

SUMMIT

Annual conference, April 2024
Sofia University St. Kliment Ohridski
Sofia, Bulgaria



SOFIA UNIVERSITY
MARKING MOMENTUM
FOR INNOVATION AND
TECHNOLOGICAL TRANSFER



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National Recovery and Resilience Plan



OF THE REPUBLIC OF BULGARIA

PROGRAM

23.04
24.04.2024

23 april 2024, program summary



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Aula, Rectorat, Tsar Osvoboditel Blvd 15		
8.30-9.30	Registration and complimentary coffee	
9.30-10.15	Opening ceremony	
Plenary session		
10.15-10.30	SUMMIT: VISION, ACHIEVEMENTS, CHALLENGES. AN OVERVIEW	p. 6
Group sessions		
10.30-12.00	Reports from Research groups 3.1.1 to 3.1.6	p. 7
12.00-13.00	Lunch break "Alma Mater" restaurant	
13.00-15.00	Reports from Research groups 3.1.7 to 3.1.14	p. 8
15.00-15.30	Coffee break	
15.30-17.30	Reports from Research groups 3.1.15 to 3.1.17 and 3.2.1 to 3.2.5	p. 10

Central lobby, Rectorat, Tsar Osvoboditel Blvd 15		
All day	Poster session for the 3.4 Groups	p. 12

24 april 2024, program summary



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Hall 1, Rectorat, Tsar Osvoboditel Blvd 15		
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9.00-12.30	3.1.10 DigitalEdu-SU , Prof. Dr. Roumiana Peytcheva-Forsyth	p. 15
13.30-17.00	3.1.17 SMEs digitalization , Prof. Dr. Desislava Yordanova	p. 16
Conference Hall, Rectorat, Tsar Osvoboditel Blvd 15		
9.00-17.00	3.1.16 ICT Applications for History And Language , Prof. D.Sc Anna-Maria Totomanova / Assoc. Prof. Dr. Maria Baramova	p. 17
Auditorium 45, Rectorat, Tsar Osvoboditel Blvd 15		
9.00-12.30	3.1.13 Climate, Weather and Natural Risks (CW&NR) , Assoc. Prof. Dr. Guergana Guerova	p. 18
Auditorium 63, Rectorat, Tsar Osvoboditel Blvd 15		
9.00-12.30	3.2.5 NUDGE: Behaviour models, attitudes and Policy implementation for sustainable development , Prof. Dr. Ivo Vlaev 3.4. Projects , FACULTY OF PHILOSOPHY	p. 19
Conference Hall, Faculty of Mathematics and Informatics, James Bourchier Blvd 5		
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Auditorium 326, Faculty of Mathematics and Informatics, James Bourchier Blvd 5		
9.00-12.30	3.1.12 Intelligent systems , Prof. Ivan Koychev, 3.4. Group , Assoc. Prof. Alexander Dimitrov	p. 21 p. 22

Hall 401, Faculty of Chemistry and Pharmacy, James Bourchier Blvd 1		
9.00-10.30	3.2.2 ZeoNeo , Prof. Valentin Valtchev	p. 22
11.00-12.30	3.1.5 Computational Heterogeneous Catalysis , Prof. Hristiyan Aleksandrov Ph.D.	p. 22
13.30-17.00	3.1.6 BAC , Prof. DSc Ivo Grabchev 3.4. Group , Assoc. Prof. Dr. Martin Tsvetkov	p. 23

Meeting Hall, Faculty of Chemistry and Pharmacy, James Bourchier Blvd 1		
9.00-12.30	3.1.7 Functional materials , Prof. Tony Spassov	p. 24
13.30-17.00	3.1.2 Active formulation and materials , Prof. Slavka Tcholakova	p. 25

Aula, Faculty of Biology, Dragan Tsankov Blvd 8		
9.00-17.00	3.1.8 Plant parasites , Assoc. Prof. Dr Lyuben Zagorchev	p. 29
	3.2.4 Microbiological risks in the environment , Sergei Veselinov Ivanov, PhD	p. 29
	3.1.11 Algology (Algal Collections) , Assoc. Prof. Blagoy Uzunov, PhD, 3.4. Group , Prof. Dr Robert Penchovski	p. 30

A301, Faculty of Physics, James Bourchier Blvd 5		
9.00-17.00	3.1.1 Mathematical physics and Astrophysics , Prof., DSc Stoytcho Yazadjiev	p. 27

A315, Faculty of Physics, James Bourchier Blvd 5		
9.00-12.30	3.1.14 Nuclear , Assoc. Prof. PhD, Krasimir Mitev	p. 26
13.30-17.00	3.1.4 Advanced Quantum and Optical Technologies (AQOT) , Prof. DSc Nikolay V. Vitanov	p. 27

A205, Faculty of Physics, James Bourchier Blvd 5		
13.30-17.00	3.2.3 New materials and photonics , Dr. Sotir Chervenkov	p. 28

House of Europe, Cultural center, Georgi Rakovski str 124		
13.30-17.00	3.1.15 European Values and Social Challenges /EuVaSC/ , Prof. Maria Stoicheva, PhD	p. 31



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8.30-9.30	Registration and complimentary coffee
9.30-10.15	<p>Opening ceremony</p> <ul style="list-style-type: none"> - Address to the Conference from the Rector of Sofia University Prof. Georgi Valchev - Address to the Conference from the Prime Minister of the Republic of Bulgaria - Address to the Conference from the chairman of the Committee of Education and Science of the National Assembly of the Republic of Bulgaria - Address to the Conference from the the Minister of Education and Science - Address to the Conference from the Minister of Innovation and Growth - Address to the Conference from the head of the Executive Agency "Programme Education" - Address to the Conference from the chairman of the Bulgarian Academy of Sciences - Address to the Conference from the chairman of the National Evaluation and Accreditation Agency



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Plenary session	
10.15-10.30	<p>SUMMIT: VISION, ACHIEVEMENTS, CHALLENGES. AN OVERVIEW PROF. ANASTAS GERDJKOV, LEADER OF THE SUMMIT PROJECT, PROF. VASIL MARINOV, COORDINATOR RESEARCH GROUPS - SUMMIT</p>
PRESENTATION OF THE ACTIVITIES OF THE RESEARCH GROUPS	
10.30-10.45	<p>Prof. DSc Stoytcho Yazadjiev, Faculty of Physics, Department of Theoretical Physics. Group Name 3.1.1: Mathematical Physics and Astrophysics. Main research area of the group: General relativity, Modified theories of gravity, Relativistic astrophysics, Gravitational waves, Black holes, Gauge-gravity dualities.</p>
10.45-11.00	<p>Prof. Slavka Tcholakova, PhD Chemistry, Faculty of Chemistry and Pharmacy, Department of Chemical and Pharmaceutical Engineering. Research group name 3.1.2: Active formulations and materials. Main research area of the group: Soft mater.</p>
11.00-11.15	<p>Assistant professor, MD, PhD, Tsvetelina Velikova, Medical Faculty. Research group name 3.1.3: GROWTH (group of researchers for opportunities in writing who are talented in healthcare). Main research area of the group: Medicine, Biology and Public Health.</p>

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11.15-11.30	<p>Prof. DSc Nikolay Vitanov, Member of BAS, Faculty of Physics, Department of Theoretical Physics. Research group name 3.1.4: Advanced Quantum and Optical Technologies (AQOT). Main research area of the group: Quantum technologies.</p>
11.30-11.45	<p>Prof. PhD, Hristiyan Aleksandrov, Faculty of Chemistry and Pharmacy, Department of Organic Chemistry and Pharmacognosy. Research group name 3.1.5: Computational Heterogeneous Catalysis. Main research area of the group: Application of quantum chemical methods for studying of catalytic systems and reactions on them.</p>
11.45-12.00	<p>Prof. DSc Ivo Grabchev, Faculty of Medicine, Department of Chemistry and biochemistry, physiology and pathophysiology. Research group name 3.1.6: BAC. Main research area of the group: Bioactive compounds.</p>
12.00-13.00	Lunch break
13.00-13.15	<p>Prof. DSc. Tony Spassov, Faculty of chemistry and pharmacy, Applied Inorganic Chemistry Department. Research group name 3.1.7: Functional materials. Main research area of the group: Nanostructured materials for clean energy and environment.</p>



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13.15-13.30	<p>Assoc. Prof. Dr Lyuben Zagorchev, Faculty of Biology, Department of Biochemistry. Research group name 3.1.8: Plant parasites. Main research area of the group: Biology of parasitic plants.</p>
13.30-13.45	<p>Prof. Dr.Sc. Mladen Savov, Faculty of Mathematics and Informatics, Department of Probability, Operations Research and Statistics. Research group name 3.1.9: GAMMA. Main research area of the group: Stochastic processes.</p>
13.45-14.00	<p>Prof. d-r Roumiana Peytcheva-Forsyth, Faculty of Pedagogy, Department of Didactics. Research group name 3.1.10: DigitalEdu-SU. Main research area of the group: Digital education.</p>
14.00-14.15	<p>Assoc. Prof. Blagoy Uzunov, PhD, Faculty of Biology, Department of Botany. Research group name 3.1.11: Algology (Algal Collections). Main research area of the group: algae, algal cultures.</p>
14.15-14.30	<p>Prof. Ivan Koychev, Faculty of Mathematics and Informatics, Software technologies Department. Research group name 3.1.12: Intelligent systems. The main research area of the group: Artificial Intelligence.</p>
14.30-14.45	<p>Assoc. Prof. dr. Guergana Guerova, Physics Faculty, Department Meteorology and Geophysics. Research group name 3.1.13: Climate, Weather and Natural Risks (CW&NR). Main research area of the group: Earth and related environmental sciences.</p>

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14.45-15.00	<p>Assoc. Prof. PhD, Krasimir Mitev, Faculty of Physics, Department of Atomic Physic. Research group name 3.1.14: Nuclear. Main research area of the group: Experimental nuclear and sub-nuclear physics and technology.</p>
15.00-15.30	Coffee break
15.30-15.45	<p>Prof. Maria Stoicheva, PhD, Faculty of Philosophy, European Studies Department. Research group name 3.1.15: European Values and Social Challenges (EuVaSC). Main research area of the group: Social sciences (Political Science, Law, Educational Sciences).</p>
15.45-16.00	<p>Prof. Doctor Habil Anna-Maria Kostova Totomanova, Faculty of Slavic studies, Department of Cyril and Methodius Studies and Assoc. Professor Dr. Maria Baramova, Faculty of History, Department History of Byzantium and the Balkans. Research group name 3.1.16: Digital Humanities. ICT Applications for History and Language. Main research area of the group: Digital Humanities.</p>
16.00-16.15	<p>Prof. doctor Desislava Yordanova, Faculty of Economics and Business Administration, Department of Business Administration. Research group name 3.1.17: SMEs digitalisation. Main research area of the group: Digitalization; Small and Medium-Sized Enterprises.</p>



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<p>16.15-16.30</p>	<p>Prof. Ph.D. Bojan Popov Current affiliation: Department of Mathematics, Texas A&M University, Texas, USA. Research group name 3.2.1: NATATA. Main research area of the group: Numerical Analysis and Approximation Theory.</p>
<p>16.30-16.45</p>	<p>Prof. Valentin Valtchev Current affiliation: Laboratoire Catalyse & Spectrochimie, ENSICAEN - Université de Caen – CNRS, France. Research group name 3.2.2: ZeoNeo. Main research area of the group: Zeolitic materials for new applications.</p>
<p>16.45-17.00</p>	<p>Dr. Sotir Chervenkov Current affiliation: Disco Hi-Tec Europe GmbH, Germany. Research group name 3.2.3: New materials and photonics. Main research area of the group: Development, characterization and applications of new materials for photonics.</p>
<p>17.00-17.15</p>	<p>Sergei Ivanov, PhD Center for food biology, Sofia, Bulgaria. Research group name 3.2.4: Microbiological risks in the environment. Main research area of the group: Wastewater monitoring for pathogenic viruses and bacteriophages</p>
<p>17.15 – 17.30</p>	<p>Prof. Dr Ivo Vlaev Current affiliation: Warwick Business School, University of Warwick. Research group name 3.2.5: NUDGE: Behaviour models and Public Policy for sustainable development. Main research area of the group: Behaviour change, attitude change, public policy, mental health.</p>

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Central lobby, Rectorat, Tsar Osvoboditel Blvd 15	
All day	Poster session for the 3.4 Groups

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3.1.3 GROWTH, Assist. Prof., MD Tsvetelina Velikova Ph.D., lead researcher

9.00-12.30 - Hall 1, Rectorat, Tsar Osvoboditel Blvd 15

10.30-11.00 Coffee break / 12.30-13.30 Lunch break



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„Integrating Science for Advances in Diagnosis and Treatment Innovations“

- **Tsvetelina Velikova** - Annual report and evaluation of the outcomes of GROWTH study group
- **Dimitrina Georgieva** - Unraveling the Genetic Tapestry of SARS-CoV-2: Mutations, Oncogenic Potential, and Innovative Strategies for COVID-19 Vaccination
- **Luchesar Tomov** - Pandemic Perspectives: Analyzing COVID-19 Dynamics through Advanced Modeling for Informed Strategies and Future Preparedness
- **Milena Gulinac** - Deciphering the PD-L1 Roles in Immuno-Oncology: pathologist`s point of view
- **Georgi V. Vasilev** - Neurological Intricacies of MIS-C: results from a single-centre Bulgarian observational study
- **Georgi H. Vasilev** - Inflammatory signs of MIS-C in the Spectrum of Pediatric Immunopathology: results from a single-centre Bulgarian observational study
- **Georgi Nikolaev** - Cultivating Scientific Discourse: The Intersection of Stem Cells Research and Social Media
- **Ruska Shumnalieva** - CAR-T therapy for rheumatic diseases
- **Niya Mileva** - Cardiovascular Cadence in MIS-C - A Symphony of Challenges and Discoveries
- **Lyubomir Chervenkov** - Exploring the Frontier of Imaging with Artificial Intelligence - An Enlightened Expedition
- **Hristiana Batselova** - Epidemiological study of patients with COVID-19 in the largest medical facility in Bulgaria, vaccinated against SARS-CoV-2
- **Theodor Todorov** - Genomic Chronicles: Unearthing Novel Insights in Autoimmune Diseases
- **Radoslav Rangelov** - Exploring Multifactorial Dimensions of Reproduction Failure
- **Stavros Gerasoudis** - Immunological Challenges in Pursuit of Diabetes Therapeutics by islet transplantation
- **Snezhina Lazova** - Decoding the Immunological Enigma: Mechanisms Underlying MIS-C Pathogenesis and Implications for Precision Medicine
- **Desislava Docheva** - Harmony on the Plate: Unraveling the Interplay of Dietary Factors and Reproductive Health

3.1.10 DigitalEdu-SU, Prof. Dr. Roumiana Peytcheva-Forsyth, lead researcher

9.00-12.30 - Hall 2, Rectorat, Tsar Osvoboditel Blvd 15

10.30-11.00 Coffee break / 12.30-13.30 Lunch break

“Digitalization of Bulgarian Education”

- **Roumiana Peytcheva-Forsyth** – About the project DigitalEdu-SU: Researching the “state of the actual” of the digitalization of secondary education in Bulgaria
- **B. Mizova, M. Bakracheva** - The place of Bulgaria in Europe with respect to the digitalization of education – policies, priorities, indicators
- **V. Delibaltova** - Initial training of teachers in Sofia University – context, characteristics and problems
- **R. Peytcheva-Forsyth, B. Mizova, B. Yovkova** - The digital competences of teachers and university lecturers – self-evaluation through the SELFIE tool (preliminary data)
- **L. Aleksieva, V. Racheva** - Digitalization in the context of primary school education – research into the study documentation and digital competences of future teachers
- **M. Bakracheva, B. Mizova** -Teachers’ attitudes towards the pedagogical integration of ICT into the teaching process and towards digital competences
- **N. Nikolova, T. Malcheva, B. Kirilova, P.Mihnev** – Prospects for the development

of digital competences in Bulgarian secondary education in terms of teaching mathematics, informatics, computer modelling and information technologies – preliminary data

- **A. Tafrova, E. Boyadzhieva, M. Kirova, M.Gaydarova, I. Georgieva, N. Raicheva** - Digitalization of school education in the context of teaching natural sciences
- **M.Vasileva, K. Misheva** – Digitalization of school education in the context of teaching geography and history – comparative analysis and development prospects
- **N. Hristova, D. Vasileva** - Digitalization of school education in the context of teaching Bulgarian language and literature
- **I. Dimova, P. Tsvetkov, M. Pavlov** – Pedagogical application of digital technologies in foreign language teaching – advantages and challenges



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3.1.17 SMEs digitalization, **Prof. Dr. Desislava Yordanova**, lead researcher

13.30-17.00 - Hall 2, Rectorat, Tsar Osvoboditel Blvd 15

12.30-13.30 Lunch break / 15.00-15.30 Coffee break

„Digitalization of SMEs“

- Challenges to Digital Transformation of SMEs
- Big Data and Digitalization of SMEs

3.1.16 ICT Applications for History And Language, Prof. DSc Anna-Maria Totomanova / Assoc. Prof. Dr. Maria Baramova, lead researchers

9.00-17.30 - Conference Hall, Rectorat, Tsar Osvooboditel Blvd 15

10.30-11.00 Coffee break / 12.30-13.30 Lunch break / 15.00-15.30 Coffee break

„Digital Humanities and Balkan Past: Mapping Sources and New Approaches“

- **Maria Baramova, Christian Simeonov:** Mapping the Past: Creating TEI XML Files with Geographic Data from Historical and Archaeological Sources
- **Arno Strohmeier** (ÖAW) Ottoman-Habsburg Diplomatic Encounters: Digital Editions and Studies at the Austrian Academy of Sciences
- **Grigor Boykov** (University of Vienna) Geospatial Modeling of Pre-Cadastral Ottoman Cities: A Case Study on Plovdiv
- **Chavdar Kirilov:** Revealing Ottoman Routes: Data Mining Road Networks in the Balkan via Franz Weiss' 1829 Map
- **Vania Racheva, Maria Baramova: Tracing Felix Kanitz:** Source Analysis and Geodata Mining
- **Ivan Valchev:** Reality and Imagination: Ancient Monuments in 16th-19th Century Engravings
- **Ivan Parvev:** Digital Aspects of 18th century Balkan Area Studies. The "Habsburg connection".
- **Dimitar Iliev:** Ancient Epigraphic Documents and their Metadata in Digital World
- **Daniela Stoyanova:** LiDAR scanning in Archeological Reserve "Sboryanovo". New perspectives in the documentation and preservation of archaeological sites
- **Discussion**

„Traditional and digital approaches to the written Bulgarian heritage“

- **Angel Nikolov.** The monastery of St. Nicholas at the village of Bohot near Pleven: an overview of the evidence of a lost monastic institution
- **A. Totomanova.** Electronic Research Infrastructure for Bulgarian Medieval Written Heritage
- **Maria Totomanova-Paneva.** Athanasius of Alexandria's Orations Against the Arians. Glossary index
- **Desislava Uzunova.** Again on the Samuil Bakachich's translator's legacy
- **Diana Atanasova-Pencheva**
- **Vasya Velinova.** Old Slavic printed books in the collections of the Vatican Apostolic Library.
- **Aneta Dimitrova.** The Two Complete Slavonic Translations of John Chrysostom's Homilies on the Statues and Their Greek Sources
- **Discussion**



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3.1.13 Climate, Weather and Natural Risks (CW&NR),

Assoc. Prof. Dr. Guergana Guerova, lead researcher

9.00-12.30 - auditorium 45, Rectorat, Tsar Osvoboditel Blvd 15

10.30-11.00 Coffee break / 12.30-13.30 Lunch break

„Climate, Weather and Natural Risks“

- Severe weather forecasting and nowcasting
AProf. Guergana Guerova
- Climate feedbacks in Balkan-Black Sea region
AProf. Elisaveta Peneva
- Climate hazards and risks
AProf. Bilyana Borisova
- Natural hazards and risks
Prof. Kliment Naydenov
- Geospatial modeling and mapping approaches and methods
AProf Stelian Dimitrov
- **Discussion**

3.2.5 NUDGE: Behaviour models, attitudes and Policy implementation for sustainable development, Prof. Dr. Ivo Vlaev, lead researcher

9.00-12.30 - auditorium 63, Rectorat, Tsar Osvooboditel Blvd 15

10.30-11.00 Coffee break / 12.30-13.30 Lunch break

“Практиките в съвременното публично управление: личностни детерминанти, потенциални ползи и ограничения на приложението им”

3.4 Projects, FACULTY OF PHILOSOPHY

11.00-12.30 - auditorium 63, Rectorat, Tsar Osvooboditel Blvd 15

10.30-11.00 Coffee break / 12.30-13.30 Lunch break

„Перспективи и предизвикателства пред хуманитарните и социалните науки в дигиталната ера“



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3.1.9 GAMMA, Prof. Dr. Sc. Mladen Savov, lead researcher

9.00-12.30 - Conference Hall, Faculty of Mathematics and Informatics, James Bourchier Blvd 5

10.30-11.00 Coffee break / 12.30-13.30 Lunch break

“Recent Developments in Stochastic Processes”

- Semi-Markov evolutions and superdiffusion, **Bruno Toaldo** (Department of Mathematics “Giuseppe Peano” - University of Turin)
- Asymptotics of densities of inverse subordinators, **Giacomo Ascione** (University of Naples Federico II)
- Distributional limits of exponential functionals of heavy-tailed processes via bivariate Bernstein-gamma functions, **Martin Minchev** (Faculty of Mathematics and Informatics, Sofia University “St. Kliment Ohridski”)
- Parameter estimations in a Beta-Uniform mixture model, **Nikolay I. Nikolov** (Sofia University “St. Kliment Ohridski”, Institute of Mathematics and Informatics, Bulgarian Academy of Sciences)
- Searching for periodic three-body orbits and computing them with high precision, **Ivan Hristov, Radoslava Hristova** (Faculty of Mathematics and Informatics, Sofia University “St. Kliment Ohridski”)
- Exchangeable measure-valued Pólya urn sequences, **Hristo Sariev** (Sofia University “St. Kliment Ohridski”, Institute of Mathematics and Informatics, Bulgarian Academy of Sciences)
- On the volatility structure, **Dragomir Nedeltchev** (Institute of Mathematics and Informatics, Bulgarian Academy of Sciences)
- Uniqueness of Wiener-Hopf factorization for Lévy processes, **Mladen Savov** (Faculty of Mathematics and Informatics, Sofia University “St. Kliment Ohridski”)

3.2.1 NATATA, Prof. Bojan Popov Ph.D., lead researcher

13.30-17.00 - Conference Hall, Faculty of Mathematics and Informatics, James Bourchier Blvd 5

12.30-13.30 Lunch break / 15.00-15.30 Coffee break

„Numerical analysis and applications, approximation theory and applications “



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3.1.12 Intelligent systems, Prof. Ivan Koychev, lead researcher

9.00-12.30 - auditorium 326, Faculty of Mathematics and Informatics, James Bourchier Blvd 5

10.30-11.00 Coffee break / 12.30-13.30 Lunch break

“Intelligent Systems in the LLM Era”

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3.4. Group, Assoc. Prof. Alexander Dimitrov, lead researcher

auditorium 326, Faculty of Mathematics and Informatics, James Bourchier Blvd 5

10.30-11.00 Coffee break / 12.30-13.30 Lunch break

“Приложение на изкуствения интелект и големите данни в образователните, софтуерните и информационните технологии”

3.2.2 ZeoNeo, Prof. Valentin Valtchev, lead researcher

3.1.5 Computational Heterogeneous Catalysis, Prof. Hristiyan Aleksandrov Ph.D., lead researcher

9.00-12.30 - Hall 401, Faculty of Chemistry and Pharmacy, James Bourchier Blvd 1

10.30-11.00 Coffee break / 12.30-13.30 Lunch break

“Synthesis, applications, and quantum-chemical modelling of catalytic materials”

3.1.6 BAC, Prof. DSc Ivo Grabchev, lead researcher

13.30-17.00 - Hall 401, Faculty of Chemistry and Pharmacy, James Bourchier Blvd 1

12.30-13.30 Lunch break / 15.00-15.30 Coffee break

„Synthesis and functional properties of new Bioactive compounds“

- **Prof. Ivo Grabchev:** Presentation of the scientific team of working group "Bioactive compounds" and a summary of the results obtained during the first year of the project.
- **Prof. Albena Yordanova:** Effects of newly synthesized dendrimers on human fibroblasts and mechanism of their cellular uptake.
- **Assoc. Prof. Juliana Ivanova-Tumbeva:** New metal-containing chemical compounds - synthesis and characterization
- **Assoc. Prof. Miglena Kandinska:** Synthesis of novel quinoline, benzimidazole and pyrazoline derivatives with potential bioactivity.
- **Assoc. Prof. Stanimir Stoyanov:** One-pot synthesis of fused-rings heterocyclic systems based on symmetrically benzofuran annulated 1,8-naphthalimides
- **Assoc. Prof. Julian Zagranyski:** Antitumor activity of newly synthesized DNA intercalating heterocyclic fused 1,8-naphthalimides
- **Dr. Ivan Minkov:** "Investigation of the interaction of the hydrophobic drug indomethacin with bulk aggregates of biantennary oligoglycine as a model drug delivery system."

3.4. Group, Assoc. Prof. Dr. Martin Tsvetkov, lead researcher

Hall 401, Faculty of Chemistry and Pharmacy, James Bourchier Blvd 1

12.30-13.30 Lunch break / 15.00-15.30 Coffee break

“Нови нанокмпозитни материали на основата на смесенометални оксиди на d- и f- елементи като катализатори за пречистване на води във Фентън-подобни реакции”



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3.1.7 Functional materials, Prof. Tony Spassov, lead researcher

9.00-12.30 - Meeting Hall, Faculty of Chemistry and Pharmacy, James Bourchier Blvd 1

10.30-11.00 Coffee break / 12.30-13.30 Lunch break

“Functional materials for clean energy and environment”

- Наноструктурирани и нанопорести материали за получаване и съхранение на водород
- Полимерни мембрани за очистка на вода и твърдофазна екстракция
- Полимерни функционализирани силициеви аерогел материали
- Квантово-химично моделиране на макроциклични молекули за съхранение на газове и като потенциални високоселективни екстрагенти за тежки метали
- Функционализирани биополимерни материали с приложение в батерии “метален хидрид-въздух”

3.1.2 Active formulation and materials, Prof. Slavka Tcholakova, lead researcher

13.30-17.00 - Meeting Hall, Faculty of Chemistry and Pharmacy, James Bourchier Blvd 1

12.30-13.30 Lunch break / 15.00-15.30 Coffee break



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„Active formulations and materials“

- **S. Tcholakova:** Summary of the main scientific results obtained by research group “Active formulations and materials” during first one year of the project

Session: Phase behavior of concentrated surfactant solutions

- **D. Gazolu-Rusanova:** “Rheological properties of alkyl sarcosinates solutions” by Dilek Gazolu-Rusanova, Marina Stoeva, Slavka Tcholakova
- **N. Pagureva:** “Temperature response of sucrose palmitate solutions: Role of ratio between monoesters and diesters” by N. Pagureva, D. Cholokova, Z. Mitrinova, N. Burdziev, S. Tcholakova

Session: Foams and emulsions

- **L. Delforce:** “Role of temperature and urea for surface and foam properties of nonionic surfactants with dodecyl alkyl chain” by Lucie Delforce, S. Tcholakova
- **B. Petkova:** “Foam properties of anionic surfactants alkyl sacrosinates and alkyl ether sulfates: similarities and differences” by Borislava Petkova, Slavka Tcholakova
- **Z.Vinarov:** “Surface properties and stability of antibodies” by Nevena Pagureva, Michaela Cohrs, Hristo Svilenov, Zahari Vinarov, Slavka Tcholakova
- **I. Lesov:** “Emulsification in non-Newtonian solutions” by Ivan Lesov, Slavka Tcholakova

Session: Molecular dynamics simulations

- **Fatmegyul Mustan:** “Role of counterion on the aggregation and adsorption of LAS and SLES studied by molecular dynamics simulations” by Fatmegyul Mustan, Anela Ivanova, Slavka Tcholakova

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3.1.14 Nuclear, Assoc. Prof. PhD, Krasimir Mitev, lead researcher

9.00-12.30 - A 315, Faculty of Physics, James Bourchier Blvd 5

10.30-11.00 Coffee break / 12.30-13.30 Lunch break

“Научни изследвания в експерименталната ядрена и суб-ядрена физика и технологии”

- **Доц. д-р Калин Гладнишки.** Изследване на ядрената структура посредством измерване на времена на възбудени ядрени състояния (РП 1)
- **Доц. д-р Стефан Лалковски.** Ядрени данни (РП 2)
- **Доц. д-р Красимир Митев.** Нови разработки в областта на радионуклидната метрология и радиационните измервания (РП 3)
- **Проф. д-р Д. Пресиянов** (РП 4) - Нови високочувствителни методи за измерване на радон-222 в околната среда
- **Доц. д-р Венелин Кожухаров** – (РП 5) - Търсене на нови леки частици и прецизни измервания (Searching for new light particles and high precision measurements)
- **Доц. д-р Мариян Богомилов** – (РП 5) - “Неутринен суперсноп и неутринни детектори” (“Neutrino Superbeam and neutrino detectors”)

3.1.1 Mathematical physics and Astrophysics,

Prof. DSc Stoytcho Yazadjiev, lead researcher

9.00-17.00 - A 301, Faculty of Physics, James Bourchier Blvd 5

10.30-11.00 Coffee break / 12.30-13.30 Lunch break / 15.00-15.30 Coffee break

“Black holes, gravitational waves
and fundamental physics”



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3.1.4 Advanced Quantum and Optical Technologies (AQOT),

Prof. DSc Nikolay V. Vitanov, lead researcher

13.30-17.00 - A 315, Faculty of Physics, James Bourchier Blvd 5

12.30-13.30 Lunch break / 15.00-15.30 Coffee break

“Advanced Quantum and Optical
Technologies”

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3.2.3 New materials and photonics, **Dr. Sotir Chervenkov**, lead researcher

13.30-17.00 - A 205, Faculty of Physics, James Bourchier Blvd 5

12.30-13.30 Lunch break / 15.00-15.30 Coffee break

“New materials and photonics”

- **Alexander Dreischuh** - Reliable Approach for Generating Quasi-Non-Diffracting Bessel-Gaussian Beams
 - **Georgi Georgiev** - Tear Film/Contact Lens Interactions In Vitro and In Vivo: How Material Properties Determine Clinical Efficiency
 - **Gichka Tsutsumanova** - Fabrication of Nanostructures and Thin Layers for Sensor Applications
 - **Jivko Kisiovski** - Carbon Nanostructures in Composites with a Ceramic Matrix
 - **Miroslav Abrashev / Neno Todorov** - Research Opportunities and Activities of Scientific Laboratory „Spectroscopy of Crystals“
 - **Stanislav Balouchev** - Capsule-in-Capsule Design: A Wide-ranging Strategy for Controllable Prolongation of the Spin-Lattice Relaxation Time for Encapsulated Water-Soluble MRI-Contrast Agents Dispersed in Physiological Liquids
 - **Ivan Buchvarov** - The Net Gain Bandwidth Broadening in Yb-doped Disordered Crystalline Materials - A Breakthrough in Obtaining High-energy Pulses of Extremely Short Duration
- Posters:**
- **Veselin Donchev** - Surface Photovoltage Study of Perovskite Materials and Structures for Solar Cell Applications
 - **Ivan Ivanov** - Deposition of Carbon Nanostructures via PECVD
 - (Lyuben Petrov , Kaloyan Georgiev, Anton Trifonov , Ivan Buchvarov) –
 - Yb-regenerative Amplifiers of Extremely Short Laser Pulses Based on Yb:CALYO and Yb:GALGO - A Comparative Study
 - Peak Performance of a Yb:CALYO Amplifier at a Megahertz Repetition Rate



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3.1.8 Plant parasites, **Assoc. Prof. Dr Lyuben Zagorchev**, lead researcher

Aula, Faculty of Biology, Dragan Tsankov Blvd 8

10.30-11.00 Coffee break / 12.30-13.30 Lunch break / 15.00-15.30 Coffee break

“Plant parasites”

- Lyuben Zagorchev - Molecular mechanisms of *Cuscuta* parasitism
- Denitsa Teofanova - Genetic variability of *Cuscuta campestris* in Bulgaria
- Poster presentations - Kalina Pachedjieva, Anita Tosheva - Species distribution and host spectrum of *Cuscuta* spp. in Bulgaria

3.2.4 Microbiological risks in the environment,

Sergei Veselinov Ivanov, PhD, lead researcher

Aula, Faculty of Biology, Dragan Tsankov Blvd 8

10.30-11.00 Coffee break / 12.30-13.30 Lunch break / 15.00-15.30 Coffee break

“Microbiological risks in the environment”

- Д-р Сергей Иванов - Разработване на програма за мониторинг на градските отпадни води за човешки патогенни вируси.
- Д-р Йоана Кижева - Фаговата терапия, належащата алтернатива на антибиотиците в борбата с мултирезистентните бактерии. Актуално състояние на изследванията в България и роля на отпадните води като източник на терапевтични бактериофаги.
- Д-р Антон Хинков - Изолиране и култивация на вируси от отпадъчни води.



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3.1.11 Algology (Algal Collections) Assoc. Prof. Blagoy Uzunov, PhD, lead researcher

Aula, Faculty of Biology, Dragan Tsankov Blvd 8

10.30-11.00 Coffee break / 12.30-13.30 Lunch break / 15.00-15.30 Coffee break

“Algology (Algal Collections)”

- Living algal collections for the benefit of biotechnologies;
- Living algal collections as a tool for biodiversity research and conservation;
- Phycoremediation.

3.4. Group, Prof. Dr Robert Penchovski, lead researcher

auditorium 326, Faculty of Mathematics and Informatics, James Bourchier Blvd 5

10.30-11.00 Coffee break / 12.30-13.30 Lunch break / 15.00-15.30 Coffee break

“Дизайн на антисенс олигонуклеотиди свързани с клетъчно проникващи олигопептиди като нови антибактериални агенти срещу резистентни патогенни бактерии при човека за кандидатстване за европейски патент”



**3.1.13 European Values and Social Challenges /EuVaSC/,
Prof. Maria Stoicheva, PhD, lead researcher**

13.30-17.00 - House of Europe, Cultural center, Georgi Rakovski str 124

12.30-13.30 Lunch break / 15.00-15.30 Coffee break



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