

**Contents**  
Issue 4, 2018

24<sup>TH</sup> OF MAY – DAY OF THE BULGARIAN ENLIGHTENMENT AND CULTURE AND OF THE SLAVIC ALPHABET

Slavia Barlieva: St. St. Cyril and Methodius – Patrons of a new Europe

Anastas Gerdzhikov : Speech on the Occasion of the Day of the Bulgarian Enlightenment and of the Slavic Alphabet

[Desislava Najdenova: On the History of Cyrillo-Methodian Studies at the Bulgarian Academy of Sciences](#)

SCIENCE POLICY

Milena Damyanova: The Bulgarian Presidency of the Council of the European Union - Contribution to Co-operation in the Field of Research

Financial Instruments Fostering Research and Innovation in Europe

SCIENTIFIC RESEARCH

[Diana P. Kjurkchieva et al.: The Bulgarian Contribution to the Study of Variable Stars on Observational Data of the \*Kepler\* Mission](#)

LANGUAGE PROBLEMS

[Mihail Videnov: A Syntax Pattern in the Bulgarian Language](#)

SCIENCE IN SERVICE OF SOCIETY

[Boris Tenchov, Rumiana Koynova: Nanotechnologies in Medicine – New Methods for Diagnostics and Therapy](#)

SCIENCE AND ETHICS

[Dimitrina Lesnevskaya: The Modern Concept of Amateur Linguistics \(Pseudolinguistics\)](#)

PROJECT-BASED FINANCING OF SCIENTIFIC RESEARCH

[Vladimir Dimitrov: Bulgarian Medicinal and Aromatic Plants – Promoters of Sustainable Economic Development](#)

[Konstantin Hadjiivanov: The Centre of Excellence in Mechatronics and Clean Technology – a Substantial Chance to Boost the Science-based Innovation in Bulgaria](#)

[Plamenka Borovska: Big Data Technologies in Support of Genomic Research, Precision Medicine and Oncology](#)

TRAVELING TO BULGARIA

Nikolay Popopetrov: Sixth National Conference on History, Archeology and Cultural Tourism

[Iliya Iliiev: Bulgarians and Byzantines on the Border of two Centuries](#)

[Peter Angelov: The Rumors in Medieval Bulgaria](#)

HEALTH AND MEDICINE

[Kalina Andreevska et al.: Marketing Analysis of Collagen-containing Products in Supporting Joint Health](#)

DESERVED RECOGNITION

Vessela Vassileva, Penka Lazarova: The „Pythagoras“ Science Awards – a Recognition for Bulgarian Scientists

THE FLOOR TO THE YOUNG PEOPLE

[Ventsislav Ignatov: European Influence of the Architectures of the City of Russe in the End of XIX and the Beginning of XX Century](#)

## 24<sup>TH</sup> OF MAY – DAY OF THE BULGARIAN ENLIGHTENMENT AND CULTURE AND OF THE SLAVIC ALPHABET

### ON THE HISTORY OF CYRILLO-METHODIAN STUDIES AT THE BULGARIAN ACADEMY OF SCIENCES

Desislava Najdenova

#### Abstract

The research on the life and work of Cyril and Methodius and their disciples has always had an important place in the activity of the Bulgarian Academy of Sciences. Thus, the Bulgarian Academy engaged in the organization of the first great anniversary in post-liberation Bulgaria – the 1000th anniversary of the death of St. Methodius in 1885. The institutionalization of the Cyrillo-Methodian studies is related to the activity of two committees Commission on St. Kliment (1914 – 1916) and the Commission for the edition of the sources concerning the life and work of St. St. Cyril and Methodius (1934 – 1945). As a result of the change of the political regime in Bulgaria on 9th of September 1945 the talk about the Cyrillo-Methodian oeuvre and its scientific interpretation changed too. Cyrillo-Methodian Studies were thrown out of the Academy. The idea to create a Cyrillo-Methodian Institute, suggested in the project for reorganization of the Historical and Philological department of BAS was not accepted. The event, which again focuses on the Cyrillo-Methodian Studies, is the international celebration of the 1100th anniversary of the creation of the Slavonic alphabet in 1963. Along with the discussion on various scientific events, the Presidium of BAS took an important decision: to restore the Cyrillo-Methodian Commission to the Presidium of the Bulgarian Academy of Sciences. In 1980, Cyrillo-Methodian research Centre was re-established. Since then he has been one of the leading scientific institutions in the Cyrillo-Methodian Studies both in Bulgaria and abroad.

## SCIENTIFIC RESEARCH

### THE BULGARIAN CONTRIBUTION TO THE STUDY OF VARIABLE STARS ON OBSERVATIONAL DATA OF THE *KEPLER* MISSION

Diana P. Kjurkchieva, Doroteya L. Vasileva, Dinko P. Dimitrov,  
Teodora V. Atanasova, Veselka S. Radeva, Nikola I. Petrov

#### Abstract

We present the results of investigations of variable stars obtained by Bulgarian astronomers based on observations of the *Kepler* mission, the most spectacular astronomical project of NASA. Our main contributions are: determination of orbits and global parameters of more than 100 binary stars; creation of the largest catalog of eccentric stars; identification of sixty new binaries with eccentricity over 0.5; discovery of 19 heartbeat stars; detailed investigation of the spot and flare activity of several binary stars; detection of deep transits of WD 1145+017 due to its disentangling planet system. The paper illustrates not only scientific significance but also educational and social impact of the work on these tasks. The appearing of one of the researcher names, D. Kjurkchieva, at the 3th position of the rating *Most active authors* of the site of the *Kepler* mission, is an important recognition for the prestigious level of Bulgarian astronomy.

## LANGUAGE PROBLEMS

### A SYNTAX PATTERN IN THE BULGARIAN LANGUAGE

Mihail Videnov

#### Abstract

The article examines the question of a compensatory syntax changes in the Bulgarian language after lose of the case forms of the names. Highlighted is that appeared a new method wording becomes relevant for subject object in a sentence. The new relation is expressed in the fact that the subject name must he the name signifying the object. If you swapped their places, the meaning becomes opposite. The language has created another means that in the Bulgarian science is known as *duplication of the object* with short maturity forms. That is lacking in other Slavic languages. Bulgarian language is unique.

## SCIENCE IN SERVICE OF SOCIETY

### NANOTECHNOLOGIES IN MEDICINE – NEW METHODS FOR DIAGNOSTICS AND THERAPY

Boris Tenchov, Rumiana Koynova

#### Abstract

This review presents the contemporary achievements in the field of the medical nanotechnologies. Their most important applications include the development of new, highly specialized nanoparticles and nanocapsules as carriers for targeted drug delivery, highly sensitive methods for detection of pathogenic markers and early *in vitro* diagnostics, *in vivo* imaging diagnostics, combined methods for therapy and diagnostics (theranostics), tissue engineering and development of new biocompatible and biodegradable materials. The medical nanotechnologies are still in an early stage of development. Nevertheless, a rapidly increasing number of nanoproducts undergoing clinical trials provide real promise that in not too distant future nanomedicine will play key role in the diagnostics, therapy and disease prevention.

## SCIENCE AND ETHICS

### THE MODERN CONCEPT OF AMATEUR LINGUISTICS (PSEUDOLINGUISTICS)

Dimitrina Lesnevskaya

#### Abstract

The article is devoted to the modern concepts of pseudolinguistics. We specify the synonymous terms, which signify pseudolinguistics. We characterize the main features of pseudolinguistics, comment on the different pseudolinguistics theories in Eastern Europe – Bulgaria, Russia. We emphasize the harm from pseudolinguistics for education and science, as well as the need for enhanced control.

## PROJECT-BASED FINANCING OF SCIENTIFIC RESEARCH

### BULGARIAN MEDICINAL AND AROMATIC PLANTS - PROMOTERS OF SUSTAINABLE ECONOMIC DEVELOPMENT

Vladimir Dimitrov

#### Abstract

Plants and herbs have been exploited effectively in the treatment of many diseases and medical conditions since ancient times. Nowadays between 25 % and 50% of the currently marketed drugs are originated from natural products. Despite its small territory Bulgaria ranks among the countries of greatest biodiversity in Europe. Bulgarian higher plants flora includes 194 Bulgarian endemic species of 72 genera and 26 families, together with 320 Balkan endemic species (of 129 genera and 39 families). Today, about 750 medicinal and aromatic plant (MAP) species are collected and used in Bulgaria (about 21 % of the 3,567 vascular plant species known in the country), 200 of which are economically relevant and regularly harvested, dried and processed. Cultivation is carried out by farmers, local agricultural co-operatives or national companies.

However, it should be pointed out that the majority of the medicinal plants and herbs are exported as raw materials outside Bulgaria. It should be therefore a strategic priority to stimulate the processing of the medicinal plants in the country, creating high-added value within the national economy. Here the way from scientific laboratory to the product with high-added value is for sure shorter than in many other fields and needs to be transferred to new generation of researchers and entrepreneurs.

The project for the creation and the development of a centre of competence „Sustainable utilization of bio-resources and waste of medicinal and aromatic plants for innovative bioactive products, BG05M2OP001-1.002-0012-C01“, is funded by the Operational Programme „Science and education for smart growth“ 2014-2020 co-financed by the European Union through the European Regional Development Fund. It has been designed by five Bulgarian partnering organizations: Institute of Organic Chemistry with Centre of Phytochemistry at Bulgarian Academy of Sciences (leading organization), Agrobiointitute of Agrarian Academy, Faculty of Chemistry and Pharmacy and Faculty of Biology of Sofia University „St. Kliment Ohridski“ and Institute of Polymers at the Bulgarian Academy of Sciences. The strategic goal of the Centre of Competence is to concentrate expertize, competences and improved infrastructure to perform marketing-oriented research, focused towards sustainable utilization of the local bioresources for development of innovative products with high added value, capable of commercialization through valuable collaborations with SME and other interested companies. All these activities may be formulated as „Smart utilization of Bulgarian biodiversity for economic development and sustainable growth“ and correspond to the ISSS thematic area „Industry for healthy living and biotechnology“.

THE CENTRE OF EXCELLENCE IN MECHATRONICS AND CLEAN TECHNOLOGY – A SUBSTANTIAL  
CHANCE TO BOOST THE SCIENCE-BASED INNOVATION IN BULGARIA

Konstantin Hadjiivanov

Abstract

Mechatronics and Clean technologies are two promising innovative areas that are going to be developed synergistically across Europe and globally. As Bulgaria has experience in these two key segments of the economy, the country can actively participate in the production of some high added value products. The Centre of Excellence in Mechatronics and Clean Technology includes leading scientific teams from the Bulgarian Academy of Sciences, the University of Sofia, the Technical Universities in Sofia, Varna and Gabrovo and the University of Chemical Technology and Metallurgy. It was established with funding under the Operational Program „Science and Education for smart growth“ co-funded by the European Union through the European Regional and Development Funds. The mission of the Centre is to support Bulgaria's transition to a highly developed country with a clean environment that will take a dignified place in the EU. It will promote the improvement of the competitiveness of the Bulgarian economy, the increase of the share of high-tech production and the strengthening of the international market. The new sustainable National Center of Excellence will be of a new type, with high scientific level and wide international visibility. It will help to find innovative technological and mechatronic solutions in support of the Bulgarian industry, to create highly qualified specialists and to open new jobs.

**Key words:** mechatronics, clean technologies, innovation

# BIG DATA TECHNOLOGIES IN SUPPORT OF GENOMIC RESEARCH, PRECISION MEDICINE AND ONCOLOGY

Plamenka Borovska

## Abstract

In digital era leading scientists, researchers and analysts worldwide, determine Big Data as a revolution in scientific studies, yielding the innovative research paradigm of Data Intensive Science Discovery. Bioinformatics has evolved into data intensive science stimulating the development of methods for massive biological and medical data processing, storage and analyses, and consequently, producing large scale structural functional maps of hundreds of sequenced genomes and thus facilitating genomic research. In silico medicine and in silico oncology involve computer models, simulations and visualization in determining the diagnosis, treatment and prevention of a disease. Personalized medicine and precision medicine are hottest topics in healthcare nowadays and refer to adapting medical treatment to the individual characteristics of each patient in respect to personal genetic specifics and individual life style. They are tightly related to “omics” technologies and Big Genomic data ecosystem and analytics.

Recognizing the need to unite the efforts of IT professionals, medics, biologists and chemists to solve complex tasks in the field of medical biochemistry, precision medicine and oncology, we have built up a thematic research network "In Silico Knowledge Discovery" in Southeastern Europe with key partners academic researchers from universities in Bulgaria, Macedonia, Albania and partners from Germany and Austria aiming to share knowledge, experience, best practices, and technology transfer.

The project „Intelligent Method for Adaptive In-silico Knowledge Discovery and Decision Making Based on Analysis of Big Data Streams for Scientific Research“ is financed by the Bulgarian National Science Fund and involves theoretical study and experimental activities to create an innovative intelligent method and tools for adaptive in silico knowledge discovery and decision making, based on Big data streams analysis for scientific research in the area of bioinformatics. The scientific and technological outcomes of the project will be applied for scientific investigation in the areas of molecular biology and medical genetics for two specific case studies: (1) genetic regulatory elements identification for unknown genes detection in sequenced genomes and for the aim of genomic mapping, and (2) to predict the type and malignancy of breast cancer based on information for mutations in genes associated with it, the level of expression and the associated epigenetic information. The driving force of the project is an interdisciplinary team, combining expertise in information science and technology, engineering foundations and technical deployment of software methods and tools, as well as established scholars in the areas of molecular biology and medical genetics.

The final goal is to build up smart digital consultant software helping medics in breast cancer diagnostics and individual patient therapy assignment. The developed software package will be uploaded to the project's website <http://insilicokdd.com> and will be freely accessible for all researchers, biologists and medics interested in personalized and precision medicine and genetic research.

## TRAVELING TO BULGARIA

Bulgarians and Byzantines on the Border of two Centuries

Iliya Iliev

Abstract

The rapid decline of Byzantium in the end of the XIIth century led to its collapse at the hands of the Fourth Crusade (1202 – 1204). After the conquest of the Byzantine capital and the emergence of the Latin Empire of Constantinople, four main political powers tried to put under control the situation in South-East Europe: the crusaders, the remnants of Byzantium in North-West Asia Minor (Nicaea) and Epirus (Theodoros Doukas Comnenos), the Papacy (often through the Kingdom of Hungary) and newly reborn Bulgarian Empire (John Assen II). The paper deals with the relations between those powers mainly in connection with the political and ecclesiastical (the Archbishopric of Ohrid and „entire Bulgaria“) government of the South-West part of the Balkan Peninsula.

## The Rumors in Medieval Bulgaria

Peter Angelov

### Abstract

Rumors in Medieval Bulgaria usually appeared in two ways. The first one was impulsive, uncontrolled and provoked by unclear and spontaneous circumstances. The second one was defined by deliberate creation and spreading of rumors. The information the rumors contained could not be always verified. This, however, didn't mean that the entire information was false. Rumors could either have positive effect on peoples' behavior, or provoke additional disturbance and fear. Particularly common were rumors related to foreign invasion, unusual natural omens, miraculous interference of saints in important events, dramatic changes in governance of the state. Rumors were, also, used for achieving particular results during diplomatic negotiations.

## HEALTH AND MEDICINE

### MARKETING ANALYSIS OF COLLAGEN-CONTAINING PRODUCTS IN SUPPORTING JOINT HEALTH

Kalina Andreevska, Valentina Petkova, Lilia Karamancheva, Daniela Grekova-Kafalova, Anna Todorova, Antoaneta Tsvetkova

#### Abstract

*Introduction.* According to German scientists, arthrosis is the most common joint disease in adults. Frequency increases steeply with age. In the United States, it is estimated that arthrosis debilitates about 10% of the population over 60 years of age and is responsible for lowering the quality of life of over 20 million people.

*Objectives.* The aim of the study is to investigate the use of collagen-containing products in supporting joint health as the main application area.

*Methods.* Marketing analysis of the pharmaceutical market of collagen-containing products for Bulgaria was carried out. The main methods include documentary analysis and marketing analysis based on IMS data for 2013-2016.

*Results.* The most significant number of collagen products is in the O2G2C JOINT CARE (SYS) segment. The total volume of collagen-containing products for 2016 by value is BGN 22 384 822 and 1 220 694 items. The market share is about 7% in value and approx. 3% per pcs. from the total market of OTC and Nutritional Supplements. The growth in packs is + 6% in 2015 vs. 2016, while the growth in value in BGN is double: + 14%.

*Conclusion.* The size of the so-called „Collagen Market“ is ranked in the top three of the largest OTC and Nutritional Supplements Segments, immediately after the probiotics segment.

*Key words:* marketing analysis, collagen, value, volume

## THE FLOOR TO THE YOUNG PEOPLE

### EUROPEAN INFLUENCE OF THE ARCHITECTURES OF THE CITY OF RUSSE IN THE END OF XIX AND THE BEGINNING OF XX CENTURY

Ventsislav Ignatov

#### Abstract

An important role in the modern urban planning of Russe played the architects and engineers who work in the city in the end of XIX and the beginning of XX century. Some of them are foreigners, some are Bulgarians studied architecture in Europe. This paper describes the work of the architects who have significant contribution for the European architectural styles introduced in Russe at this time, such as Friedrich Grunanger, Edward Winter, Herman Mayer, Nino Rosetti, Raul Paul Brank, Todor Petrov, Nicola Lazarov, Petko Momchilov, Negohos Bedrosian.