



XIII National Conference "Natural Sciences 2015"(NCNS 2015)

**PROGRAMM
OF
XIII NATIONAL CONFERENCE
WITH INTERNATIONAL PARTICIPATION
“NATURAL SCIENCES’2015”**

**VARNA
2015**



XIII National Conference "Natural Sciences 2015"(NCNS 2015)

ORGANIZING COMMITTEE

CHAIRMAN:

Prof. Dr. Dobromir Enchev, PhD, DSc – Dean of Faculty of Natural Sciences

MEMBERS:

Prof. Dr. Valerij Christov, PhD, DSc
Prof. Dr. Nesho Chipev, PhD
Prof. Dr. Stela Dermandjieva, PhD
Prof. Dr. Veneta Kapchina-Toteva, PhD
Prof. Dr. Dragomir Marchev, PhD
Prof. Dr. Iliya Penev, PhD

TECHNICAL SECRETARIES

Sevelina Stoyanova
Galya Marinova



XIII National Conference "Natural Sciences 2015"(NCNS 2015)

25.09.2015 г.

12.00 – 19.00 Registration

26.09.2015 г.

8.00 – 9.00 Registration

9.00 – 9.30 Opening Ceremony

9.30 – Session Proceedings and Poster Session

10.30 – 11.00 Coffee Break

19.30 – Conference Dinner

27.09.2015 г.

9.30 – Closing Ceremony



SECTION
NANOSCIENCES, NEW MATERIALS AND TECHNOLOGIES

26. 09. 2015

Chairman: **Prof. Dr. Valerij Christov, PhD, DSc**

Secretary: **Assist.-Prof. Dr. Ismail Ismailov, PhD**

09:30-09:45

Use of the Fingerprints in the Chemoinformatics. Structural, Descriptor and Fuzzy Descriptor Fingerprints

Ivan Bangov¹, Nikolay Kochev², Marina Moskovkina¹, Borislav Stoyanov³, Ivan Dimitrov⁴, Irini Doytchinova⁴, Rumenya Milina⁵ ¹General Chemistry Department, Shument University, 115, Universitetska str., Shumen 9712, Bulgaria

²Faculty of Analytical and Computer Chemistry, Plovdiv University, 24, Tsar Assen str. Plovdiv, 4000, Bulgaria

³Department of Computer Informatics, Faculty of Mathematics and Informatics, University of Shumen, 115 Universitetska Str., Shumen 9712, Bulgaria

⁴Faculty of Pharmacy, Medical University of Sofia, 2, Dunav Str., 1000 Sofia, Bulgaria

⁵Central Research Laboratory, Faculty of Natural Science, Prof. Assen Zlatarov University, 62 San Stefano Str., Burgas 8001, Bulgaria

09:45-10:00

Thin Liquid Films. DLVO and non-DLVO components of the disjoining pressure

Jana Krumova Angarska

Faculty of Natural Sciences, University of Shumen, 115 Universitetska str., 9712 Shumen, Bulgaria

10:00-10:15

Exopolysaccharides from lactic acid bacteria as corrosion inhibitors

Tsvetelava Ignatova-Ivanova, Radoslav Ivanov

Shumen University, Faculty of Natural Sciences, Shumen, 115 Universitetsca Str., Shumen, Bulgaria

10:15-10:30

Diffusion Coatings as Corrosion Inhibitors

Radoslav Ivanov, Tsvetelava Ignatova-Ivanova

Shumen University, Faculty of Natural Sciences, Shumen, 115 Universitetsca Str., Shumen, Bulgaria

10:30-11:00

Coffee Break

Poster Section

11:00-11:15

Spectroscopic Characterization of Pectic Polysaccharides from Leek

Manol Ognyanov¹, Nadezhda Petkova³, Yordan Georgiev¹, Svetlana Simova², Maria Kratchanova¹, Christo Kratchanov⁴



¹Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Laboratory of Biologically Active Substances, 139 Ruski Blvd., 4000 Plovdiv, Bulgaria

²Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Laboratory of Nuclear Magnetic Resonance, Acad. G. Bonchev Str., Build. 9, 1113 Sofia, Bulgaria

³University of Food Technologies, Technological Faculty, Organic Chemistry Department, 26 Maritsa Blvd., 4002 Plovdiv, Bulgaria

⁴Innovative Technological Centre Ltd., 20 Dr. G. M. Dimitrov str., 4000 Plovdiv, Bulgaria

11:15-11:30

Synthesis of 2,5-dihydro-1,2-oxaphospholes and 2-Phosphoryl-2,5-dihydrofurans by Electrophilic Cyclization and Coinage Metal-catalyzed Cycloisomerization of Phosphorylated 3-(α -Hydroxy)allenes

Hasan Hasanov, Ivaylo Ivanov, Valerij Christov

Department of Organic Chemistry & Technology, Faculty of Natural Sciences, Konstantin Preslavsky University of Shumen, 115, Universitetska str., 9712 Shumen

11:30-11:45

Sample didactic model of forming competence in the subject, in the education of chemistry and environment protection

Petinka Galcheva¹, Antoaneta Hineva²

¹*Department of General Chemistry, Faculty of Natural Sciences, Konstantin Preslavsky University of Shumen, 115 Universitetska St., 9712, Shumen*

²*Dr. P. Beron High School of Mathematics, Varna*

11:45-12.00

Poster Section

1. Foaming and Emulsifying Properties of Pectin Isolated from Different Plant Materials

Nikoleta Yancheva, Daniela Markova, Dilyana Murdzheva, Ivelina Vasileva, Anton Slavov
Department of Organic Chemistry, University of Food Technologies – Plovdiv, 26, Maritsa Blvd., 4002 Plovdiv

2. Polyphenolic profile and *in vitro* antioxidant activities of herbal infusions from commercially available *Mentha x piperita*

Stefka Kolaneva, Ivan Ivanov, Dasha Mihaylova, Nadezhda Petkova
University of Food Technologies, 26, Maritsa blvd, 4002, Plovdiv

3. Chemical Modification of Alginic Acid by Ultrasonic Irradiation

Dilyana Murdzheva, Panteley Denev
Department of Organic Chemistry, University of Food Technologies – Plovdiv, 26 Maritsa Blvd. 4002 Plovdiv

4. Electrophilic Cyclization Reactions of Phosphorylated α -Hydroxyallenes

Ismail Ismailov, Ivaylo Ivanov, Valerij Christov
Department of Organic Chemistry & Technology, Faculty of Natural Sciences, Konstantin Preslavsky University of Shumen, 115, Universitetska str., 9712 Shumen



5. Metal-Catalyzed Cycloisomerization of Phosphorylated α - and β -Hydroxyallenes

Ismail Ismailov, Ivaylo Ivanov, Valerij Christov

Department of Organic Chemistry & Technolog, Faculty of Natural Sciences, Konstantin Preslavsky University of Shumen, 115, Universitetska str., 9712 Shumen

6. Thermodynamic properties of the Ni–Sn–Ti liquid phase assessed by CALPHAD method and by geometric models

V. Gandova¹, J.-C. Tedenac²

¹*Inorganic and Physical Chemistry Department, University of Food Technologies, 26, Mariza avenue, 4000 Plovdiv, Bulgaria*

²*Laboratoire de Physico-Chimie de la Matiere Condensee, UMR CNRS 5617, Universite Montpellier II, Montpellier, France*

7. Investigation of liquid phase of Ni–Sn–Zn system by Thermo-Calc calculations end comparative review of enthalpies of mixing in the system

V. Gandova

8. Critical Thickness of Foam Films Stabilized by Nonionic, Ionic Surfactants and their Mixtures

Dilyana Stefanova Ivanova¹, Jana Krumova Angarska¹, Emil Deyanov Manev² and Krasimir Dimov Tachev¹

¹*Faculty of Natural Sciences, University of Shumen, 115 Universitetska str., 9712 Shumen, Bulgaria*

²*Faculty of Chemistry and Pharmacy, Sofia University, 1 James Bourchier Blvd, 1164 Sofia, Bulgaria*

9. Albena Yonova

"Dede-Agatsch" Str. 17, 9704 Shumen, Bulgaria

10. Electrophilic Reactions of 4-Phosphorylated Allenecarboxylates

Ivaylo Parushev, Ivaylo Ivanov, Valerij Christov

Department of Organic Chemistry & Technology, Faculty of Natural Sciences, Konstantin Preslavsky University of Shumen, 115, Universitetska str., 9712 Shumen, Bulgaria

11. Prediction of Gas Chromatographic Retention Behavior for Saturated Esters by QSRR Approach

M. Moskovkina, L. Naneva, I. Bangov

Inorganic Chemistry Department, Faculty of Natural Sciences, Konstantin Preslavski University of Shumen, 115, Universitetska Str., 9712 Shumen, Bulgaria

12. Determination and discrimination of biodiesel fuels by gas chromatographic and chemometric methods

R. Milina¹, Z. Mustafa^{1,}, D. Bojilov², S. Dagnon², M. Moskovkina³*

¹*Central Research Laboratory, Faculty of Natural Science, University "Prof. Dr. Assen Zlatarov", Bourgas 8010, Bulgaria*

²*Faculty of Chemistry, Dep. of Organic Chemistry, University of Plovdiv "Paisii Hilendarski", Plovdiv, Bulgaria*

³*General Chemistry Department, Faculty of Natural Sciences, Konstantin Preslavski University of Shumen, 115 Universitetska str., 9712 Shumen, Bulgaria*



13. Upon Opportunity to Art2 Neural Network for Clusterization of Biodiesel Fuels

Todor Petkov¹, Zilya Mustafa¹, Sotir Sotirov¹, Rumyana Milina¹, Marina Moskovkina²

¹*University "Prof. Dr. Assen Zlatarov" Bourgas, Bulgaria*

²*General Chemistry Department, Faculty of Natural Sciences, Konstantin Preslavski University of Shumen, 115 Universitetska str., 9712 Shumen, Bulgaria*

14. Synthesis of sucrose acetates and characterization of their foaming and emulsifying properties

Radka Grudeva¹, Nadezhda Petkova¹, Ivelina Vasileva¹, Dragomir Vassilev², Panteley Denev¹

¹*Organic Chemistry Department, University of Food Technologies, Maritsa 26 Blvd, Plovdiv, 4002, Bulgaria*

²*Department "Physics, chemistry & ecology", Technical University of Gabrovo, Bulgaria*

15. Investigation of emulsion stability in Soybean protein isolates – Soybean oil – Water system

D. Balev¹, V. Gandova², I. Vlaeva³, S. Gandova⁴

¹*Meat and Fish Department, University of Food Technologies, 26 Maritsa avenue, 4000 Plovdiv, Bulgaria*

²*Inorganic and Physical Chemistry Department, University of Food Technologies, 26 Maritsa avenue, 4000 Plovdiv, Bulgaria*

³*Department of Mathematics and Physics, University of Food Technologies, 26 Maritsa avenue, 4000 Plovdiv, Bulgaria*

⁴*Faculty of Chemistry, University of Plovdiv, 24 Tzar Assen Str., 4000 Plovdiv, Bulgaria*

16. Thermodynamic description of oil/water emulsions with different amount soybean protein isolate using phase diagram method

D. Balev¹, V. Gandova², I. Vlaeva³, S. Gandova⁴

¹*Meat and Fish Department, University of Food Technologies, 26 Maritsa avenue, 4000 Plovdiv, Bulgaria*

²*Inorganic and Physical Chemistry Department, University of Food Technologies, 26 Maritsa avenue, 4000 Plovdiv, Bulgaria*

³*Department of Mathematics and Physics, University of Food Technologies, 26 Maritsa avenue, 4000 Plovdiv, Bulgaria*

⁴*Faculty of Chemistry, University of Plovdiv, 24 Tzar Assen Str., 4000 Plovdiv, Bulgaria*

17. Comparative characteristics of the technological possibilities of low-esterified pectin from bulgarian celery and commercial product

R. Vlaseva, M. Ivanova, V. Bouvard, M. Hadjikinova, D. Hadjikinov, V. Dobrev, N. Petkova, P. Denev, T. Balabanova

Department, University of Food Technologies, 26 Maritsa avenue, 4000 Plovdiv, Bulgaria

18. ORGANOCHLORINE PESTICIDES(DDTs, HCB AND HBDE) AND PCBs IN WILD FISH FROM RIVER VRANA, NEAR TARGOVISHTE, BULGARIA

Stanislava Georgieva, Mona Stancheva

Medical University - Varna, Marin Drinov 55, 9002 Varna, Bulgaria

19. Organochlorine pollutants in wild mussels(*Mytilus galloprovincialis*)from Black Sea, Bulgaria

Stanislava Georgieva, Mona Stancheva, Katya Peycheva, NechoChihev

Department of Chemistry, Medical University - Varna, Marin Drinov 55, Varna 9002, Bulgaria



SECTION **Energy Resources and Energy Efficiency**

26.09.2015

Chairman: *Prof. Iliya Penev, Ph.D.*
Secretary: *Prof. Nina Arhangelova, Ph.D.*

09:30-09:45

Spectroscopic Monitoring of Space and Terrestrial Gamma-Rays at BEO-Moussala in the Interval 150 - 6400 kev

Hristo Angelov¹, Ilia Penev¹, Todor Arsov¹, Stefan Georgiev¹, Nina Arhangelova²

¹*Institute for Nuclear Research and Nuclear Energy,
Bulgarian Academy of Sciences,
Sofia, boul. Tzarigradsko shosse 72*

²*University of Sumen "St. K.Preslavski",
Shumen, Universitetska st. 115, Bulgaria*

9:45-10:00

Calorimetric research of partially crystalline polymer objects

V. Velev¹, P. Kyurkchiev¹, R. Mateva¹, N. Arhangelova², Hr. Hristov²

*University of Shumen, Faculty of Natural Sciences, ¹Department of Theoretical and Applied Physics, ²Department of Experimental physics and methods of teaching physics,
115, Universitetska Str, 9700 Shumen,
E-mail: v.velev@shu-bg.net*

10:00-10:15

Mazer's theory application in Bi₄Ge₃O₁₂:V

P. Petkova^{1}, P. Vasilev¹ and R. Belcheva²*

¹Shumen University "Konstantin Preslavsky", Faculty of Natural Sciences, Department of Experimental Physics, 115 Universitetska street, 9700 Shumen, Bulgaria

²Foreign Language High School "Nicola Vaptsarov", 36 Madaraboulevard, 9700 Shumen, Bulgaria

10:30-11:00

Coffee Break

Poster Section

11:00-11:15

Spectroscopic Monitoring of Space and Terrestrial Gamma-Rays at BEO-Moussala in the Interval 150 - 6400 kev

Hristo Angelov¹, Ilia Penev¹, Todor Arsov¹, Stefan Georgiev¹, Nina Arhangelova²

¹*Institute for Nuclear Research and Nuclear Energy,
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Sofia, boul. Tzarigradsko shosse 72*

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Shumen, Universitetska st. 115, Bulgaria*

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11:15-11:30

Determination of the trace elements in some medicinal plants of Shumen Plateau

N. Arhangelova , R. Mateva , S. Salim , D. Nedeva , Zh. Dimitrova

University of Shumen, Faculty of Natural

Sciences, 1Department of Theoretical and Applied Physics, 2Department of Experimental physics and methods of teaching physics, 3Department of Agricultural Sciences and Plant Protection, 115, Universitetska St, 9700 Shumen, 4 TU of Gabrovo, Faculty of Elektronical Engineering and Electronics, 5300 Gabrovo, 4 Hadzhy Dimitar str.

11:30-11:45

Research on radiological and physicochemical parameters of water in Northwest Bulgaria

Anna Damianova, Zornitsa Tsolova, Elena Geleva, Ilya Penev

Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences, 72 Tsharigradsko Shosse Blvd., 1784 Sofia, Bulgaria

Poster Section

1. Aerosol and gamma background measurements at Basic Environmental Observatory "Moussala"

Christo Angelov, Todor Arsov, Ilia Penev, Nina Nikolova, Ivo Kalapov, Stefan Georgiev

Institute for Nuclear Research and Nuclear Energy,

Bulgarian Academy of Sciences,

Sofia, boul. Tzarigradskoshosse 72

2. Investigation of environmental samples from peak Moussala area (Rila mountain)

Anna Damianova, Zornitsa Tsolova, Ilia Penev

Institute for Nuclear Research and Nuclear Energy – Bulgarian Academy of Sciences 72 Tzarigradsko shousse Blvd., Sofia, Bulgaria



SECTION
Astronomy, Space Research and Technologies

26. 09. 2015

Chairman: *Prof. Dragomir Marchev, Ph.D.*

Secretary: *Dorortea Vasileva*

09:30-09:45

The role of the eccentric binaries for the modern astrophysics

D. Kjurkchieva, D. Vasileva

*Shumen University, Faculty of Science, Department of Physics, Shumen 9700, 115
Universitetskastr.*

09:45-10:00

The role of the detached eclipsing binaries for the modern astrophysics

D. Kjurkchieva, T. Atanasova

*Shumen University, Faculty of Science, Department of Physics, Shumen 9700, 115
Universitetskastr.*

10:00-10:30

Poster Section

10:30-11:00

Coffee Break



SECTION Biomedicine and Quality of Life

26.09. 2015

Chairman: ***Prof. Veneta Kapchina-Toteva, Ph.D.***

Secretary: ***Mariya Kaschieva, Ph.D.***

9,00-9,20 VenetaKapchina-Toteva.BIOTECHNOLOGICAL APPROACHES FOR EX-SITO PRESERVATION OF ENDANGEREDPLANTS

9,20-9,40 Stoynallieva, Maria Boycheva, RositsaDavidova. THE USE OF INNOVATIVE METHODS IN STUDENTS' ECOLOGICAL AND HEALTH EDUCATION IN BIOLOGY.

9,40-10,00 Maya Radeva, Maria Boycheva, RositsaDavidova. THE USE OF INTERACTIVE METHODS IN ECOLOGICAL AND HEALTH EDUCATION OF 8TH GRADE STUDENTS IN THE SUBJECT OF BIOLOGY AND HEALTH EDUCATION.

10,00-10,20 Rositsa Davidova, Viktor Vasilev, Jaklin Bakalova, Ailjan Dzhevat. Mites (Acari: Acariformes and Parasitiformes) in nests of the semi-collared flycatcher (*Ficedulasemitorquata*).

10,20-10,40 Rositsa Davidova, Viktor Vasilev, Nailin Ali. Community structure of mites (Acari: Acariformes and Parasitiformes) in nests of the semi-collared flycatcher (*Ficedulasemitorquata*).

10,40-11,00 Viktor Vasilev, Vasil Vasilev, Tanya Mozakova. A study of parental behaviour of Tree Sparrow (*Passer montanus*) in a nest box.

11,00-11,20 MariyaKaschieva, ZheniDimitrova, GerganaHristova. Albinism in plants.

11.20-11.40 Vanya Koleva. Antiproliferative and apoptotic activity of Br-containing oxaphosphole.

Department of Biology, Faculty of Natural Sciences, University of Shumen, 115 Universitetska Str., 9712 Shumen, Bulgaria

Poster Section Biomedicine and Quality of Life And Biodiversity, Bioresources and Ecology

11.30 – 12.00

Chairman: ***Prof. Veneta Kapchina-Toteva, Ph.D.***

Secretary: ***MariyaKaschieva, Ph.D.***

Yulian Tumbarski, Emanuil Petkov, Zapryana Denkova. Screening for *in vitro* antimicrobial activity of *Bacillus subtilis* ATCC 6633against some fungi species.

Petya Boycheva, Krasimir Kosev. Medicinal Plants of the Territory of the University Botanic Garden Ecopark Varna.



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**Simeon Gavrailov, Viara Ivanova . Effects of nitrogen and carbon sources on the production of inulinase from strain *Bacillus* sp. SG113
University of Food Technologies – Plovdiv, Department of Microbiology, 26 Maritsa blvd, 4002 Plovdiv, Bulgaria**

SECTION Biodiversity, Bioresources and Ecology

Chairman: ***Prof. Neso Chipev, Ph.D.***

Secretary: ***asistent Karamfil Kalchev***

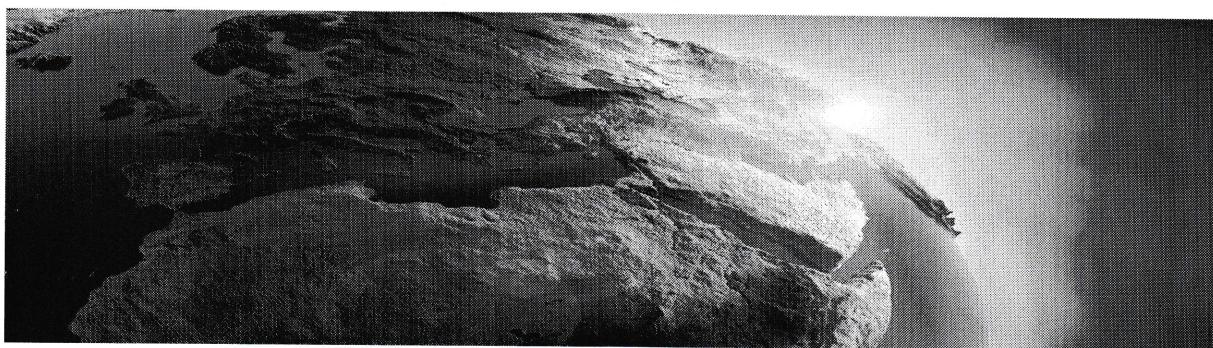
13,00-13,20 DonchoAngelovDimitrov, NikolayMinchev. Geoinformational analysis of the environmental and land-specific development constrains in the Municipality of Shabla, Bulgaria.

13,20-13,40 Karamfil Kalchev. Nitrogen cycle enzymes for evaluation of soil quality in different habitats.

13,40-14,00 Alexander Doichinov, Darina Bachvarova, Masha Radoslavova, Presiyana Koleva.Compatibility assessment – problematic areas and things left unsaid.

14,00-14,20 Albena Alexandrova

Oxidative stress in ecology and evolution



Section

Regional Development, Earth Science and Educational Resources

26.09.2015

moderator: Prof. Stela Dermendzhieva, PhD

9.30-9.45

Assoc. Prof. Svetla STANKOVA, PhD, Prof. Tzanko TZANKOV, Dsc, Mirela MARINOVA

„Episkop Konstantin Preslavski” University of Shumen, Faculty of Natural Sciences, Department “Geography and Methodology of Teaching Geography”, Bulgaria

Geomorphology and Morphogenesis of Water Catchment Basin Suha Reka River

9.45-10.00

Assoc. Prof. Svetla STANKOVA, PhD, Prof. Tzanko TZANKOV, Dsc

„Episkop Konstantin Preslavski” University of Shumen, Faculty of Natural Sciences, Department “Geography and Methodology of Teaching Geography”, Bulgaria

About the Origin and Morphostructure of the Black Sea Basin

10.00-10.15

Assoc. Prof. Maria DOMBROWICZ, PhD, Paulina GRUSZKA, Izabela JARECKA

Kazimierz Wielki University in Bydgoszcz, Poland

Cultural heritage of Varna and its tourist recognisability in Europe

10.15-10.30

Prof. Atanas DERMENDZHIEV, PhD, Assist. Prof. MARTIN DOYKOV, PhD

“St. Cyril and St. Methodius” University of Veliko Tarnovo, Department „Geography”, Bulgaria

The European Transport (In)Accessibility of Bulgaria

10:30-11:00

Coffee Break



Poster Section

11. 00-11.15

Assist. Prof. Ivaylo Vladev

„Episkop Konstantin Preslavski” University of Shumen, Faculty of Natural Sciences, Department „Tourism”, Bulgaria

Trends in a territorial distribution and a population density in socio-economic territorial systems Shumen, Novi Pazar, Kaspichan, Veliki Preslav

11.15-11.30

Assoc. Prof. Milen PENERLIEV, PhD, Assist. Prof. Leyla SHEFKA

„Episkop Konstantin Preslavski” University of Shumen, Faculty of Natural Sciences, Department “Geography and Methodology of Teaching Geography”, Bulgaria

Depopulation in Rural Areas of Dobrudza Region and its Impact on the School Network

11.30 -11.45

Assist. Prof. Rositsa VLADEVA, PhD

„Episkop Konstantin Preslavski” University of Shumen, Faculty of Natural Sciences, Department “Geography and Methodology of Teaching Geography”, Bulgaria

Advantages and disadvantages of electronic textbooks on geography and economy class V-VIII

11.45 -12.00

Prof. Stela DERMENDZHIEVA, PhD, Assist. Prof. MARTIN DOYKOV, PhD

“St. Cyril and St. Methodius” University of Veliko Tarnovo, Department „Geography”, Bulgaria

The Regional Approach and the Regional Studies Method in the Process of Geography Teaching Bulgaria

12.00-12.15

Prof. Ekaterina Keremidarska, PhD

Active recreation and tourism in the north eastern region of Bulgaria

„Episkop Konstantin Preslavski” University of Shumen, Faculty of Natural Sciences, Bulgaria