters: "A General Overview of the Main Periods in the Development of Bulgarian" („Общ преглед на главните периоди в развоя на българския език“) and "Historical Connections of Bulgarian with Other Languages" („Исторически връзки на българския език с други езици“).

The scholarly contributions to the history of Bulgarian characteristic of the other works of prof. Mirchev are not only numerous and generalizing what has already been achieved but they are opening per-

spectives to new problems and new original solutions, e.g. "Main problems in the Development of Bulgarian" („Главни проблеми на развитието на българския език“)<sup>14</sup>, "Contemporary State of the Studies of the History of Bulgarian" („Днешното състояние на проучванията върху историята на българския език“)<sup>15</sup>, "Bulgarian through the Ages" („Българският език през вековете“)<sup>16</sup>.

Of special interest for the study of these more general problems is the theme of the reflection of the history of Bulgarian in the written records of Middle Bulgarian, e.g. "About the History of the Infinitive in Bulgarian" („Към историята на инфинитивната форма в българския език“)<sup>17</sup>, "Analytical Comparatives in Two Middle Bulgarian Written Records from the 13th C" („Към историята на инфинитивната форма в българския език“)<sup>18</sup>, "About the Articles in Dobreyhsovo-Gospel, a Middle Bulgarian Monument from the 13th C" („За членните форми в Добрейшовото евангелие, среднобългарски паметник от XIII век“)<sup>19</sup>, "Toward the Issue of the Earliest Examples of Analytical Dative in Bulgarian Writings" („По въпроса за най-ранните примери от аналитичен дателен падеж в българските паметници“)<sup>20</sup>, "About the New Morphological Features in the Prague Gospel, a Middle Bulgarian Monument of the 15th C" („За новите морфологични черти в Пражкото евангелие, среднобългарски паметник от XV век“)<sup>21</sup>, "Analytical

<sup>14</sup> Published in 1952.

<sup>15</sup> Published in 1958.

<sup>16</sup> Published in 1964.

<sup>17</sup> Published in 1937.

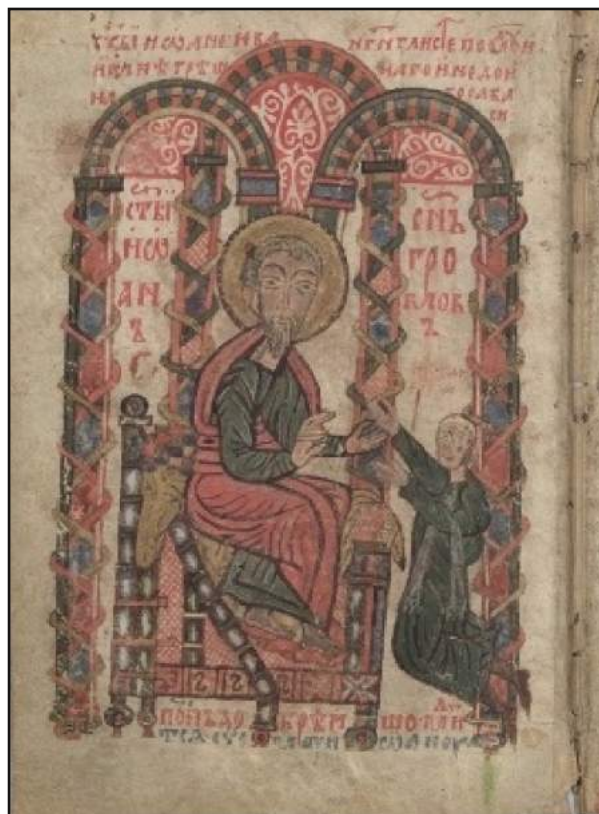
<sup>18</sup> Published in 1956.

<sup>19</sup> Published in the same year (1956).

<sup>20</sup> Published in 1957.

<sup>21</sup> Published in 1964.

Constructions in the Palimpsest from Bojana, a Middle Bulgarian Monument from the 12-13th C” („Аналитични конструкции в Боянското евангелие, среднобългарски паметник от XII – XIII век“)<sup>22</sup>, “The Analytical Feature in the Trojan Tale” („За аналитизма в Троянската повест“)<sup>23</sup> and many other works.



**Figure 2.** Dobreyshovo Gospel

The name of prof. Mirchev is associated with the research of a multitude of Old and Middle Bulgarian manuscripts, e.g. *The Ochrid Gospel*, *The Trojan Tale*, *The Prague Gospel*, *The Bojana Palimpsest*, *The Daniel's Four-Lan-*

*guage Text* (Данаилов четириезичник)<sup>24</sup> and many other.

Some of the most numerous and simultaneously most valuable works of Corr. Member C. Mirchev are dedicated to dialectology, paleography and Old Bulgarian study. As early as the beginning of the thirties in 20th C he published a number of dialectological studies posing such important and interesting for the scholarly community questions like the nasalism in the Macedonian dialects, or the prepositions *в* ('in') and *с* ('with') in different dialects, or the reflexes of Old Bulgarian *ь*, e.g. “About Some Traces of Nasalism in Central Macedonian Dialects” („За някои следи от назализъм в централните македонски говори“)<sup>25</sup>, “The Prepositions *в* and *с* in the Macedonian Dialects” („Предлозите *в* и *с* в македонските говори“)<sup>26</sup>, “Vocal Reflexes of the Root *ь* in the Nevrokop<sup>27</sup> Dialect” („Изясняването на коренно *ь* в Неврокопския говор“)<sup>28</sup>, “Old and New *Iterativa* in Eastern Macedonian Dialects” („Стари и нови *iterativa* в източномакедонските говори“)<sup>29</sup>, “Clerical Texts from the Middle of the Last Century in the Razlog Dialect” („Черковни текстове на разложки говор от средата на миналия век“)<sup>30</sup>, etc. The most important text from that period is considered “The Nevrokop Dialect” from 1936 („Неврокопският говор“). “This is the first and by that

<sup>22</sup> Published in 1964.

<sup>23</sup> Published in 1970.

<sup>24</sup> A text published in 1760 or 1770 by the Romanian priest Daniel. The text contained mainly practical parallel advice in Bulgarian, Romanian, Greek and Albanian.

<sup>25</sup> Published in 1932.

<sup>26</sup> Published in 1933.

<sup>27</sup> Now Gotse Delchev.

<sup>28</sup> Published in 1934.

<sup>29</sup> 1934.

<sup>30</sup> 1936.

moment the only study of a dialect not only from a synchronistic point of view, but from the point of Bulgarian and Slavic diachronic explanation too" [7, p. 8].

Based on the practical results of his numerous greatly original studies as well as on the high degree of theoretical generalization our great linguist set the foundation of the very important task of creating a dialectological atlas of Bulgarian dialects ("Why do we Need an Atlas of the Bulgarian Dialects"<sup>31</sup>). The task was picked up by the Institute of Bulgarian Language at the Bulgarian Academy of Sciences and is still one of its projects with its numerous volumes.

**ACADEMICIAN  
VLADIMIR GEORGIEV  
(1908 – 1986)**

V. Georgiev was born on February 3 1908 in the village of Gabare in the district of Vratsa. His brother was by the way the eminent theoretician of literature and poet at the same time Emil Georgiev. The young Vladimir Georgiev graduated from Sofia University "St. Kliment Ohridski" in Classical Philology. Later on, he specialized in Indo-European, Slavic and General linguistics in the University of Vienna (1933 – 1934), where he defended a Doctor's thesis on the topic of "The Negative Imperative in Greek, Latin, Bulgarian and the

Injunctive". He also studied at the universities of Berlin, Florence (1919 – 1940) and Paris (1946 – 1947).

**Major Works**

"Indo-European Gutturals" („Индоевропейските гутурали")<sup>32</sup>

"Pre-Greek Linguistics" („Предгръцко езикознание")<sup>33</sup>

"Thracian Language" („Тракийският език")<sup>34</sup>

"Problems in Bulgarian Etymology" („Въпроси на българската етимология")<sup>35</sup>

"Introduction to Linguistics" („Увод в езикознанието")<sup>36</sup>

„Исследования по сравнително-историческому языкознанию"<sup>37</sup>

"Bulgarian Etymology and Onomastics" („Българска етимология и ономастика")<sup>38</sup>

"The Vocal System in the Development of the Slavic Languages" („Вокалната система в развоя на славянските езици")<sup>39</sup>

„Introduzione alla Storia delle Lingue Indeeuropee"<sup>40</sup>

"Major Problems of Slavic Diachronic Morphology" („Основни проблеми на славянската диахронна морфология")<sup>41</sup>

"The Thracians and Their Language" („Траките и техният език")<sup>42</sup>.

Those eminent theoretical contribution following acad. Stefan Mladenov in Bulgarian linguistics,

<sup>31</sup> „Защо ни е необходим атлас на българските говори“, 1951.

<sup>32</sup> 1932.

<sup>33</sup> 2-volume monograph, published in the years 1941 – 1945.

<sup>34</sup> 1957.

<sup>35</sup> 1958.

<sup>36</sup> A textbook, written in co-authorship

with prof. Ivan Duridanov. Published in 1958.

<sup>37</sup> 1958.

<sup>38</sup> 1960.

<sup>39</sup> 1964.

<sup>40</sup> 1966.

<sup>41</sup> 1969.

<sup>42</sup> 1977.

on one hand, and having influenced numerous Bulgarian scholars (Yordan Zaimov mentioned in this article, for example) go together with practical lexicological work, reflected in "Old Greek-Bulgarian Dictionary" („Старогръцко-български речник“)<sup>43</sup>, "Orthographic Dictionary of Bulgarian" („Правописен речник на българския книжовен език“)<sup>44</sup>, „Словарь крито-микенских надписей“<sup>45</sup>, "Bulgarian Etymological Dictionary" („Български етимологичен речник“)<sup>46</sup>.

#### Organizational Posts and Credits

Simultaneously with being a great scholar acad. Georgiev was an eminent organizer of Bulgarian scholarship, e.g. Vice Rector of Sofia University "St. Kliment Ohridski" (1948 – 1951), Rector of Sofia University (1951 – 1956), Director of the Institute of Bulgarian Language at the Bulgarian Academy of Sciences (1951 – 1957), Secretary of the Section of Linguistics, Literature Studies and Art Studies at the BAS (1956 – 1963), Vice Chairman of the BAS (1959 – 1972), Director of the Unified Centre for Language and Literary Studies at BAS (from 1972 to his death in 1986), Chairman of the International Committee of Slavists (1958 – 1963; since 1963 – Vice Chairman), Chairman of the Bulgarian Committee of Slavists (since 1955). Vladimir Georgiev was the Editor-in-Chief of the influential periodicals "Balgarski ezik" („Български език") and "Balkan Lin-

guistics" („Балканско езикознание"). Elected Academician in 1952. Doctor Honoris Causa of the Humboldt University in Berlin (1960) and Charles University in Prague (1968). Corresponding Member of the Académie française (1967), of the Finnish Academy (1966), of the Saxonian Academy in Leipzig (1968), of the Belgian Academy (1971) and of the Athenian Academy of Sciences (1977).

His ideas have influenced Bulgarian and foreign scholars alike; to mention just a few: Ute Dukova, Georgi Rikov, Brandenstein, Merlingen, Haas, etc.

#### Major Ideas

We started this presentation with the direct enumeration of the major titles in the vast work inheritance of acad. Georgiev with the intention of "making" him see by himself/herself the intense focus on only three or four capital areas in the fields of Indo-European studies, etymology, Slavisticcomparativistics and linguistic archaeology. It is this focus, this scholarly intuition that are the compass in the assessment of results of his impressive efficiency.

And so, the major results which turn the name of acad. Georgiev into a synonym of Indo-European linguistics are:

- Reconstruction of the Thracian language;
- Deciphering the Creto-Mycenaean and Etruscan inscriptions;

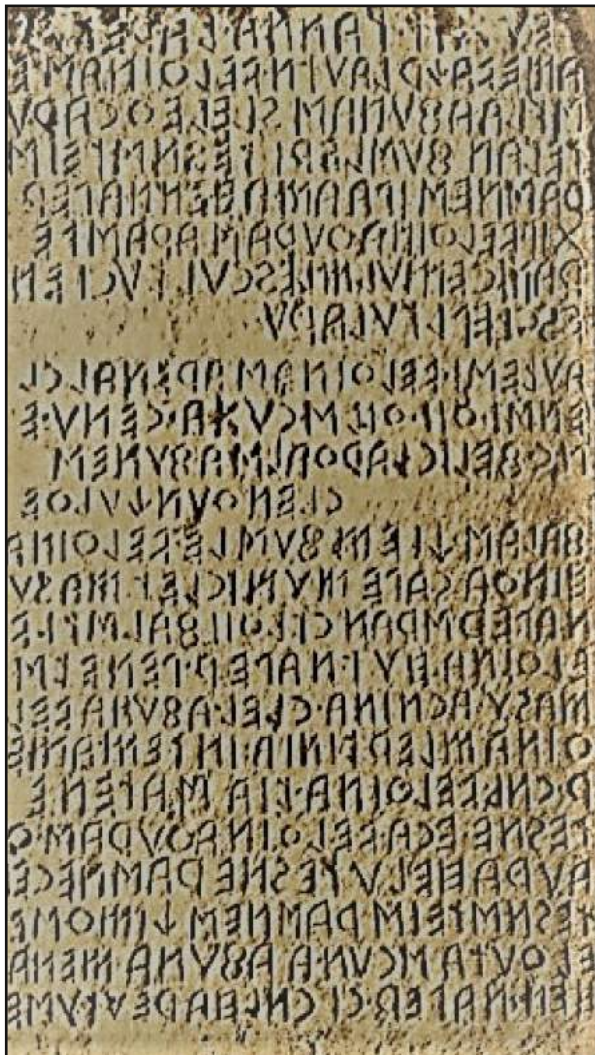
<sup>43</sup> In co-authorship with I. Voynov, B. Gerov, D. Dechev, A. Milev, M. Tonev. Published in 1939.

<sup>44</sup> In co-authorship with I. Lekov and L. Andreychin. Published in 1945.

<sup>45</sup> 1955. This one hardly can be considered a work of pure lexicography.

<sup>46</sup> 1971 – 1986. This work is the result of a collective effort guided by acad. Georgiev.





- An innovative view of the phonology of Pre-Slavic. Special mention is due of the liquid metathesis, a late Pre-Slavic phonetic process concerning the shifts between the vowels a, o, e and the so-called liquid consonants in the groups \*tart, \*tort, \*tert, \*talt, \*tolt, \*telt, \*ort, \*art, \*elt. This specific phenomenon inherited by Old Bulgarian as well has different reflexes in the Slavic languages, which leads to the differentiation of the groups of those languages;
- His opus magnum, i.e. the hypothesis of Proto-Indo-European Uhrheimat.



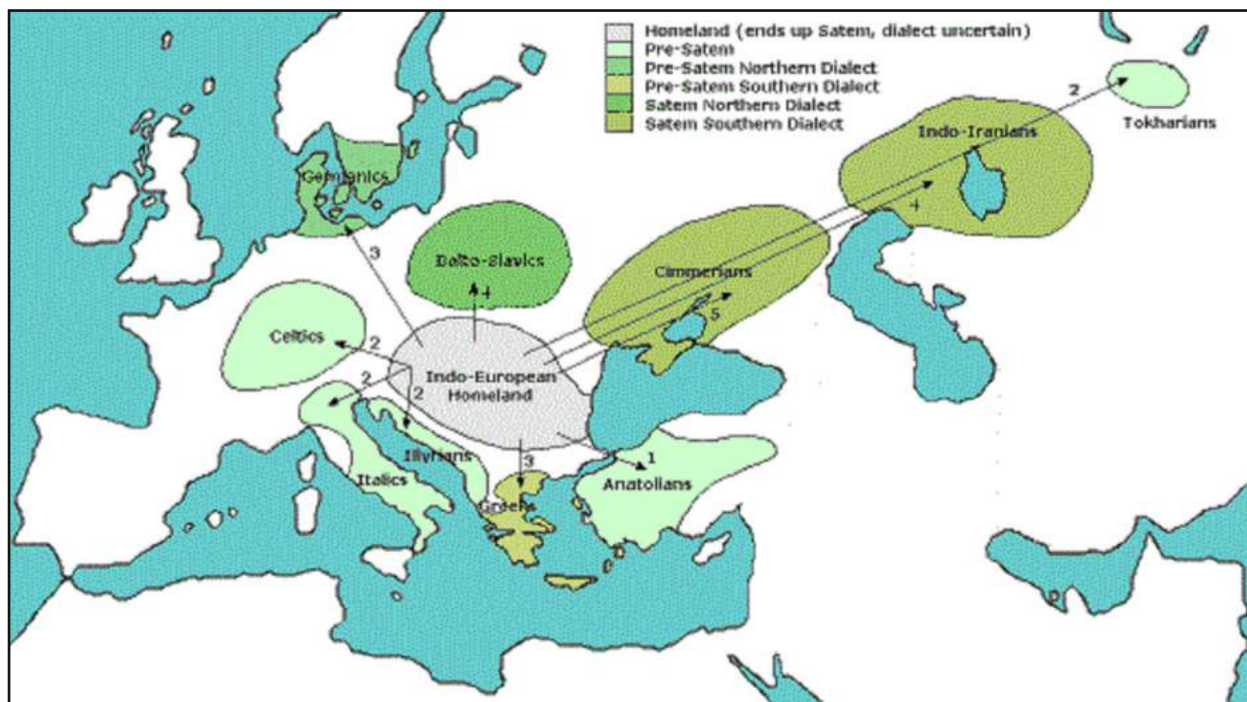
**Figure 3.** An Inscription on a Column from Perugia (2nd C BC).

**Figure 4.** The Place of the Hypothesis among Other Ones



This figure shows by the way not only the localization of the Uhrheimat in the understanding of the Balkan hypo-

thesis of Georgiev but shows his eminent place among the others who offered their vision of this fundamental problem.



**Figure 5.** The Hypothesis by Itself

It must be remembered that these grand theoretical ideas are born from and in the context of “material” research like the doctorate on the negative imperatives or the gutturals in Indo-European, or lead themselves to quite practical results, e.g. “Old Greek-Bulgarian Dictionary („Старогръцко-български речник)”, “Orthographic Dictionary of Bulgarian” („Правописен речник на българския книжовен език)”, „Словарь крито-микенских надписей”, “Bulgarian Etymological Dictionary” („Български етимологичен речник”).

The extraordinary talent of acad. Georgiev, his visionary power is best realized on the example of his research on the Thracian language. In his words he had at his disposal:

1. A small number of glosses;
2. About 1500 geographical (toponyms) and personal names;
3. A few short inscriptions;

4. A couple of words left in the Balkan languages;

5. Some conclusions that can be drawn on the base of the evidence of the Balkan languages [8, c. 10].

The problem of Thracian is seen in the perspective of the important question of the ethnogenesis of the Bulgarian people, i.e. in the perspective of something truly grand, something really beyond the study of small problems of interest only for the experts. That is the text in its nature is really interdisciplinary. Here the vision and the ideas of the author open the door to eternity. That research is theoretically beautiful and intellectually absorbing.

His other great idea, already illustrated above, is the idea of the Indo-European Uhrheimat, which theoretically is a specific combination of the principle of the center of gravity and



the principle of conservatism [9]. The hypothesis of the center of gravity considers the existence of a center and a periphery of the linguistic changes which allows the measurement of the degree of change in relevant terms. That allows the postulation of the Balkan-Baltic hypothesis. The hypothesis of the principle of conservatism relies on the understanding that the peripheral languages (e.g. the Baltic) are the most conservative not only lexically but grammatically as well, while the center is the most prone to dispersion. It leads to the so-called Baltic hypothesis, one of the pillars of the ideas of acad. Georgiev.

That point of view is not generally accepted but that is not important in the perspective of the evaluation of the intellectual courage of its author, his visionarism and his ability for synthesis of his own ideas. All ideas age at some point...

That idea is moving as well from the point of view of another synthesis – the synthesis of intellectual emotions and patriotic emotions, which yields the true gold of something beyond the power of time.

**CORRESPONDING MEMBER  
LYUBOMIR ANDREYCHIN  
(1910 – 1975)**

L. Andreychin was born on April 4 1910 in the town of Gabrovo. He graduated from the Sofia University "St. Kliment Ohridski" in Slavic Philology and further specialized in the Jagellonian University in Krakow (Poland).

The body of prof. Andreychin's work is quite versatile but the main accent should be laid on the grammatical structure of Modern Bulgarian, the history of literary Bulgarian from the point of view of its formation and its link to language culture.

His main work titled "Fundamental Bulgarian Grammar" („Основна българска граматика“) was published in 1944. It is estimated by the experts as "the first systematic descriptive work on Bulgarian, based on a unified methodological conception connected to the consistent application of a scientifically proven semantic-functional analysis of grammatical forms and constructs" [11, p. 455].

A pronounced distinctive feature of prof. Andreychin's approach to grammatical structure and grammatical categories in this book is the direction from meaning and sense to form. This work is "the first attempt to describe the grammatical structure of Modern Bulgarian as a functional and functioning system. This is a novelty not only in Bulgarian linguistic practice but in European as well" [12, p. 288]. This approach is fruitful in new ideas in all three major grammatical divisions: phonetics, morphology and syntax.

The most characteristic feature of the "Phonetics" chapter is the differentiation of contemporary and historical phonetic laws in their connection to the first statement of orthoepic norms.

All the aspects of the modern morphological system are the object of a thorough yet synthetic and laconic analysis. The most attention is dedicated to the problems of the Verb system where the most important contributions are:

- The differentiation of nine tenses and the refinement of the terms for their description;
- The differentiation of the renarrative (non-evidential) mood in Bulgarian and the very introduction of the idea of non-evidentiality;
- The differentiation of the tem-

poral and model verbal forms;

- The special attention to the rules of aspect formation and to the aspect semantics;

- The differentiation of the semantics of the two forms of the conditional, etc.

The third chapter of the book deals with the structure of the so called simple and complex sentences. It is the first book in which the so called standalone syntactic functional units (обособени членове на изречението) are described.

"This work", as Corr. Member S. Burov states, "has an enviable destiny. It lays the fundamentals of our contemporary grammatical thought. Many of its ideas have been developed, specified or corrected through the years but that does not diminish in the least its scholarly value" [12, p. 289].

In the years to follow Corr. Member L. Andreychin develops the themes of the specific national character of Modern Bulgarian but in the context of its Slavic origin, e.g. "About the Analytic Character of Modern Bulgarian" („Към въпроса за аналитичния характер на съвременния български език“)<sup>47</sup>, "Grammar as Branch of Scholarship and Its Practical Role" („Граматиката като наука и нейната практическа роля“)<sup>48</sup>, "About Some Grammatical Disagreements" („За някои граматични разногласия“)<sup>49</sup>, "The Problem of Voice in Bulgarian Verbal System" („Залогът в

българската глаголна система“)<sup>50</sup>, "The Verbal Tenses in Bulgarian Passive Conjugation" („Глаголните времена в българското страдателно спрежение“)<sup>51</sup>, "Some Characteristics of the Perfectum (Past Indefinite Tense) in Bulgarian" („Към характеристиката на перфекта (минало неопределено време) в българския език“)<sup>52</sup>, "On the Morphological Nature of the Aspectual System in Modern Bulgarian" („Към морфологичната характеристика на видовата система в съвременния български език“)<sup>53</sup>, etc.



**Figure 6.** The Verbal System of Modern Bulgarian

<sup>47</sup> Published in 1952.

<sup>48</sup> 1953.

<sup>49</sup> 1955.

<sup>50</sup> 1956.

<sup>51</sup> 1956.

<sup>52</sup> 1957.

<sup>53</sup> 1958.



The other linguistic field to which Andreychin has contributed most to is the history of Bulgarian literary language. His main contribution is in the very differentiation of this discipline. At first, he studied the role of individual men of letters like Paisius of Hilendar, Sophronius of Vratsa, Peter Beron, Ivan Bogorov, Hristo Botev, Lyuben Karavelov, Ivan Vazov. Only then he moves to creating his theory of the development of literary Bulgarian, its main elements being

- The idea of the beginning of the national language in the "Slavonic-Bulgarian History" („История славяноболгарская“) of Paisius of Hilendar,

- The idea of role of Old Church Slavonic and the influence Russian in its formation, e.g. "The Role of Old Church Slavonic in the Formation of Modern Bulgarian Literary Language" („Ролята на черковнославянския език за изграждането на съвременния български книжовен език“)<sup>54</sup>, "The Role of Russian in the Development of Modern Bulgarian Literary Language" („Ролята на руския език в развитието на съвременния български книжовен език“)<sup>55</sup>;

- The idea of peculiarities in its formation like the absence of a previous common dialect, that could be used as its base, or like the use of some material from our cultural tradition, e.g. "From the History of the Bulgarian Literary Language" („Из историята на българския книжовен език“)<sup>56</sup>, "Interrelations

between Vernacular Language and Literary Influences in the Formation of the Modern Bulgarian Literary Language" („Взаимодействие между народен език и книжовни влияния при формирането на новобългарския книжовен език“)<sup>57</sup>, "Old Bulgarian Building Elements in the Modern Bulgarian Literary Language" („Старобългарско градиво в съвременния български книжовен език“)<sup>58</sup>, "Origin and Specifics of Some Structural Peculiarities of the Modern Bulgarian Literary Language" („Характер и произход на някои структурни особености на новобългарския книжовен език“)<sup>59</sup>.

Special attention has deserved the problem of the norm formation of the literary language, e.g. "Processes of Unification in the Bulgarian Literary Language in the First Two Decades after the Liberation" („Унификационни процеси в българския книжовен език през първите две десетилетия след Освобождението“)<sup>60</sup>.

"If we try to summarize the contribution of L. Andreychin to the field of historical literary language study", states prof. R. Russinov, "we have to point at least to the following: the working out and scholarly proof of a complete theory of the formation of the Bulgarian literary language; the elaboration of a procedure of studying the sources[...]; the study of the fundamental structural peculiarities of the literary language and of the formation of its norms [...], etc." [13, p. 17].

<sup>54</sup> 1958.

<sup>55</sup> 1964.

<sup>56</sup> 1964.

<sup>57</sup> 1963.

<sup>58</sup> 1963.

<sup>59</sup> 1963.

<sup>60</sup> 1973.

The third field of the steady interest of L. Andreychin is language culture. Here is some evidence from his students: "We all remember the proverbial patience and perseverance, the remarkable responsibility with which prof. Andreychin directed and led the restless "front" of our language practice [...]. The titles of his books "On linguistic Guard" (1961) and "Linguistic Alerts" (1973) are remembered by everyone who is interested in the fate of Bulgarian, they have become the titles of columns in our press which are still followed by the wide public" [11, c. 457].

#### **PROFESSOR STOYAN STOYANOV (1911 – 1997)**

Prof. Stoyanov was born on February 16 1911 in the village of Makotseve near Sofia. He graduated from Sofia University "St. Kliment Ohridski" in Slavic Philology and specialized later on in Krakow and Warsaw (Poland).

The creative work although versatile is most original in the field of the Modern Bulgarian language. His most fundamental contribution is the "Grammar of the Bulgarian Literary Language (Phonetics and Morphology)" („Граматика на българския книжовен език (фонетика и морфология)"). It published in 1964 and has been reissued 6 times until 1995 and continues to be published up to that day. During those years it has turned into a most valuable manual in phonetics and morphology for Bulgarian and foreign linguists alike. It presents the readers with a complete view and understanding of the phonetics and morphology as well as gives quite practical help in matters of concrete grammatical usage. The experts value above all the

synthetic and simultaneously original character of this basic work in the grammar of Bulgarian. "Synthetic" in the words of prof. K. Popov, "as it summarizes, synthesizes and critically evaluates and accepts everything that is positive in the research of the last years, and original as the author quite often relies solely on his own studies and observations and draws in new material, interprets either facts or regularities or phenomena in a new way, i.e. the Bulgarian phonetic system, the nominal articles, verbal nouns, tenses, etc." [14, p. 86]. "In reliance on new data are interpreted new unstudied aspects of our language [...]. Especially original are the ideas of prof. Stoyanov on dialects and subdialects and even more on the difference between literary and national language" [15, p. 472].

The "Phonetics" chapter offers numerous new approaches to facts well known earlier to Bulgarian linguistics, mainly this book is the first place where the phonological ideas of Trubetskoy have been applied to Bulgarian. The new methodology used coupled with the personal qualities of prof. Stoyanov as a highly erudite expert in the field of phonetics and phonology, as well as of dialectology, Old Bulgarian, historical and modern grammar allow the achievement of serious results in the study of the phonological system of Bulgarian. Especially interesting are the contributions to the research of the system of vocals, and to the classification and explanation of the phonetic laws of Modern Bulgarian as well the reflexes of the laws of sound alternations in Old Bulgarian in the modern language.

The content of the "Morphology" chapter is especially synthetic and

rich in content – it contains the generalization of the most characteristic features of Bulgarian that (apart from analyticity) differentiate it from the other Slavic languages. The category of the definite article post positioned after nouns is interpreted in an innovative way too.

An important feature of the “Grammar of Bulgarian” is its normative character which makes it a valuable everyday usage manual.

Parallel to the creation of the book analyzed in the previous paragraphs prof. Stoyanov has taken part in the writing of a number of other grammars, e.g. “Grammar of Bulgarian” („Граматика на българския език“)<sup>61</sup> the authorship of which he divides with L. Andreychin and K. Popov. Besides he is the author and editor-in-chief of the second volume of the “Grammar of Modern Bulgarian Literary Language” („Граматика на съвременния български книжовен език“)<sup>62</sup>.

All the research of our eminent linguist were dedicated to Bulgarian, to all its different fields and aspects: Modern Bulgarian and Old Bulgarian, historical grammar and history of language, dialectology and etymology, lexicology and stylistics. An expressive example is his theory of the existence of two voices in Bulgarian, e.g. “Voice of the Bulgarian Verb” („Залог на българския глагол“)<sup>63</sup> which is overwhelmingly logical and hence generally accepted. Equally original is his understanding of the relation-

ship between the category of voice and the categories of transitivity/intransitivity, reflexivity and impersonality.

A number of his other works like “About the Structure of the Vocal System of the Modern Bulgarian Literary Language” („Към въпроса за състава на вокалната система на българския книжовен език“)<sup>64</sup>, “Word Formation in Bulgarian” („Словообразуването в българския език“)<sup>65</sup>, “Deverbative Nouns Formed from Perfect Verbs with the Suffix -не” („Отглаголни съществителни с наставка -не от свършени глаголи“)<sup>66</sup>, “The Grammatical Category of Definiteness in Bulgarian” („Граматическата категория определеност в българския език“)<sup>67</sup> are equally creative and original.

Prof. Stoyanov’s ideas on syntax are as interesting to linguists as are his other insights, e.g. “On the Combinatorics of Words in Bulgarian” („За съчетаемостта на думите в българския език“)<sup>68</sup>, “On Defining the Subject” („За дефиницията на подлора“)<sup>69</sup>, “Some Peculiarities of the Objects, Adverbials and Attributes Expressed with Prepositions+ Nouns” („Някои особености на допълненията, обстоятелствените пояснения и определенията, изразявани с предлози +съществителни имена“)<sup>70</sup>, “Predicative Attributes as Complex Verbal Forms” („Сказуемното определение като сложна глаголна форма“)<sup>71</sup>,

<sup>61</sup> 1977.

<sup>62</sup> 1983.

<sup>63</sup> 1962.

<sup>64</sup> 1968.

<sup>65</sup> 1977, 1980.

<sup>66</sup> 1966.

<sup>67</sup> 1980.

<sup>68</sup> 1962.

<sup>69</sup> 1958.

<sup>70</sup> 1960.

<sup>71</sup> 1962.



“Some Peculiarities of the Isolated Attributes in Bulgarian” („Някои особености на обособените определения в българския език“)<sup>72</sup>, “The Substantive Word Groups [Formed around] Coordinated Attributes in Bulgarian Compared with [Analogous Groups] in Polish and Russian” („Субстантивните словосъчетания със съгласувани определения в българския език в съпоставка с полски и руски език“)<sup>73</sup>, “The Word Order of Substantive Word Groups [Formed around] Non-Uniform Coordinated Attributes” („За словореда на субстантивните словосъчетания с нееднородни съгласувани определения“)<sup>74</sup>, etc., etc.

Of course, we should mention the contributions of our great linguist to the fields of lexicology and lexicography, as well as to stylistics, e.g. “Some Questions around the Word as Unit of Lexicography” („Някои въпроси във връзка с думата като речникова единица“)<sup>75</sup>, “Vaptsarov and the Bulgarian Literary Language” („Вапцаров и българския литературен език“)<sup>76</sup>, “Some Observations on the Style and Language of N.Y. Vaptsarov” („Наблюдения върху езика и стила на Н. Й. Вапцаров“)<sup>77</sup>, “The Adjective as Artistic Attribute” („Прилагателното име като художествено определение“)<sup>78</sup>.

Even more substantial is the contribution of prof. Stoyanov to the study of Old Bulgarian and the history of Bulgarian, e.g. “To the Periodization of Bulgarian” („По

въпроса за периодизацията на българския език“)<sup>79</sup> where is set forth the thesis of the existence of Middle Bulgarian. His interpretation of the first verse of The Alphabetical Prayer is for example, original and innovative, e.g. “Some Remarks on the Verse *Азъ словомъ снмъ молихъ са богоу:* in The Alphabetical Prayer” („Бележки върху стиха *Азъ словомъ снмъ молихъ са богоу:* в „Азбучна молитва“)<sup>80</sup>, “On the Variants of *Азъ словомъ снмъ молихъ са богоу:* in The Alphabetical Prayer” („Относно разнечетенето *Азъ словомъ снмъ молихъ са богоу:* в „Азбучна молитва“)<sup>81</sup>.



Figure 7. A Fragment of the Alphabetical Prayer

<sup>72</sup> 1962.

<sup>73</sup> 1973.

<sup>74</sup> 1973.

<sup>75</sup> 1957.

<sup>76</sup> 1979.

<sup>77</sup> 1980

<sup>78</sup> 1974.

<sup>79</sup> 1952.

<sup>80</sup> 1963.

<sup>81</sup> 1975.



The proposals of new understanding of well-known postulates are not the less important, e.g. "Once again on the Rock Inscriptions near the Village of Tsarevets, Vratsa" („Отново за скалните надписи при село Царевец, Врачанско")<sup>82</sup>, "Notes on the Reading and Interpretation of some Paragraphs in *Nominalia of the Bulgarian khans*" („Към четенето и тълкуването на някои места в Именника на българските ханове")<sup>83</sup>, "Phonetical Value of Digrams and Letters with Ligatures in the Glagolitic Alphabet" („Фонетичната стойност на буквите с диграмен и лигатурен характер в глаголицата")<sup>84</sup> and so, and so forth. The enumeration can go on forever... But even that is quite enough for the characterization of the work of the great scholar.

The portrait of prof. Stoyanov would be incomplete if we don't mention one of his socially very useful characteristics, i.e. his careful attitude to the language practice. For example, he proposed some of the solutions to the most difficult questions of orthography of Bulgarian, e.g. "On Our Orthography" („За нашия правопис")<sup>85</sup>, "On Some Problems of Our Orthography" („По някои въпроси на нашия правопис")<sup>86</sup>, "Fused, Semi-Fused and Two-Word Writing of Complex Words in Bulgarian" („Слято, полуслято и разделно писане на сложни съставни думи в българския език")<sup>87</sup>, "Changes Are Mandatory" („Промени са необходими")<sup>88</sup>.

## PROFESSOR STOYKO STOYKOV (1912 – 1969)

Prof. Stoykov was born on January 26 1912 in Sofia. He has graduated from the Sofia University "St. Kliment Ohridski" in Slavic Philology in 1935. Later on, he has specialized in experimental phonetics, dialectology and Slavistics in the Charles University (Prague).

The main fields of research chosen by prof. Stoykov are phonetics and dialectology.

"As an alumnus of the Prague phonetic school Stoyko Stoykov was the first among Bulgarian linguists who began to apply the experimental method in his phonetic research [...]. He has greatly contributed to the re-orientation of the Bulgarian study of phonetics from acoustic to experimental principles" [16, p. 484].

All experts agree that the "Introduction to the Phonetics of Bulgarian" („Увод във фонетиката на българския език")<sup>89</sup> can be defined as his central work. Besides the traditional information on the sound system of Bulgarian it covers questions rarely raised by Bulgarian or foreign phoneticians, e.g. the structure and function of the articulatory organs and the specifics of articulation of vowels or consonants, or the sound changes and the laws that govern them synchronically or diachronically, or the melodic of speech. "The classification (articulatory and acoustic) of the speech sounds is [especially] successful" [17, p. 514] The fact that the de-

<sup>82</sup> 1985.

<sup>83</sup> 1971.

<sup>84</sup> 1988.

<sup>85</sup> 1965.

<sup>86</sup> 1971.

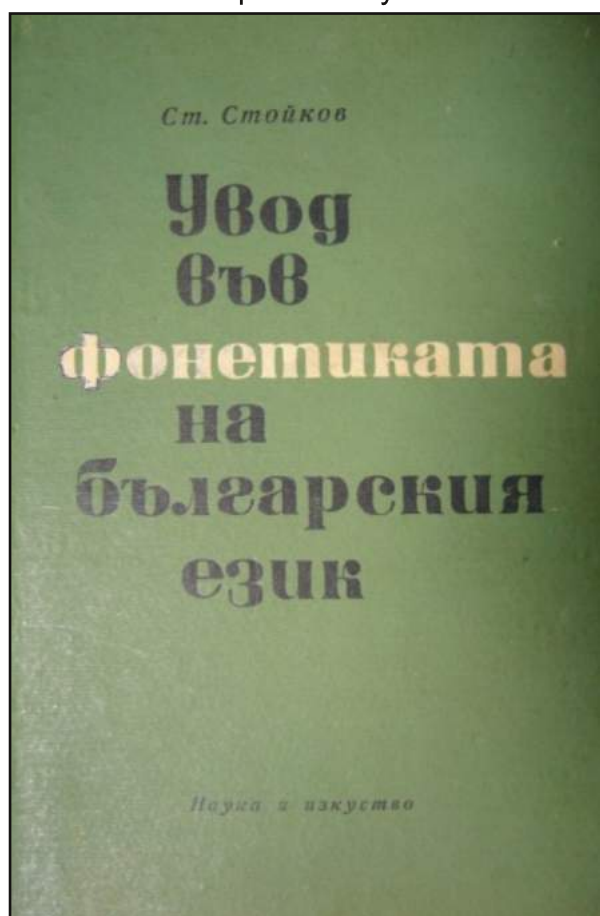
<sup>87</sup> 1973.

<sup>88</sup> 1977.

<sup>89</sup> 1955, 1961, 1966.

scription is accompanied by relevant historical data is of special interest. The system of accentuation is the object of thorough study which includes the interpretation of his own experimental scripts. The phonetic structures of speech (syllable and measures) are described acoustically and articulatory, while the melody of speech is analyzed from the point of view of syntax and the point of view of the emotional influence. Aside of the description methods the scholar uses the tools of experimental phonetics, the methods of phonology and the comparative study of languages.

Before and after writing his seminal work prof. Stoykov makes a



thorough description of the phonetical and phonological phenomena of Bulgarian. In this way he “has contributed to the differentiation of sound and phoneme in Bulgarian and to the determination of the number of its phonemes”[16, p. 485], e.g. “Bulgarian Literary Pronunciation. Experimental Study” („Български книжовен изговор. Опитно изследване”)<sup>90</sup>, “Palatal Consonants in Literary Bulgarian” (in Czech: „Palatalni souhlasky ve spisovné bulharštině”)<sup>91</sup>, “Palatal Consonants in Literary Bulgarian” (in Bulgarian: „Палатални съгласни в българския книжовен език”)<sup>92</sup>, “Sound and Phoneme” („Звук и фонема”)<sup>93</sup>, “Phonological Value of the Consonants *z*, *u* and *ch*’ in Literary Bulgarian” (In Czech: „Fonologická hodnota souhlasek *z*, *u* a *ch*’ vespisovné bulharštině”)<sup>94</sup>, “Phonetic Changes in Language” („Фонетични промени в езика”)<sup>95</sup>. Prof. Stoykov has paid special attention to phonetic terminology as well. Thus in his work “Bulgarian Phonetic Terminology” („Българската фонетична терминология”)<sup>96</sup> “he subjects the phonetic terms to thorough analysis and offers a rational solution for their use” [18, p. 364]. Likewise in “The Dialect of Banat” („Банатският говор”)<sup>97</sup> the questions of grammatical terminology are of superior importance.



**Figure 8.** Introduction to the Phonetics of Bulgarian

<sup>90</sup> 1942.

<sup>91</sup> 1949.

<sup>92</sup> 1952.

<sup>93</sup> 1953.

<sup>94</sup> 1962.

<sup>95</sup> 1959.

<sup>96</sup> 1948.

<sup>97</sup> 1967.

The other field of special interest that has resulted in serious contributions is the field of dialectology. His other great work "Bulgarian Dialectology" („Българска диалектология“)<sup>98</sup> is book of impressive theoretical and practical value as a manual and a guide to the study of Bulgarian dialects. After Stoykov defines the borders of the Bulgarian territory, he very synthetically describes the Bulgarian dialects within the state boundaries as well as outside of them, paying attention to their historical and contemporary classification, his most important contributions being the following:

- The statement that to the west Bulgarian blends with another Slavic language without a clear isogloss;
- The "objective and scholarly [...] statement that the Bulgarian language territory includes the Macedonian dialects [19, p. 51].;
- The use of the areal method of linguistic geography alongside with the traditional dialectological methods

Prof. Stoykov has also left a number of works dedicated to individual dialects, which he analyzes as separate territorial systems, e.g. "The Dialect of Strandzha" („Странджанският говор“)<sup>99</sup>, "The Sub-Dialect of the Village of Tvarditsa (of the Sliven Region in Bulgaria) and the Village of Tvarditsa (Moldova)" (in Russian: „Говор села Твърдицы (Сливенской околии в Болгарии)

и села Твардицы (Молдовской ССР)“)<sup>100</sup>, "The Dialect of Banat" („Банатският говор“)<sup>101</sup>, "The Sub-Dialect of the Village of Mugla in (the Region of) Devin" („Говорът на с. Мугла, Девинско“)<sup>102</sup> and many other.

He has conceptualized and directed the work on such an important linguistic undertaking as "The Atlas of Bulgarian Dialects" („Български диалектен атлас“). Prof. Stoykov is the author of the Program (1957) for collecting the data for the Atlas.

Another valuable aspect of the work of Stoyko Stoykov is the fact that he was the first to pay attention to the social dialects of Bulgarian, e.g. "The Dialect of the Schools of Sofia. A Contribution to Bulgarian Social Dialectology" („Софийският ученически говор. Принос към българската социална диалектология“)<sup>103</sup>, "Bulgarian Social Dialects" („Българските социални говори“)<sup>104</sup>.

The eminent dialectologist has contributed to other fields of linguistics as well – morphology, for example, e.g. "The Use of Articles with Masculine Singular Nouns in Literary Bulgarian" („Членуване на имената от мъжки род, единствено число в българския книжовен език“)<sup>105</sup>, or lexicology, e.g. he was one of the authors of "Bulgarian Lexicon" („Български тълковен речник“)<sup>106</sup>, or history of Bulgarian, e.g. "Vuk Karadžić and Bulgarian" („Вук Караджич и българският език“)<sup>107</sup>, or ortho-

<sup>98</sup> 1962, 1968, 1993.

<sup>99</sup> 1957.

<sup>100</sup> 1958.

<sup>101</sup> 1968.

<sup>102</sup> 1971.

<sup>103</sup> 1946.

<sup>104</sup> 1947.

<sup>105</sup> 1950.

<sup>106</sup> 1955, 1963, 1973.

<sup>107</sup> 1964.

graphy, e.g. “A Manual of Orthography and Orthoepy” („Правописен и правоговорен нарѣчник“)<sup>108</sup>, “Orthographic Dictionary of the Literary Bulgarian Language” („Правописен речник на българския книжовен език“)<sup>109</sup>. In all of these Stoykov “defends the idea of a unified orthography, based on the reasonable harmony of the phonetic and morphological principle” [16, p. 485].

**PROFESSOR  
KRISTALINA CHOLAKOVA  
(1916 – 2009)**

Prof. Cholakova was born on March 12 1916 in the town of Byala. She graduated from the Sofia University “St. Kliment Ohridski” in Classical Philology.

Her scholarly interests coupled with her contributions range from lexicology and lexicography through phraseology to grammar. Yet her name is mainly associated with the Academic Lexicon of Bulgarian – the most prominent lexicological achievement of Bulgarian linguistics. It is simultaneously “the most important achievement in the scholarly career of K. Cholakova. It accumulates not only her scholarly expertise and knowledge but all her spiritual and intellectual energy” [20, p. 120]. K. Cholakova (in co-authorship with Z. Genadieva, K. Nicheva and S. Spasova-Mikhaylova) has created the conceptual framework of the Lexicon of Bulgarian and has offered the guidance for the concrete proceeding with it. The framework itself was based on the individual studies in lexicology of K. Cholakova. “Her

credo was that an interpretative lexicon of an academic type should reflect the lexico-semantic system of the language in its total complexity and that is why the description of the semantic structure of the lexical units should represent as completely as possible the morphological and syntactic characteristics which determine its semantic variations” [20, p. 120]. After creating the theoretical framework from volume 1 until volume 8 prof. Cholakova was an editor and the editor-in-chief of the Lexicon of Bulgarian. Later on, that work was carried out by her students. Volume after volume it proceeds to completion, being revised, expanded, and updated in the meantime.

“In her theoretical research K. Cholakova was always guided by the imperative that the problems she chose to investigate had to be of relevance for her work on the Lexicon [...] A number of her papers concerning lexical semantics, or the interrelations between the lexical and grammatical meaning, or the transition from one part of speech to another [...] are of direct relevance for the lexicographers” [21, p. 269]. That observation concerns for example “A Case of Developing Opposite Meanings in Modern Literary Bulgarian” („Един случай на развитие на противоположни значения в съвременния български език“)<sup>110</sup>, “Homonyms in Modern Literary Bulgarian” („Омоними в съвременния книжовен български език“)<sup>111</sup>, “Some Peculiarities of the Semantic-Grammatic Functions of the Ad-

<sup>108</sup> 1945.

<sup>109</sup> 1965.

<sup>110</sup> 1957.

<sup>111</sup> 1959.



verbs *как*, *както* and *като*“ („Някои особености в семантико-граматическите функции на наречията *как*, *както* и *като*“)<sup>112</sup>, “On Some Interpolated Words and Interpolated Phrases and Their Interpretation in Dictionaries” („За някои вметнати думи и вметнати съчетания от думи и тълкуването им в речниците“)<sup>113</sup>, “On the Lexical Expression of Modality” („Към въпроса за изразяване на модалност по лексикален път“)<sup>114</sup>, “Voice as a Grammatical and Lexical Problem” („Залогът като граматична и лексикографска проблема“)<sup>115</sup>, “About Some Analytically Structured Verbs and Their Lexicological Processing” („За някои глаголи с аналитично оформена структура и тяхната лексикографска обработка“)<sup>116</sup>, “Linguistic Factors Conditioning the Semantic Variations of a Lexical Unit” („Езикови фактори, обуславящи семантичните вариации на лексикалната единица“)<sup>117</sup>, “Semantic and Syntactic Valence of the Lexical Unit” („Семантична и синтактична валентност на лексикалната единица“)<sup>118</sup>.

Another important field of K. Cholakova's research is the field of phraseology. Her achievements there are of both theoretical and applied lexicographical nature. Quite a few are on the theory of lexicography, e.g. “On the Stable Com-

ponent of Some Phraseological Units” („За устойчивото в структурата на някои фразеологични единици“)<sup>119</sup>, “On the Problem of the Form of the Phraseological Unit” („Към въпроса за формата на фразеологичната единица“)<sup>120</sup>, “About the Lexical-Grammatical Identity of the Phraseological Unit with the Word” („За лексико-граматичната еквивалентност на фразеологичната единица с думата“)<sup>121</sup>, “On Some Variations in the Formal Structure of Phraseological Units” („За някои видоизменения във формалната структура на фразеологичните единици“)<sup>122</sup>, “Stable Compound Phraseological Units” („Устойчиви съчетания фразеологични единици“)<sup>123</sup>, “Structural-Syntactic Peculiarities of the Phraseological Unit and Punctuation and Orthoepy” („Структурно-синтактични особености на фразеологичната единица и пунктуация и правопис“)<sup>124</sup>.

The contributions of prof. Cholakova to the field of theoretical phraseology just outlined are equaled by her work in the lexicological phraseology. A seminal work for Bulgarian lexicography is the first two-volume<sup>125</sup> phraseological dictionary where she offers not only a new original theory of phraseology but demonstrates a model approach to lexicological phraseological descrip-

<sup>112</sup> 1960.

<sup>113</sup> 1963.

<sup>114</sup> 1964.

<sup>115</sup> 1973.

<sup>116</sup> 1973.

<sup>117</sup> 1979.

<sup>118</sup> 1975.

<sup>119</sup> 1961.

<sup>120</sup> 1967.

<sup>121</sup> 1968.

<sup>122</sup> 1968.

<sup>123</sup> 1980.

<sup>124</sup> 1969.

<sup>125</sup> 1974, 1975.

tion. The theory and the practice of this dictionary make “foreign scholars talk about a Bulgarian school in theoretical phraseology which is especially valued in the Slavic world” [19, p. 119].

Problems of grammar are a constant concern of K. Cholakova, the verb being the object of special attention. The verb is studied not only lexicographically, as was just demonstrated, but is researched from the point of view of the essence of its grammatical categories, e.g. “The Lexical Semantics and Some of the Grammatical Categories of the Bulgarian Verb” („Лексикалната семантика и някои граматични категории на глагола в българския език“)<sup>126</sup>, or its structure and functioning, e.g. “Verbal Two-Component Lexemes (Verb + *си*) and Some Lexicological Problems” („Глаголни лексеми с двучленна структура (глагол + *си*) и лексикографски проблеми“)<sup>127</sup>.

The difficult problems of the unflected and the unconjugated parts of speech are of special interest for prof. Cholakova, e.g. “Characteristic peculiarities of the Usage and Pronunciation of the Particle *а*” („Характерни особености в употребата и изговора на частицата *а*“)<sup>128</sup>, “The Use of the Conjunction *а* in Literary Bulgarian” („Употребата на съюза *а* в българския книжовен език“)<sup>129</sup>. That research is generalized in the monograph “The Particles of Modern Literary Bulgarian” („Частичите в съвременния български книжовен език“)<sup>130</sup> which gives a multidimensional explanation of the difficulties in the usage of particles.



**Figure 9.** The Monograph on Particles by Kristalina Cholakova.

**PROFESSOR  
YORDAN ZAIMOV  
(1921 – 1987)**

Prof. Zaimov was born on April 21 1921 in Sofia and graduated from Sofia University “St. Kliment Ohridski” in Slavic Philology in the year 1944.

The fields prof. Zaimov majored in are onomastics (Bulgarian, Balkan and Slavic), including Bulgarian forenames, history of Bulgarian, Old Bulgarian epigraphics, etymology (Bulgarian, Balkan and Slavic).

<sup>126</sup> 1984.

<sup>127</sup> 1985.

<sup>128</sup> 1952.

<sup>129</sup> 1954.

<sup>130</sup> 1958.

Onomastics is a field he has devoted his whole life to, following the methodology he himself had established: "to place [...] names in direct connection with the history of the language and to interpret them as monuments of the spiritual and material culture of the population that has created them" [22, p. 338]. The best example of the attitude outlined above is his seminal work "The Slavic Bulgarian Colonization of the Balkan Peninsula. A Study of the Resident Names in Bulgarian Toponymy" („Заселването на българските славяни на Балканския полуостров. Проучване на жителските имена в българската топонимия")<sup>131</sup>. After scrutinizing 6000 toponyms from Bulgarian and foreign sources that are based on the old Slavic suffixes *-яне*, *-ьци*, *-чане*, *-янци* he comes to the reconstruction of the route of the Slavs followed when colonizing the peninsula. That same topic is the object of his monograph "Bulgarian Toponyms suffixed with *-jъ*. A Contribution to the Slavic Onomastic Atlas" („Български географски имена с *-jъ*. Принос към славянския ономастичен атлас")<sup>132</sup>, which brings in new arguments in favor of the thesis of his previous book. "The main merit of the work is in the reconstruction of long ago lost word formations and ancient toponyms that fill the gap in the historical lexicon of Bulgarian and in the study of word formation" [23, p. 40].

It is really difficult to mention a group of names to whose study prof. Zaimov has not contributed some new insights. Thus the monograph "Toponyms of the Pirdop Region" („Местните имена в Пирдопско")<sup>133</sup> is "one of the first in Bulgaria with its abundant material and with its processing and interpretation" [24, p. 364]. It is impossible to enumerate all his valuable onomastic studies but I<sup>134</sup> shall try to present at least one from every division of onomastics. For example, "The Toponyms of the Region of Panagyurishte" („Местните имена в Панагюрско")<sup>135</sup>, "A Contribution to the Study of the Toponyms in South Dobruja" („Принос към проучването на местните имена в Южна Добруджа")<sup>136</sup>, "A Contribution to the Study of the Samokov Onomastics" („Принос към проучването на Самоковската ономастика")<sup>137</sup>, "Bulgarian Toponymic Suffixes" („Български топонимични наставки")<sup>138</sup>. Representative of the typological study of Bulgarian toponymics in the Balkans are his works „Die bulgarischen Ortsnamen auf *-išt-* aus *-itj-* und ihre Bedeutung für die Siedlungsgeschichte der Bulgaren in den Balkanländern"<sup>139</sup>, „Ethnogenetische Probleme bei den bulgarischen Ortsnamen (patronimische, Einwohnernamen und adjektivische Namen auf *-jъ*)"<sup>140</sup>. In those studies, prof. Zaimov broadens "the knowledge of the genesis and develop-

<sup>131</sup> 1967.

<sup>132</sup> 1973.

<sup>133</sup> 1959.

<sup>134</sup> Maria Popova.

<sup>135</sup> 1977.

<sup>136</sup> 1954.

<sup>137</sup> Part 1- 1965, Part 2 – 1966.

<sup>138</sup> Part 1 - 1961, Part 2 – 1962.

<sup>139</sup> 1965.

<sup>140</sup> 1971.

ment of our language, of the ethnogenesis and of the cultural history of our people" [23, p. 39].

The remarkable work "Bulgarian Hydrography. Hydronyms of the Waters in the North-Eastern Region of the Balkan Peninsula" („Български водопис. Имената на водите в Североизточния край на Балканския полуостров")<sup>141</sup>, containing 50000 hydronyms and 50 maps, is dedicated, as the title suggests, to the problems of Bulgarian hydronymy.

Anthroponymy is another field of partiality with Zaimov for his whole life, e.g. "The Old Bulgarian Personal Names Bezmer, Gostun and Malomir" („Старобългарските лични имена Безмер, Гостун и Маломир")<sup>142</sup>, „Die slavische Herkunft des Namens des bulgarischen Herrschers Tervel"<sup>143</sup>, "Two-Component Personal Names in Bulgarian Toponymics (A Contribution to the Slavic Onomastic Atlas)" („Двучленни лични имена в българската топонимия. (Принос към Славянския ономастичен атлас)")<sup>144</sup>, and especially the extremely popular "Bulgarian Name List" („Български именник")<sup>145</sup>, which contains 12000 names from different periods and from different regions even outside the state territory.

An important distinctive feature of the methodology of prof. Zaimov is the association of the knowledge about the historical evolution of our language with the toponymical data, e.g. „Из българской исторической лексикологии (к лексике

праславянского языка)"<sup>146</sup>, „Relation chronologique entre la deuxième palatalisation vieux bulgare et la metathese liquide à lalumiere des noms geographique bulgares en Grece du Sud"<sup>147</sup>. That is the angle of the interest of our great scholar towards the history of Bulgarian, which has led to the writing of such important works like "Old Bulgarian Language and Old Bulgarian Toponymics (according to Cyrillic sources from 9th to the 14th CC" („Старо-българският език и старо-българската топонимия (според кирилски извори от IX до



Figure 10. The Bulgarian Name List.

<sup>141</sup> 2012.

<sup>142</sup> 1964.

<sup>143</sup> 1971.

<sup>144</sup> 1974.

<sup>145</sup> 1988, 1994.

<sup>146</sup> 1972.

<sup>147</sup> 1975.



XIV век) “)<sup>148</sup>, „Anciens noms bulgares dans la partie sud de la Péninsule balkanique“<sup>149</sup>, “Towards the Problem of the Disappearance of the Final -ъ -ь in the History of the Slavic Languages” („Към въпроса за изчезването на крайните ерове в историята на славянските езици“)<sup>150</sup>, “Словяне and Българе in Old Bulgarian Monuments and in Old Bulgarian Toponyms” („Словяне и Българев старобългарската книжина и в българската топонимия“)<sup>151</sup>.

We would not like to miss the contributions of the great linguist to the paleography (which sprung from his interest in the history of Bulgarian), e.g. “The Bitola Inscription of Ivan Vladislav, the Ruler of Bulgaria. An Old Bulgarian Monument from 1015-1016” („Битолски надпис на Иван Владислав самодържец български. Старобългарски паметник от 1015 – 1016 година“)<sup>152</sup>, “Codex Suprasliensis or Retkov Codex” („Супрасълски или Ретков сборник“)<sup>153</sup>, “Codex Assemanius. An Old Bulgarian Monument form the 11th C” („Асеманиево евангелие. Старобългарски паметник от XI век“)<sup>154</sup>, „The Kicevo triodium“<sup>155</sup>, etc.

The description of the eminent place among Bulgarian linguists, occupied by prof. Zaimov, will be incomplete without mentioning his tribute to etymology. It comprises his part in the “Bulgarian Etymological

Dictionary” („Български етимологичен речник“)<sup>156</sup> as well as a number of concrete research papers like “Some Peculiar Words from Razgrad Region” („По-особени думи от Разградско“)<sup>157</sup>, “Bulgarian Folk Names of the Months” („Български народни имена на месеците“)<sup>158</sup>, “Some Nominations of Corn in Bulgarian” („Названията на царевицата в българския език“)<sup>159</sup>, etc.

“The scholarly personality of prof. Zaimov was characterized by depth, conscientiousness, and adherence to facts as well as courage in positing and resolving of new problems. As a man he was hard-working and efficient [...] extremely sympathetic to his colleagues” [24, p. 367].

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As can be seen from the above-said we have presented here some superficial portraits of Bulgarian linguists – scholars of international acclaim and reputation. They have greatly contributed to the study of Bulgarian in all fields, in all periods of its development, they have outlined all the nuances of its formation as a literary language with a steady normative system. But at the same time, they have showed not only that national specifics but have gone into the depths of its liaisons with the other Slavic and Balkan languages. The importance of their work ap-

<sup>148</sup> 1968.

<sup>149</sup> 1968

<sup>150</sup> 1968.

<sup>151</sup> 1969.

<sup>152</sup> 1970.

<sup>153</sup> Vol. 1 – 1982, Vol 2 – 1983.

<sup>154</sup> 2012.

<sup>155</sup> 1984.

<sup>156</sup> Publication started in 1962.

<sup>157</sup> 1942.

<sup>158</sup> 1954.

<sup>159</sup> 1954.

pears even greater in the perspective of the future. They will continue to give new impulse to the future de-

velopment of Bulgarian studies. And will be the unquestionable role models of future scholars.

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## NATIONAL AWARDS FOR ACHIEVEMENTS IN SCIENCE\*

Penka Lazarova<sup>1</sup>, Vesela Vasileva<sup>2</sup>

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### PYTHAGORAS AWARDS '2018 FOR SIGNIFICANT CONTRIBUTIONS TO SCIENCE

The tenth anniversary of the most prestigious national science award, the Pythagoras Prize, organized by the Ministry of Education and Science, took place on 17 May 2018 in an official ceremony amidst the exhibits at the splendid hall of the National Archaeological Museum in Sofia. According to tradition, the awards were presented on the eve of May 24th, the National Day of Bulgarian Science, Education and Culture.

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The jury choosing the winners of the Pythagoras Prize for outstanding achievements and contribution to the development of Bulgarian science in the years 2015-2017 was chaired by Prof. Kostadin Kostadinov (a two-time winner of the same award). The members of the jury included the winners of the 2017 Pythagoras Prize. They reviewed the 44 submissions received from more than 50 different scientific organizations, higher education institutions, non-governmental organizations, representatives of the business sector,

etc. Some of the categories had 12 to 13 nominations. On the basis of the documents submitted in connection with the nominated scientists and the data about their scientometric parameters – i.e. their 2015-2017 publications and citations in the international Web of Science and Scopus databases, the resources received under international contracts and projects, and the overall assessment of the scientific contribution of the applicants, the jury picked the winners of the Pythagoras Prize in each of the following 9 categories: *substantial contribution to the development of science; young scholar; distinguished scholars in the field of the natural and engineering sciences / humanitarian and social sciences / health and medical sciences; successful leader of international projects; scientific team with successful exploitation and commercialization of scientific results; company with highest investment in R&D; and top Bulgarian scholars with substantial contribution abroad.*

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\* Note: The following article is a combined version of two papers originally published in Bulgarian, see Весела Василева, Пенка Лазарова. Наградите за наука „Питагор“ – признание за българските учени, в НАУКА, 4/2018, 69-74; Президентски отличия в конкурса „Джон Атанасов“ – 2018 г., в НАУКА, 5/2018, 53-56.



**THE BIG PYTHAGORAS PRIZE FOR SUBSTANTIAL CONTRIBUTION TO THE DEVELOPMENT OF SCIENCE** was presented by Mr. Krasimir Valchev, Minister of Education and Science, to Prof. Dr. Ekaterina Tityanova, MD, from the Faculty of Medicine of St. Kliment Ohridski University of Sofia and to Prof. Iliya Rashkov, DSc, from the Polymer Institute of the Bulgarian Academy of Sciences. Each received a Pythagoras statuette, a diploma and a cash award of BGN 6,000.

**PROF. DR. EKATERINA TITYANOVA, MD**, is the Head of the Clinic for Functional Diagnosis of Neurological Disorders at the Military Medical Academy, Sofia, and of the Department of Neurology, Psychiatry, Physiotherapy and Physical Rehabilitation, Preventive Medicine and Public Health at the Faculty of Medicine of St. Kliment Ohridski University of Sofia, founder and superintendent of the academic course in Neurological Disorders. She has published more than 500 scientific papers of which 174 are scientific articles with total impact factor of 198.119 (17 of which in the last three years have had a total impact factor of 133.82). Her overall scientific output has been linked to 1,294 citations. Prof. Tityanova has made some global contributions to different aspects of neurology – studying gait behaviour, brain reorganization after stroke, innovations in ultrasound imaging of the nervous system, cerebrovascular diseases and neurorehabilitation. She is also a pioneer in the study of gait behaviour through electronic gait analysis and has developed new branches in the field of neurorehabilitation in Bulgaria. Prof. Tityanova has been recognised as an interna-

tional expert in neurosonology: she introduced, developed, and established new approaches in the ultrasound imaging of the nervous system in our country and abroad. As the chair of the Bulgarian Society of Neurosonology and Cerebral Hemodynamics, she created, developed and established a Bulgarian School of Neurosonology and founded the Balkan Neurosonology Association. She also represents Bulgaria in European and global scientific organizations and coordinates the training programmes of the World Federation of Neurology, aside from being an external expert in projects of the EU Commission.

The principal scholarly interests of **CORRESPONDING MEMBER OF BAS ILIYA RASHKOV** lie in the area of polymers and polymer materials science in which he has had some major contributions toward the creation of a new generation of polymer (nano) materials and for the introduction of innovative (nano) technologies, and for their proliferation not only in Bulgaria, but also on a global scale, including by putting all his efforts in the preparation and training of young scholars in this area of science. The overall work of Prof. Rashkov is exemplary not only in terms of his professional and social experience as an internationally recognized and distinguished scholar, but also in terms of his remarkable personal qualities and unparalleled approach in his work with several generations of young scientists. His scholarly papers published in prestigious international science journals with IF exceed 200 and have been cited more than 5,200 times, with h-index 34. He holds 8 patents, 44 copyright certifications, and has been

the head and leading scientist of more than 50 scientific and applied projects. Prof. Rashkov was the founder (1989) and head (up until 2008) of the Laboratory for Biologically Active Polymers at the Polymer Institute of BAS. The originality, relevance, and potentiality of the concepts he has been working on at his laboratory and still does thanks to his great dedication are the reason why he is such in such high demand as a partner, including in international projects. One of his major and most important contributions is the creation of a school of researchers and supporters who managed to follow successful career paths in Bulgaria and abroad. The overarching goal of his lifetime work has been to safeguard, develop, and promote science by introducing new technologies, creating new materials, delivering lectures, holding exhibitions, and seminars. In this way Prof. Rashkov has contributed for the establishment and dissemination of the traditional Bulgarian values in the field of science.

**THE BIG PYTHAGORAS PRIZE FOR YOUNG SCHOLAR** – a statuette and a cash award of BGN 12,000 was awarded to **DANIELA DONEVA, PhD** from the Institute of Nuclear Research and Nuclear Energy, BAS. She is a Master of Astrophysics and Star Astronomy and holds a PhD in Physics awarded by the Faculty of Physics of the University of Sofia. She has been a postdoctoral researcher at the University of Tübingen since 2012 after winning the Humboldt Research Fellowship for 2012-2015. In 2016 she won the Margarete von Wrangell Habilitation scholarship. Daniela Doneva, PhD, has published 34 art-

icles in referenced periodicals cited 548 times in international literary sources; h-index-15. In the period from 2015 to 2017 she wrote 17 articles published in referenced magazines with a total IF of 81.528. She is also the co-author of the textbook *Physics and Astrophysics of Neutron Stars*, Springer, Astronomy and Astrophysics Library. Her main scientific achievements have been in these two areas: emission of gravitational waves from compact objects, with new effects found in the emission of gravitational waves from oscillating neutron stars which can be observed by the current and the next generation of detectors of gravitational waves; the study of compact objects in the modified theories of gravity. She found solutions describing neutron stars in a number of alternative theories of gravity, studied their astrophysical applications, and their universal (independent of the equation of state of nuclear matter) coefficients. The possibilities of using different modifications of the general theory of relativity were also an object of study.

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Out of the 8 submissions in the category for **DISTINGUISHED SCHOLAR IN THE FIELD OF NATURAL AND ENGINEERING SCIENCES** the jury nominated three candidates: **Prof. Radostina Stoyanova, PhD** from the Institute of General and Inorganic Chemistry, BAS; **Prof. Slavka Cholakova, PhD** from the Faculty of Chemistry and Pharmacy of St. Kliment Ohridski University of Sofia; **Prof. Nadya Antonova-Miteva, PhD** from the Institute of Mechanics of BAS. Their prizes – Pythagoras plaques and a

cash award of BGN 4,000 per each candidate – were presented by the Deputy Minister of the Ministry of Education and Science, Ivan Dimov, D.Tech. to:

**PROF. RADOSTINA STOYANOVA, PhD** – Head of the Laboratory for Intermetallics and Intercalation Materials and Deputy Director of the Institute of General and Inorganic Chemistry, BAS. Her scholarly papers in the period from 2015 to 2017 were based on research and looking for new cost-efficient, harmless, and environmentally-friendly rechargeable batteries based on a new generation of hybrid Na-Li-ion batteries. The ingenuity of her achievements will push into the foreground the development of a new type of hybrid Na-Li-ion batteries combining the advantages of the different types of batteries and getting rid of their drawbacks. In 2015-2017 she published 21 scholarly articles in highly prestigious international periodicals with a very high impact factor linked to 758 citations (SCOPUS) with h-factor 28, two of which were in journals ranking in the top 10% of the general area of materials science. Prof. Stoyanova was the leader of 2 projects under operational programmes estimated at roughly BGN 3,000,000. She was the reviewer of a number of foreign scholarly publications and was awarded for her substantial contribution by the *Electrochimica Acta* Journal (IF = 4.798).

**PROF. SLAVKA CHOLAKOVA, PhD** is Head of the Department of Engineering Chemistry and Pharmaceutical Engineering at the Faculty of Chemistry and Pharmacy of St. Kliment Ohridski University of Sofia. The main contribution of her papers published in the period from 2015 to 2017 were in the field of physical

chemistry and engineering chemistry, which shed light on the role of surface active substances (surfactants) in the stability of disperse systems and the solubility of bioactive substances. Of particular interest is the newly found phenomenon of shape changes in emulsion droplets upon cooling, brought about by the formation of an interim rotator phase of the droplet when there are suitable adsorbed surfactants on its surface. On the basis of the observed phenomenon, a new method was developed for the formation of submicron-sized emulsion droplets which was at the core of a number of applications for global and Bulgarian patents which Prof. Cholakova has co-authored. Furthermore, she is the co-author of 4 patents approved in Japan and China. In the period from 2015 to 2017 she published 24 research papers in journals with high impact factor (2 in *Nature* and *Nature Communications*) linked to 778 citations (SCOPUS), and h-factor of 27.

**THE AWARD FOR DISTINGUISHED SCHOLAR IN THE FIELD OF HUMANITARIAN AND SOCIAL SCIENCES** was also shared by two scholars: Prof. Todor Tanev, D.Educ. from St. Kliment Ohridski University of Sofia and Prof. Ivan Atanasov Mladenov, D.Phil., from the Institute of Literature, BAS. Prof. Anastas Gerdzhikov, D.Habil., Rector of Sofia University, presented a plaque and a cash award of BGN 4,000 to each of them and noted that much like the other sciences, the humanitarian and social sciences also use very advanced methods in their research.

The scholarly interests of **PROF. TODOR TANEV, DOCTOR OF POLITICAL SCIENCE**, are in the

field of strategic management of the public processes. He authored 7 monographs and numerous academic papers, articles, and reports. He is the founder and editor in chief of the online magazine Public Policies.bg. His scholarly contributions over the last years have been in the areas of original comparative case studies of successful governmental strategies based on the biographical method singling out the factors responsible for the success of such strategies in terms of their stability in time and their systematic contribution to sustainable development, which have gained popularity in the scientific circles in Bulgaria, Hungary, and the Republic of Korea; development of the concept of 'strategizing' as a modern trend in the analysis of strategic management based on the strategy-as-practice paradigm; expansion of the theoretical basis of the analysis of strategic management in the public domain by adding a number of missing substantial elements; a theory was developed for the functional distinction between the different levels of governance based on the typology created for this purpose referring to the different ways of 'coping with uncertainties' that the future may hold.

**PROF. IVAN MLADENOV, DOCTOR OF PHILOLOGY**, is a world-class scholar, one of the globally recognized experts in Semiotics and the legacy of Charles Peirce, the author of some founding works on pragmatic philosophy and its application in the field of literary studies, 7 monographs, one of which was published by the prestigious world-famous publishing house Routledge, later translated and published in Japan. His principal scholarly contribu-

tions have been in the development of a concept for the general development of the Bulgarian literature from its borrowing / origins from Byzantium to this day, donning the philosophical theory of semiotic pragmatism; analysis, dissemination and promotion of the ideas of Charles Peirce, the father of semiotics; development of a concept for the general development of Bulgarian literature in the modern terminology of pragmatism which makes it more expressive and distinguishes it from the other literatures of the world; parallel study of the philosophy of Charles Peirce and that of Wittgenstein on the basis of Aristotle's theory of relations. Those theories may be used for a number of different purposes including for application in modern communication and media, for analysing 'new realities' and finding a balance between global and personal, and the place of the individual including comprehension of new identities.

The third nominated submission out of a total of 11 in this category was that of **Prof. Ivan Asenov Tyutyundzhiev, Doctor of Historical Sciences** from St. Cyril and Methodius University of Veliko Tarnovo.

Out of the four submissions in the category **AWARD FOR DISTINGUISHED SCHOLARS IN THE FIELD OF HEALTH AND MEDICAL SCIENCES** the jury nominated three candidates: **Prof. Zdravko Kamenov, MD** from the Faculty of Medicine of the Medical University of Sofia; **Dr. Soren Hayrabyan, D.Biol.** from the Institute of Biology and Immunology of Reproduction, BAS, Sofia; **Prof. Dr. Yuliyana Yordanova-Kirova** from the Institute of Neurobiology at BAS. The winner of this



prize, i.e. a plaque and a cash award of BGN 8,000, is **PROF. ZDRAVKO KAMENOV**, Head of the Department of Internal Medicine at the Medical University of Sofia. His scholarly interests are in the area of diabetes and endocrine disorders related to it, and the various diabetes related conditions. Prof. Kamenov has been working on an interdisciplinary field which is novel for Bulgaria – sexual medicine – and has introduced post-graduate university courses in this field, as well as some other training formats. In the period from 2015 to 2017 he published 30 scientific publications with an overall impact factor of 53.6 and 293 citations. Prof. Kamenov has laid a new path in the study of organokines – adipokines, hepatokines, myokines and their role in various pathological processes – obesity, prediabetes, diabetes, polycystic ovarian syndrome, hypogonadism in men, non-alcoholic fatty liver disease (steatosis), etc. He founded the first specialised centre in Bulgaria for prevention of diabetes and diabetes complications.

There were 4 submissions in the category for the **PYTHAGORAS PRIZE FOR SUCCESSFUL INTERNATIONAL PROJECT MANAGER**. The jury nominated the following candidates: **Prof. Stoycho Stoev, PhD** from Trakia University, Stara Zagora; **Assoc. Prof. Lyudmil Vagalinsky** from the National Archaeological Institute and Museum, BAS; **Prof. Georgi Vaysilov, D.Chem.** from St. Kliment Ohridski University of Sofia.

The winner of the prize, i.e. a plaque and a cash award of BGN 8,000, was **PROF. GEORGI VAYSILOV** who works at the Department of Organic Chemistry at the Faculty of Chemistry and Pharmacy of Sofia University. His primary scholarly in-

terests lie in the area of quantum-chemical modelling of catalytic systems. The research done by Prof. Vaysilov target a few types of systems: catalytic systems on the basis of metals deposited on cerium dioxide; newly synthesized zeolitic structures and complexes and metal clusters included in zeolitic cavities; properties of organic and drug molecules and their interactions in porous materials. In the period from 2015 to 2017 he authored 18 scientific papers with a total impact factor of 133, one of which was published in the prestigious journal *Nature Materials*, and he was the leading author in 6 of them. He was also the coordinator of the international project *Materials Networking (H2020-TWINN-2015 – Twinning)* with the participation of partners from the UK, Germany, and Spain. Bulgaria received EUR 737,312 as funding under this project.

A total of 5 submissions were received in the category **AWARD FOR SCHOLARLY TEAM WITH SUCCESSFUL EXPLOITATION AND COMMERCIALIZATION OF SCIENTIFIC RESULTS** which was presented for the third consecutive year. The jury nominated 3 of the submissions: **Prof. Pavlinka Dolashka, Eng., PhD**, from the Institute of Organic Chemistry, BAS; **Prof. Slavcho Rakovsky** from the Institute of Catalysis, BAS; **Assoc. Prof. Hristo Dimitrov Popov** and **Assoc. Prof. Stefan Tsvetkov Aleksandrov** from the National Archaeological Institute and Museum, BAS.

The prize, i.e. a plaque and a cash award of BGN 8,000, was awarded to the research team headed by **PROF. PAVLINKA DOLASHKA**. Her

team has managed to demonstrate the antiviral properties of new glycoproteins isolated from sea snails and garden snails, and has developed extracts from the slime of snails with evidence-based regenerating effects for cosmetic applications and regenerating gels. The members of her team have created 3 start-ups and have signed 7 contracts with companies for the realization of their achievements, including a leasing agreement, 2 maintained patents, 2 useful models, and 2 applications for patents in 2013. The resources raised as a result of the exploitation and commercialization of their achievements amount to BGN 455,000 and come from a number of projects and contracts.

**THE PRIZE FOR COMPANY WITH HIGHEST INVESTMENT IN R&D** which has been awarded since 2016 uses information provided by the National Statistical Institute on the basis of the accounting reports of the companies in Bulgaria. The award was shared by 2 companies whose representatives received a plaque and a cash award of BGN 4,000 each.

The scope of business activities of **VMware Bulgaria Ltd**, a software company which has been on the Bulgarian market since 2007, covers mainly research and development activities. It specialises in the design, development, and sale of software products and visualization services.

**PPD BULGARIA LTD** was set up in 2008 as a provider of consulting and agent services in the organization and implementation of research and development activities in the field of natural and medical sciences. The company is part of PPD – a global research organization spe-

cialising in the invention of drugs, development and laboratory services.

One of the nominated companies in this category out of the 5 submissions was the company **AstraZeneka Bulgaria Ltd**.

The prize for **TOP BULGARIAN SCHOLAR WITH SUBSTANTIAL CONTRIBUTION ABROAD** – a plaque and cash award of BGN 8,000 – has been presented for three years now. After discussing the applications of **Prof. Krasimir Panayotov D.Phys.** from the Institute of Solid-State Physics, BAS; **Prof. Izabela Naydenova** from the Institute of Optic Materials and Technologies, BAS; **Prof. Elena Marinova-Wolf** from the National Archaeological Institute and Museum, BAS; and **Prof. Anna Kicheva** from the Institute of Molecular Biology, BAS, the jury decided unanimously to present the award to **Prof. Krasimir Panayotov**.

**PROF. KRASIMIR PANAYOTOV** is a Professor of Philosophy at the Free University of Brussels in Belgium and a member of the Institute of Solid-State Physics, BAS. His scholarly achievements are in the field of nonlinear and fibre optics, photometric crystals, semiconductor physics and nonlinear dynamics, physics of dissipative structures in optics and chemistry. He has published 180 scientific articles in reputable international journals with anonymous reviewers, authored 8 chapters in books and presented 227 reports at international conferences. According to Web of Science, the H Index of K. Panayotov is 32; his total impact factor is 442 and his average citation score is 10.45, with a total number of citations 3,094 (less self-citations 2,167). The data in Google Scholar

are: H Index 38, citations 4,665, i10-index 115. His scientific achievements have been published in some of the most prestigious periodicals in the world of physics, such as Nature Photonics and Scientific Reports from

Nature Group; Physics Letters A, Philosophical Transactions of Royal Society, Applied Physics Letters, IEEE Journal of Quantum Electronics, IEEE Journal of Selected Topics in Quantum Electronics.

## THE JOHN ATANASOFF AWARD '2018

October 4, 2018 was the day of the 155th anniversary of the birth of the Patron of the John Atanasoff Award presented by the President of the Republic of Bulgaria. On that day, in a formal ceremony at the Coat of Arms Hall of the Presidential Building, the award was given to several young Bulgarian scientists for their outstanding achievements in the field of computer science, and to their supervisors and mentors.

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**THE JOHN ATANASOFF AWARD** is given to young Bulgarian scientists and researchers under the age of 35 for their work in the field of computer science and their outstanding achievements on a global scale.

**THE WINNER OF THE 2018 JOHN ATANASOFF AWARD** was the 34-year-old **PETAR TSANKOV, PhD**, a postdoctoral researcher in the field of computer science at the Swiss Federal Institute of Technology, Zurich. He holds a Bachelor's Degree in Computer Science awarded by the Georgia Institute of Technology, U.S., where in 2010 he won the award for Best Researcher at the School of Computer Science. He graduated with a Master's Degree and in 2017 received his PhD in Computer Science.

The principal area of research of Peter Tsankov, PhD aimed to create new methods for automated protection of modern software systems, including smart contracts for blockchain; personal data processing programmes; computer networks, etc. The results of this research have led to the creation of innovative systems widely used in academic circles and in the industry. Currently, his major project is his work on automatic security checks for smart contracts for blockchain. Smart contracts and blockchain are two of the most dynamically developing technologies in the field of informatics. The main problem which prevents the global integration of smart contracts is their protection from breaches of security. Peter Tsankov, PhD, has created Securify, <https://securify.ch> – the first system providing comprehensive security checks for smart contracts. The main challenge in the implementation of a security check of this sort is the exceptionally high number of transactions a hacker could potentially use to attack the system. In order to solve this problem, Peter Tsankov, PhD, and his co-authors created a new type of mathematical abstraction and a fully automated and scalable method for performing a complete check. The practical applicability of this project has led to a

widespread use of the Securify system. It is available to use for free and so far has scanned more than 19,000 smart contracts and has detected over 400,000 breaches of security. The project was followed by other joint projects between scholars from the Swiss Federal Institute of Technology, Zurich and the world-famous foundation in the field of blockchain, Ethereum and Web3. Peter Tsankov, PhD has co-authored 3 patents.

The two runners-up in the category for the **JOHN ATANASOFF AWARD** received DIPLOMAS.

▪ **DIMITAR LUKARSKY, PhD**, defended his doctoral dissertation in Mathematics at the Karlsruhe Institute of Technology, Germany. He did a postdoctoral specialization programme at Uppsala University, Sweden. His scholarly interests are in the field of parallel data processing. His developments are in the area researching the possibilities of the different types of algorithms for solving parallel large and distributed matrices. From an application standpoint they have contributed to the improvement of the level of abstraction of the interface in different types of software used in the processing of matrix systems. These techniques have been implemented by Dimitar Lukarsky, PhD in his start-up – PARALUTION Labs.

▪ **MARIYA GEORGIEVA, PhD**, defended her doctoral dissertation on Algorithms and Cryptography at École Polytechnique Fédérale de Lausanne (EPFL), Switzerland. The principal topics of her scientific and applied work are in the areas of cryptography, new algorithms, their ana-

lysis and information security. Her doctoral dissertation has made contributions to the geometry of numbers and more specifically, to the analysis of algorithms for Euclidean lattices in cryptography. Mariya Georgieva, PhD, has submitted eight applications for patents in the field of cryptography and information security.

Certificates were awarded to the following candidates **for their very high achievements** in this category:

▪ **Ivan Vladimirov Ivanov**, Master of Artificial Intelligence awarded by the Faculty of Mathematics and Informatics of Sofia University, a software engineering manager at Facebook, London. Since 2011 he has been working for major international tech companies (Facebook, Amazon and Google). He has been the leader of teams at Facebook responsible for finding solutions to major problems in the development and operation of geographical databases and issues such as combating fake user accounts on the social platform. He has authored 2 patents.

▪ **Assoc. Prof. Krasimir Kordov, PhD** is a lecturer at Episcopo Constantine Preslavsky University of Shumen with a PhD in Informatics. His primary scholarly interests are in the area of computer security and involve data protection through development of cryptographic algorithms. The results of his academic work involving theoretical and empirical research in the field of cryptography have been included in a number of publications in international journals most of which have an impact ranking and/or impact factor.



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