

# **P R O G R A M M E**

**10<sup>th</sup> JUBILEE CONFERENCE OF THE BALKAN PHYSICAL UNION**

**SOFIA, BULGARIA, 26 – 30 AUGUST 2018, Inter Expo Center (IEC)**

## ***26 AUGUST 2018 (SUNDAY)***

**14:00 – 17:00** Registration (IEC, Foyer in front of Hall Vitosha, Floor 1) and all other days  
**8:30 – 11:00**

**17:00 – 19:00** Welcome Party (IEC, Panorama, Floor 7)

## ***27 AUGUST 2018 (MONDAY)***

**Hall Vitosha**

**09:00 – 10:00** Opening Ceremony

**10:00 – 11:00** 1<sup>st</sup> session (oral talks) Chair: G. Djordjevic

10:00 – 10:30 R. Voss (EPS President): "50 years of EPS-50 years of service to the European physics community"

10:30 – 11:00 Ö. Yavaş: "Accelerator based studies and applications in Turkey"

**11:00 – 11:30** Tea/Coffee

**11:30 – 13:30** 2<sup>nd</sup> session (oral talks) Chair: N. Tonchev

11:30 – 12:00 I. Todorov: ""The usefulness of useless knowledge": Numbers Euler played with and perturbative QFT"

12:00 – 12:30 N. Sabotinov: "Metal vapor lasers and Bulgarian contribution for their development"

12:30 – 13:00 D. Balabanski, "Day-one photonuclear experiments at ELI-NP"

**13:00 – 14:00** Lunch

**14:00 – 18:00** Excursion to National History Museum

**28 AUGUST 2018 (TUESDAY)**

**Section 06: Condensed Matter Physics & Statistical Physics  
Hall Musala**

**09:00 – 10:30 1<sup>st</sup> session (oral talks) Chair: T. Mishonov**

09:00 – 9:30 Peter A. Kralchevsky, Michail T. Georgiev, Krassimir D. Danov, Gergana M. Radulova, Theodor D. Gurkov, Simeon D. Stoyanov, Eddie G. Pelan: “Hardening of particle/water/oil three-phase dispersions due to capillary bridges with applications for new products and materials”

09:30 – 10:00 Zoran V. Popović: “Raman scattering and “nanomagnetism””

10:00 – 10:30 Danica Krstovska, Eun Sang Choi and Eden Steven: “Quantum oscillations of thermopower in the charge density wave state of organic conductor  $\alpha$  (BEDT – TTF)<sub>2</sub>KHg(SCN)<sub>4</sub>”

**10:30 – 11:00 Tea/Coffee**

**11:00 – 12:30 2<sup>nd</sup> session (oral talks) Chair: P. Kralchevsky**

11:00 – 11:30 Victor Ciupină: “Carbon-Titanium Multilayer Thin Films Obtained by TVA Method”

11:30 – 12:00 J.O. Indekeu: “BLUES function method in physics”

12:00 – 12:30 Angel Popov: “Defect Formation in Functional Semiconductor Structures with Heterostructured Transition Region”

**12:30 – 13:50 Lunch**

**13:50 – 15:40 3<sup>rd</sup> session (oral talks) Chair: Danica Krstovska**

13:50 – 14:10 Peter Djondjorov, Vassil Vassilev, Daniel Danchev: “Analytic Solutions for the Temperature-Field Behavior of the Ginzburg-Landau Ising Type Mean-Field Model with Dirichlet Boundary Conditions”

14:10 – 14:30 Vassil Vassilev, Peter Djondjorov and Daniel Danchev: “Analytic Representation of the Order Parameter Profiles and Susceptibility of a Ginzburg-Landau Type Model with Strongly Adsorbing Competing Walls”

14:30 – 15:00 Bahadır Salmankurt and Hikmet Hakan Gürel: “Computational Aspects of Nanostructures: PW vs AO calculations”

15:00 – 15:20 R S Kamburova, S K Varbev and M T Primatarowa: “Solitons in a classical inhomogeneous ferromagnetic chain with nearest- and next-nearest-neighbor exchange interactions”

15:20 – 15:40 Malvina Marku and Margarita Ifti: “A Comparison Analysis of the Dynamics and Stability of Klotho Gene through Discrete and Hybrid Models”

**15:40 – 16:00 Tea/Coffee**

**16:00 – 19:00 4<sup>th</sup> session (oral talks) Chair: A. Popov**

16:00 – 16:20 T. M. Mishonov, I. M. Dimitrova, A. M. Varonov: “Callen-Welton fluctuation dissipation theorem as consequence of Nyquist theorem”

16:20 – 16:50 Svilen I. Popov, Vassil M. Vassilev: “Symmetries and Conservation Laws of Equations of Motion of Double-Wall Carbon Nanotubes Conveying Fluid”

16:50 – 17:10 B. Kolev: “Positron lifetime calculations of defects in Titanium”

17:10 – 17:30 Shan Zou, WenKai Bai, Tao Yang: “Dynamics of vortex lines in three-dimensional Bose-Einstein condensates”

17:30 – 18:00 H. Chamati, Diana V. Shopova: “Ferrimagnetism in a two-sublattice bilinearly coupled Heisenberg model”

18:00 – 18:30 Daniel Vizman: “Control of Melt Convection Using Magnetic Fields”

18:30 – 19:00 Mimoza Ristova, “XPS Study of CdO and CdO<sub>2</sub> Phase Transitions in Electrochemically Modified Ni<sub>x</sub>Cd<sub>1-x</sub>O Films”

**28 AUGUST 2018 (TUESDAY)**  
**Section 12: Environmental Physics**  
**Hall Rodopi**

**09:00 – 10:30 1<sup>st</sup> session (oral talks) Chair Ch. Angelov**

09:00 – 09:20 St. Tsitomeneas: “Principles and measures for adaptation to climate change derived by natural or human generated effects on the planetary radiation equilibrium”

09:20 – 09:40 G. Xhixha, E. Spahiu, F. Hasani, Manjola Shyti and Florinda Cfarku: “Identification of industrial sectors involving NORM in Kosovo”

09:40 – 10:00 M. Kaçeli X., M. Shyti, P. Dhoqina, N. Civici and G. Xhixha: “Determination of natural radioactivity in beach sands from the Adriatic sea coastline, Albania”

10:00 – 10:20 M. Kakona, V. Stepan, O. Ploc, N. Nikolova, T. Arsov, Ch. Angelov: “Comparative measurements of mixed radiation field using Liulin and AIRDOS dosimeters”

**10:30 – 11:00 Tea/Coffee**

**11:00 – 12:30 2<sup>nd</sup> session (oral talks) Chair Roumiana Metcheva**

11:00 – 11:20 B. C. Öztürk, G. Y., N. F. ÇAM: “Ecological risk assessment of coastal sediments taken from public beaches of Erdek and Bandırma”

11:20 – 11:40 M. Beltcheva, R. Metcheva, E. Geleva, I. Aleksieva, I. Ravnachka, Ch. Angelov: “Total  $\beta$  - activity in monitor species small rodents from two different altitudes in Rila Mountain (Bulgaria)”

11:40 – 12:00 N. Takuchev: “Solar corpuscular radiation and mortality from various forms of ischemic heart disease in Bulgaria for the interval 2005 – 2015”

12:00 – 12:20 M. Zoran, R. Savastru, D. Savastru, A. Dida: “Derived biogeophysical information from satellite imagery for assessment of extreme climate impacts on urban green environment”

**12:30 – 14:00 Lunch**

**14:00 – 15:30 3<sup>rd</sup> session (oral talks) Chair N. Tyutyundzhiev**

14:00 – 14:20 M. - C. Penache, M. Zoran: “Seasonal trends of surface carbon monoxide concentrations in relation with air quality”

14:20 – 14:40 M. T. Udristioiu, D. Rosca, L. Velea, R. Bojariu, S. C. Sararu, A. Rosca: “Surface temperature during summer days in Craiova, Romania, from satellite observations and infrared thermovision measurements”

14:40 – 15:00 M. Klemo, J. Priska: “A survey on energy efficiency and consumption of buildings in Albania”

15:00 – 15:20 R. Metcheva, M. Beltcheva, M. Topashka-Ancheva, N. Tyutyundzhiev, I. Aleksieva, I. Ravnachka, P. Ostoich, T. Arsov, Ch. Angelov: “Potential effect of natural gamma and UV irradiation on Albino mice at two altitudes (Rila mountain, BG)”

**15:30 – 16:00 Tea/Coffee**

**17:30 – 19:00 Poster session**

1. M. K. Xhixha, F. Hasani, M. Shyti, G. Xhixha: “A Study of Natural Radioactivity Levels in Soils across Kosovo: a Case of Study in Pristina Region”
2. F. Mandija, F. Vila, E. Lukaj, J. Bushati: “Desert Dust Episodes Over the Region of Balkan Peninsula”
3. N. Ivanova and B. Manushev: “Natural Radionuclides in Drinking Water”
4. M. Shyti: “Calibration and Performance of HPGe Detector for Environmental Radioactivity Measurements using LabSOCS”
5. M. Shyti, F. Cfarku, I. Berdufi, E. Bylyku, R. Hoxha: “Natural Radioactivity in Cigarette Tobacco and Radiation Dose Induced from Smoking”
6. R. Angelova, L. Slavov, G. Kolarov, I. Grigorov, Ch. Ghelev, L. Gurdev, I. Nedkov, D. Stoyanov: “Parallel Lidar and In-Situ Study of the Aerosol Particles Mass Concentration, Shape and Character in Highly Polluted Zones in Sofia City”
7. O. Nitcheva, V. Koutev, B. Milev, P. Dobрева, T. Trenkova: “Management of the Agricultural Nitrogen (N) Pollution in the Bulgarian Groundwater Vulnerable Zones”
8. O. Nitcheva, A. Yordanova, B. Milev, P. Dobрева, V. Koutev, T. Trenkova: “Soil Physics Simulation as an Option for Country Groundwater Recharge Mapping. Case Study of Bulgaria”
9. G. Bontas: “Sachnisin. An Architectural Element in the Balkans and Asia Minor-Its Bioclimatic Role”
10. K. Velichkova, Maya Vatzkitcheva, Plamen Savov, Nikolaj Kolev: “Behavior of the Parameters Characterizing The Air Quality in an Enclosed Classroom Ventilated Either by a Fan Or Naturally”
11. K. Velichkova and Dora Krezhova: “Extraction of the Red Edge Position of Hyperspectral Reflectance Data for Plant Stress Monitoring”
12. A. D. Deleva, T. N. Dreischuh, Elena N. Krasteва, and Liliya A. Vulkova: “Thick Anthropogenic Aerosol Layers Detected by LIDAR above Sofia”
13. A. D. Deleva, T. N. Dreischuh, E. N. Krasteва, and L. A. Vulkova: “Model Forecasts Importance for LIDAR-Data Analysis”
14. T. Dreischuh, Z. Peshev, I. Grigorov, A. Deleva, G. Kolarov and D. Stoyanov: “Remote Investigations of Near-Surface Atmospheric Aerosol Optical Properties over Sofia Urban Area”
15. P. Dhoqina, S. Mico, Mirela Alushllari: “Fractal Dimension of Soot Aggregates”
16. M. Alushllari, P. Dhoqina, S. Mico, N. Civici, A. Deda, L. Kacani: “Hazardous Quotient Factor of Lead in Soil around Industrial Waste”

17. L. Kostov, R.G. Kobilarov, Ch. Protochristov, Ch. Stoyanov: "Radiological risk due to the terrestrial gamma exposure in soil samples from Central Balkan National Park, Bulgaria"
18. N. Tyutyundzhiev, Ch. Angelov, K. Lovchinov, T. Arsov, Hr. Nichev, M. Petrov: "Open-source Tool for Solar UV Measurements"
19. M. Stoyanova, A. Kandilarov, V. Koutev, O. Nitcheva and P. Dobрева: "Multispectral imaging for assessment of crop habitus"
20. V. Kleshtanova, Ch. Angelov, I. Kalapov, T. Arsov, G. Guerova, V. Tonchev: "What One Can Learn From the Cloud Condensation Nuclei (CCN) Size Distributions as Monitored by the BEO Moussala?"
21. V. Dančovski, D. Ivanov, P. Savov, N. Kolev, T. Evgenieva, and Evgeni Donev: "Urban Mixing Layer Height and Aerosol Concentration in Sofia, Bulgaria"
22. N. Nikolova, K. Kudela, R. Langer, I. Strharsky, T. Arsov, I. Angelov, Ch. Angelov, A. Chilingarian and T. Karapetyan: "SEVAN Detector Measurements At BEO Moussala And Lomnický štít: First Experience From 2014-2017"
23. F. Cfarku, M. Shyti, I. Berdufi, P. Dhoqina, E. Bylyku: "Determination of Gross Alpha Beta Surface Contamination by handheld Equipment"
24. F. Cfarku, M. Shyti, I. Berdufi, P. Dhoqina, E. Bylyku: "Radioactivity of Po-210 in Drinking Water Samples of Albania"
25. I. Penev, Ch. Angelov, T. Arsov, St. Georgiev, N. Uzunov: "<sup>106</sup>Ru Aerosol Activity Observation above Southeast Europe in October 2017"

**28 AUGUST 2018 (TUESDAY)**  
**Section 09: Theoretical and Mathematical Physics**  
**Hall Vihren**

**09:00 – 10:30 1<sup>st</sup> session (oral talks) Chair: V. Dobrev**

09:00 – 09:30 L.K. Anguelova, Peter Surany and L.C.R. Wijewardhana: “Systematics of Constant Roll Inflation”

09:30 – 10:00 B. Lazov, P. Nedkova and S. Yazadjiev: “Uniqueness of Static Phantom Wormhole Solutions to the Einstein-Maxwell-Dilaton Equations”

10:00 – 10:30 M.V. Chizhov and M.N. Naydenov: “Isospin-invariant Nambu – Jona-Lasinio Model with Complete Set of Spin-1 Excitations”

**10:30 – 11:00 Tea/Coffee**

**11:00 – 12:30 2<sup>nd</sup> session (oral talks) Chair: L.K. Anguelova**

11:00 – 11:30 R. Constantinescu: “Nonlinear mathematical models for physical phenomena”

11:30 – 12:00 O.C.W. Kong: “Quantum Spacetime Pictures from a Relativity Perspective”

12:00 – 12:30 Y. Iwata: “Relativistic formulation of abstract evolution equations”

**12:30 – 14:00 Lunch**

**14:00 – 15:30 3<sup>rd</sup> session (oral talks) Chair: R. Constantinescu**

14:00 – 14:30 S. Stoimenov: “Meta-conformal Algebra in  $d$  Spatial Dimensions”

14:30 – 14:50 A. Ganchev: “On Bulk-Boundary Duality and Deep Learning”

14:50 – 15:10 S. Vossos and E. Vossos: “Unification of Newtonian Physics with Einstein Relativity Theory by using Generalized Metrics of Complex Spacetime and applications to Microcosmos and Megacosmos”

15:10 – 15:30 C. Anghel: “On a class of Rota-Baxter operators with geometric origin”

**15:30 – 16:00 Tea/Coffee**

**16:00 – 18:00 4<sup>th</sup> session (oral talks) Chair: A. Ganchev**

16:00 – 16:30 H. Prado: “The Laplace Transform and Zeta-nonlocal Field Equations”

16:30 – 17:00 H. Karayer, D. Demirhan and F. Buyukkilic: “Solution of Schrödinger equation for potential  $U(r) = -\alpha/r + \beta r + kr^2$  using extended Nikiforov-Uvarov method and polynomial solutions of biconfluent Heun equation”

17:00 – 17:20 M. Irfan: “Zero-Curvature Representation of Non-Abelian Quantum Painlevé II Equation with Its Darboux Solutions”

17:20 – 17:40 S.H. Mazharimousavi and M. Halilsoy: “Absence of Buckling in Nerve Fiber”

17:40 – 18:00 Y. Uyaroglu: “An Investigation into the Chaotic Supply Chain System and Chaotic Analysis of Fractional Order Supply Chain System”

**17:30 – 19:00 Poster session**

1. E. Nissimov, E. Guendelman and S. Pacheva: “Modified Gravity and Inflaton Assisted Dynamical Generation or Suppression of Charge Confinement and Electroweak Symmetry Breaking in the Evolution of the Universe”
2. N.I. Stoilova and J. Van der Jeugt: “Paraparticles and representations of  $(Z_2 \times Z_2)$  graded Lie superalgebras”
3. P. Popivanov, A. Slavova: “Boundary Value Problem for the Polyharmonic Operator Violating the Shapiro-Lopatinskii Conditions”
4. D. Staicova: “The Multi-Measure Cosmological Model and Its Peculiar Effective Potential”
5. G.G. Grahovski, J.I. Mustafa and H. Susanto: “Generalised Fourier transform for multi-component NLS equation on symmetric spaces with PT-symmetry”
6. D. Delibasic, D.D. Dimitrijević and G.S. Djordjević: “DBI and Locally-Equivalent Standard-Type Lagrangians in a FLRW spacetime”
7. T. Popov: “Hydrogen Atom and Light Cone Symmetries Mirrored in One Jordan Algebra”



**28 AUGUST 2018 (TUESDAY)**

**Section 14: Econophysics**

**Hall Ruen**

**09:00 – 10:30 1<sup>st</sup> session (oral talks) Chair: Nikolay K. Vitanov**

09:00 – 09:30 Kiyoaki Shirakawa, Yoritaka Iwata: “A Master Equation for Commodity-Price Decreaciation”

9:30 – 10:00 Nikolay K. Vitanov, Roumen Borisov: “Human Migration: Model of a Migration Channel with a Secondary and a Tertiary Arm”

10:00 – 10:30 Ivan P. Jordanov, Denislav Z. Serbezov, Elena V. Nikolova: “On nonlinear density population waves”

**10:30 – 11:00 Tea/Coffee**

**11:00 – 12:30 2<sup>nd</sup> session (oral talks) Chair: E. Nikolova**

11:00 – 11:20 Ivan P. Jordanov, Elena Nikolova: “Application of the Modified Method of Simplest Equation for Obtaining Exact Solutions for Nonlinear Models PDEs from Dynamics of Interacting Economic Agents”

11:20 – 11:40 Mihai Petrov: “The Thermodynamical Processes Of the Model of Ideal Gas for the Description of the Activity of the Microeconomical Systems”

**12:30 – 14:00 Lunch**

**17:30 – 19:00 Poster session**

1. Elena V. Nikolova, Denislav Z. Serbezov, Ivan P. Jordanov: “On the Evolution of Nonlinear Density Population Waves”

2. Galya Deyanova: “Factors for Building New Nuclear Capacities in Bulgaria in Liberalized Marked Conditions”

**28 AUGUST 2018 (TUESDAY)**  
**Section 13: Alternative Sources of Energy**  
**Hall Ruen**

**14:00 – 15:20 1<sup>st</sup> session (oral talks) Chair: P. Vitanov**

14:00 – 14:20 M. Milanova, V. Donchev, P. Terziyska, E. Valcheva, S. Georgiev, K. Kirilov, N. Shtinkov, Y. Karmakov, I. G. Ivanov: “Investigation of LPE Grown Dilute Nitride InGaAs(Sb)N Bulk Layers for Photovoltaic Applications”

14:20 – 14:40 M. Sendova-Vassileva, R. Gergova, Hr. Dikov, G. Popkirov, P. Vitanov, G. Grancharov and V. Gancheva: “Application of Magnetron Sputtered WO<sub>x</sub> and MoO<sub>x</sub> Thin Films as Hole Transport Layers in Polymer Solar Cells”

14:40 – 15:00 Driada Mitrushki, Irma Berdufi, Eduard Serdari, Pellumb Berberi, Valbona Muda, Urim Buzra, Daniela Topciu: “Feasibility study of impact of wind energy potential in Karaburuns area in Albania”

15:00 – 15:20 Miglena Nikolaeva-Dimitrova, Maya Stoyanova, Plamen Ivanov, Kalina Tchonkova, Rumien Stoykov: “New generation nZEB – demonstrational pavilion with Water Flow Glazing and roof mounted PV system”

15:20 – 15:50 Olga Gkioka: “Preparing pre-service secondary physics teachers to teach in the physics laboratory Results from a three-year research project”

**15:30 – 16:00 Tea/Coffee**

**17:30 – 19:00 Poster session**

1. T. Ivanova, A. Harizanova, T. Koutzarova and B. Vertruyen: “Optical and Structural Properties of Sol-Gel Derived ZnO:F Thin Films”

2. Eduard Serdari, Valbona Muda, Urim Buzra, Irma Berdufi, Daniela Halili, Miranda Halili, Driada Mitrushki and Pellumb Berberi: “The Feasibility Study of a 12 MW Grid-Connected Wind Power Farm in Albania using RETScreen”

3. Urim Buzra, Daniela Halili, Driada Mitrushki, Valbona Muda, Eduard Serdari, Irma Berdufi, Pellumb Berberi: “Influence aerosols in near atmosphere in the city of Tirana on ground budget of solar energy”

4. Daniela Halili, Urim Buzra, Driada Mitrushki, Irma Berdufi, Valbona Muda, Eduard Serdari, Pellumb Berberi: “Influence of Inclination Angle on the Efficiency of a Flat Plate Solar Collector”

5. R. Gergova, M. Sendova-Vassileva, G. Popkirov, G. Grancharov, V. Gancheva: “Characterization of PTB7-Fx:PC70BM bulk heterojunction solar cells prepared in ambient environment by impedance spectroscopy”

6. Lyuben Lakov, Petio Ivanov, Mihaela Aleksandrova, Timur Nurgaliev: “Condensation Ceramic with High Dielectric Permittivity. Magnetron Deposition and Calculation of Sensitive Voltage in Connection with the Creation of a Supercapacitor for Electric Vehicles”

7. Maxim Ganchev, Jako Siim Eensalu, Atanas Katerski, Dimiter Dimitrov, Iliya Gadjov, Arvo Mere, Male Krunk, Olga Volobuyeva, Sergey Bereznev: “Electrodeposited molybdenum oxide coatings for thin film photovoltaics”

8. Maxim Ganchev, Atanas Katerski, JaanS.Eensalu, Rositsa Gergova, Georgi Popkirov, Petko Vitanov: “Nano-sized Intrinsic Tin Dioxide Films by Sol – Gel Deposition”

**28 AUGUST 2018 (TUESDAY)**  
**Section 01: Nuclear Physics and Nuclear Energy. ELI-NP**  
**Hall Pirin**

**09:00 – 10:30 1<sup>st</sup> session (oral talks) Chair: M. Gaidarov**

09:00 – 09:30 R. Burcu Cakirli: “Proxy SU(3) with its predictions and anomalies in the first excited K=0 band”

09:30 – 09:50 V.P. Garistov and A.I. Georgieva: “Fermion degrees of freedom in ortosymplectic extension of interacting vector boson model”

09:50 – 10:10 K.P. Drumev, A.I. Georgieva, J. Cseh and V.K.B. Kota: “Negative-parity states for *sd*-shell nuclei within an algebraic microscopic pairing-plus-quadrupole shell model”

10:10 – 10:30 M. Stoyanova, G. Rainovski, K. Gladnishki, M. Djongolov, D. Kocheva, N. Pietralla, Th. Kroll, V. Werner, O. Moller, J. Wiederhold, Ch. Surder, J. Jolie, A. Blazhev, J.-M. Regis, V. Karayonchev, N. Warr, M. Scheck, J. Kechngs, J. Sinclair, K. Mashtakov: “A study on the transition between seniority-type and collectivity excitations in  $^{204}\text{Po}$  and  $^{206}\text{Po}$ ”

**10:30 – 11:00 Tea/Coffee**

**11:00 – 12:30 2<sup>nd</sup> session (oral talks) Chair: R. Burcu Cakirli**

11:00 – 11:30 D. Ghita: “Towards nuclear physics with extreme light”

11:30 – 11:50 S. Kolev and I. Christoskov: “A CMFD formulation of the HEXNEM3 method for solving the neutron diffusion equation through modal decomposition”

11:50 – 12:10 M.V. Ivanov, A.N. Antonov, G.D. Megias, J.A. Caballero, M.B. Barbaro, J.E. Amaro, I. Ruiz Simo, T.W. Donnelly and J.M. Udias: “Charged-current quasielastic (anti)neutrino cross sections on  $^{12}\text{C}$  with realistic spectral functions including meson-exchange contributions”

12:10 – 12:30 G. Akkaya, H. Yucel and M. Guray Budak: “Determination of manganese content in commercial manganese ores from Turkey by  $k_0$ -INAA standardization method with  $^{241}\text{Am}$ -Be isotopic neutron source”

**12:30 – 14:00 Lunch**

**14:00 – 15:30 3<sup>rd</sup> session (oral talks) Chair: D. Ghita**

14:00 – 14:20 M.A. Mikhailov and M.M. Mikhailov: “A method for spectroscopy measurement of radon activity in air”

14:20 – 14:40 Zh. Stoyanov, Y. Mutafchieva and N. Chamel: “Stratification of the crust of magnetars and nuclear abundances”

14:40 – 15:00 K. Shegunov, G. Asova, N. Goutev and D. Tonev: “Numerical simulations on production yield of  $^{67,68}\text{Ga}$  via proton-induced reactions”

15:00 – 15:20 A. Demerdjiev, K. Shegunov, G. Asova, N. Goutev and D. Tonev: “Numerical optimization of radiation shielding of targets used for production of  $^{18}\text{F}$ ”

**15:30 – 16:00 Tea/Coffee**

**17:30 – 19:00 Poster session**

1. S. Peneva, T. Troev, B. Kolev and L. Petrov: “Detection of free volumes in polymers and nano-composites by positron lifetime spectroscopy”
2. G. Chiroasca, L.C. Tugulan, F.M. Dragolici, A.V. Chiroasca and O.G. Dului: “Radiation exposure in underground low activity radioactive waste repository”

***28 AUGUST 2018 (TUESDAY)***  
**Section 17: Physics Education**

**17:30 – 19:00 Poster session**

1. Andreana Curic: “Exploration of Planet Mars”

***28 AUGUST 2018 (TUESDAY)***  
**Hall Rila**

**16:00 – 17:30 BPU COUNCIL SESSION**

**29 AUGUST 2018 (WEDNESDAY)**  
**Section 11: Meteorology and Geophysics**  
**Hall Musala**

**09:00 – 10:40 1<sup>st</sup> session (talks) Chair: N. Miloshev**

09:00 – 9:20 V. Kazandjiev, V. Georgieva, P. Sredkova, N. Shopovova, D. Atanasov: “Contemporary agrometeorological research – opportunity for modern agriculture in conditions of climatic anomalies and changes”

09:20 – 9:40 R. Raykova: “Seismological investigations in the Livingston Island (Antarctica) using the LIVV station's records”

09:40 – 10:00 I. Sirkova: “Anomalous Tropospheric Propagation: Usage Possibilities and Limitations in Radar and Wireless Communications Systems”

10:00 – 10:20 D. Nikolov, M. Bavay, C. Dimitrov, C. Fierz: “Model Simulations of Some Snow Cover Characteristics in the Bulgarian Mountains”

10:20 – 10:40 S. Penchev, V. Pencheva: “Tracking – Gas Analyzer of Biogas Methane Employing Paired Powerful Laser Diodes”

**10:40 – 11:00 Tea/Coffee**

**11:00 – 12:40 2<sup>nd</sup> session (talks) Chair: E. Batchvarova**

11:00 – 11:20 N. Neykov, A. Stoycheva, I. Gospodinov, O. Georgiev, K. Slavov, P. Neytchev: “Fog Forecasting Using Logistic Autoregressive Time Series Models in Mladost, Sofia”

11:20 – 11:40 B. Veleva, E. Hristova, R. Valcheva, E. Nikolova: “Characterization of elemental composition of PM<sub>10</sub> and PM<sub>2.5</sub> Air Particulate in Sofia – Results from IAEA Technical Cooperation Projects”

11:40 – 12:00 L. Bocheva, V. Pophristov: “Seasonal Analysis of Large-Scale Heavy Precipitation Events in Bulgaria”

12:00 – 12:20 V. Galabov: “Performance of SWAN Wave Model for an Exceptional Black Sea Storm”

12:20 – 12:40 K. Malcheva, V. Pophristov, T. Marinova, L. Trifonova: “Complex Approach for Classification of Winter Severity in Bulgaria”

12:40 – 13:00 E. Hristova, K. Velchev, B. Veleva, E. Georgieva: “Chemistry of Cloud and Rain water at the Summit Cherni Vrah, Vitosha mountain”

**13:00 – 14:00 Lunch**

**14:00 – 15:40 3<sup>rd</sup> session (talks) Chair: N. Rachev / M. Kolarova**

14:00 – 14:20 E. Egova, R. Dimitrova, V. Danchevski: “Numerical Simulations of the Effect of Different Large-scale Flows on Local Circulation over Sofia Valley, Bulgaria”

14:20 – 14:40 E. Yılmaz, E. Keşaf, İ. Osanmaz, M. Yılmaz, R. Özgenç, D. Sarı, H. Toros, S. İncecik: “An Integrated WRF/HYSPLIT Modeling Approach for the Assessment of Pollutants Source Regions over the Izmir, Turkey”

14:40 – 15:00 E. Vladimirov, R. Dimitrova, V. Dančovski: “Sensitive Study on Influence of Topography and Land Cover on WRF Model Results for the Sofia Region, Bulgaria”

15:00 – 15:20 R.-T. Chadoulis, A. F. Bais: “Determination of uncertainty in hourly and daily averages of solar irradiance due to missing measurements”

15:20 – 15:40 M. Filipova, R. Raykova: “Magnitude dependence from the parameters of the source, the Earth’s structure and the receiver”

**15:40 – 16:00 Tea/Coffee**

**16:00 – 17:40 4<sup>th</sup> session (talks) Chair R. Raykova**

16:00 – 16:20 B. Tsenova, A. Bogatchev: “Status of Numerical Weather Prediction with ALADIN in Bulgaria”

16:20 – 16:40 M. Zoran, R. Savastru, D. Savastru, D. Mateciuc: “Investigation of earthquake precursors in vrancea active geotectonic region through geospatial and field data”

16:40 – 17:00 K. Pegini, B. Duka: “The velocity field at the Earths Core Mantle Boundary”

17:00 – 17:30 V. Georgieva, N. Shopova, V. Kazandjiev: “Assessment of conditions in South Bulgaria for spring crop growing using agrometeorological indices”

**17:30 – 18:00 Poster presentations Chair M. Kolarova – 25 posters (1 slide for 1 min)**

**18:05 – 19:00 Poster session**

1. N. Kolev, P. Savov, T. Evgenieva, N. Milochev, O. Gueorguiev, E. Batchvarova, M. Kolarova, V. Dančovski, D. Ivanov, D. Petkov: “Investigation of the atmospheric boundary layer and optical characteristics of the atmospheric aerosols over Sofia in summer 2016”

2. M.-C. Penache, M. Zoran: “Temporal patterns of surface ozone levels in relation with Radon (<sup>222</sup>Rn) and air quality”

3. M. Cvetinov, Z. Podraš, T. Radiši, M. Stojanovic: “Impact of heatwaves on sex specific mortality in Novi Sad”

4. L. Dimova, R. Raykova, A. Armigliato, G. Pagnoni, S. Tinti: “Modeling of Earthquake-Induced Tsunami in the Eastern Mediterranean Region”

5. S. Petrova, R. Mitzeva: “Difference in Diurnal Variation of Lightning over Bulgaria and Black sea”

6. N. Neykova, P. Neytchev: “Stochastic models for daily maximum ground-level ozone concentrations forecasting: A case study”

7. R. Evgeniev, K. Malcheva: “Long-Term Air Temperature Variations in Some Urban Areas of Sofia Valley in The Context of Climate Change”

8. D. Barantiev, H. Kirova, O. Gueorguiev, E. Batchvarova: “Mesoscale modeling of extreme coastal weather against sodar data - case study”

9. P. Savov, N. Kolev, M. Kolarova, E. Batchvarova, D. Barantiev: "Aerosols, Ozone and CO<sub>2</sub> under Sea-Breeze Conditions at a Black Sea Coastal Site"
10. I. Gancheva, E. Peneva: "Verification of the SNAP ocean-tool for oil spill detection for the Bulgarian Black Sea region"
11. M. Dimitrova: "Validation of the wind and wave characteristics from the atmospheric and wave numerical models for the Black Sea against the satellites data"
12. R. Penchev, E. Peneva, D. Ivanov: "Analysis of Wind Shear Situations at Sofia Airport Based on an Aerological Soundings, Doppler Radar Measurements And NWP Model Results"
13. J. Najdovska, K. Drogreshka, C. Dragana: "Seismological Observatory in Skopje - Seismic Monitoring and Data Processing"
14. K. Drogreshka, J. Najdovska, C. Dragana: "Seismic Moment and Other Source Parameters of September 11 2016 ML 5.3 Skopje Earthquake"
15. A. Petrov, E. Georgieva, D. Atanassov: "An Urban Air Pollution Modelling Test: GRAL vs. CUTE-1 case"
16. V. Danchevski, R. Dimitrova, E. Vladimirov, E. Egova, D. Ivanov: "Comparison of urban mixing layer heights from ceilometer, radiosonde and WRF model"
17. N. Rachev, T. Koshncharova: "PM<sub>10</sub> Concentrations in Bourgas for the Period 2010-2016"
18. N. Rachev, N. Kadiyska: "Relationship between Sounding-derived Indices and Summer Rainfall in Bulgaria"
19. G. Georgieva, E. Peneva: "Are there evidences of Rossby Solitons in the Black Sea?"
20. V. Kazandjiev, P. Malasheva: "Peculiarities of Agrometeorology Conditions for Growing Apricot Trees (*Prunus Armeniaca* L.) in Bulgaria"
21. D. Syrakov, M. Prodanova, E. Georgieva, E. Hristova, H. Kirova, K. Slavov: "Modelling of sulphur and nitrogen depositions in the region of Sofia – effects of grid resolution and precipitation"
22. D. Nikolov, L. Bocheva, R. Evgeniev, K. Ivanov: "Analysis of the Snowfalls and the Snow Cover Variability in the Strandja Nature Park"
23. E. Batchvarova, C. Calidonna, M. Kolarova, I. Ammoscato, D. Barantiev, E. Hristova, H. Kirova, R. Neykova, D. Syrakov, M. Prodanova, P. Savov, N. Kolev, C. Rosa Torcasio, E. Avolio, D. Gulli, T. Lo Feudo, E. Chianese, A. Riccio: "Meteorology and air pollution experiment at a Black sea coastal site Ahtopol – 2017"
24. M. Yılmaz, E. Keşaf, H. Toros, A. Ulubey and E. Hristova: "Meteorological Evaluation of Edirne Air Pollution"
25. E. Oynakov, L. Dimitrova, R. Raykova, I. Aleksandrova: "Exploration of the Deep Structure in the Provadia District with the Method of Microseismic Drilling according to the data of the Local Seismic Network "Provadia"'"



**29 AUGUST 2018 (WEDNESDAY)**

**Section 15: Applied Physics**

**Hall Vihren**

**09:00 – 10:30 1<sup>st</sup> session (oral talks) Chair: P. Petrov**

09:00 – 09:30 Ivan Petrov, G. Greczynski, J. Rosen, L. Hultman, J.E. Greene: “Control of micro- and nanostructure in transitional metal nitrides and borides: Recent advances”

09:30 – 09:50 Kaloyan V. Genkov, Gichka G. Tsutsumanova, Simeon M. Marinov, Stoyan C. Russev: “Fabrication of Metallic Microstructures by Focused Electron Beam Direct Writing in SEM”

09:50 – 10:10 Anton D. Zypkov, Gichka G. Tsutsumanova, Stoyan C. Russev: “Embedding Plasmonic Metal Nanowires in Planar Optical Waveguides”

10:10 – 10:30 Mirona Mironova, Valeriy Naidenov: “Fiber Orientation and Efficiency at the Reinforced Silicate”

**10:30 – 11:00 Tea/Coffee**

**11:00 – 12:20 2<sup>nd</sup> session (oral talks) Chair: I. Petrov**

11:00 – 11:20 Avni Aksoy, Ozlem Karsli, Caglar Kaya: “Turkish Accelerator and Radiation Facility in Ankara (TARLA)”

11:20 – 11:40 Nikolay Zografov, Andreana Andreeva: “Resonant Droplet Tensiometry Driven by an Electric Field”

11:40 – 12:00 Gordana Lastovicka-Medin: “Innovation on Maxwell’s Displacement Current for Harnessing Energy and Sensor Solutions: The Origin, Creation and Applications of Nanogenerators”

12:00 – 12:20 T. M. Mishonov, A. A. Stefanov, E. G. Petkov, I. M. Dimitrova, V. I. Danchev, V. N. Gourev, A. M. Varonov: “Manhattan equation for the operational amplifier”

**12:30 – 14:00 Lunch**

**14:00 – 15:30 3<sup>rd</sup> session (talks) Chair: P. Petrov**

14:00 – 14:30 Ion Tiginyanu: “New Nanoelectronic Device Developments Based on Gallium Nitride – the Second Most Important Semiconductor”

14:30 – 14:50 T. M. Mishonov, A. A. Stefanov, E. G. Petkov, I. M. Dimitrova, V. I. Danchev, A. M. Varonov: “Master equation for operational amplifiers: stability of negative differential converters, crossover frequency and pass-bandwidth”

14:50 – 15:10 A. Kolev, I. Nedeleev, V. Danchev: “EnduroSat One - the first Bulgarian CubeSat mission”

**15:30 – 16:00 Tea/Coffee**

### 15:30 – 17:00 Poster session

1. Mladenoff J., Pishinkov D., Avramova I., Avdeev G., Valcheva E., Terziiska P., Kolev S. and Milenov T.: “Study of Initial Stages of Deposition of Graphene-like Films by Sublimation of Amorphous Carbon”
2. Darina Kaisheva, Igor Papushkin, Gizo Bokichava, Peter Petrov: “Study of Residual Stresses in Electron Beam Welded Samples of an Aluminum Alloy via Neutron Diffraction Method”
3. Stefan Valkov, Ruslan Bezdushnyi, Rumiana Lazarova, Rossitza Dimitrova, Peter Petrov: “Surface Modification of Al Substrate with TiCN Nanopowder by Electron-beam Treatment”
4. E. Valcheva, K. Kirilov, B. Arnaudov, N. Bundaleska, J. Henriques, E. Tatarova: “Electrical conductivity of free-standing N-graphene sheets”
5. Borislava Georgieva, Svetoslav Kolev, Kiril Krezhov, Chavdar Ghelev, Daniela Kovacheva, Benedicte Vertruyen, Raphael Closset, Abdelfattah Mahmoud, Lan Maria Tran, Andrej Zaleski, Tatyana Koutzarova: “Study of the Properties of Ni-substituted  $Ba_{1.5}Sr_{0.5}Zn_2Fe_{12}O_{22}$  Hexaferrite Powders”
6. M. Ormanova, V. Bodnarchuk, A. Nagarnyi, R. Bezdushnyi, D. Dechev, N. Ivanov and P. Petrov: “Investigation on VN and ZrN coatings produced by magnetron sputtering”
7. D. Dechev, M. Ormanova, N. Ivanov, P. Petrov: “Formation and characterization of AlN coating deposited on tool steel”
8. Denitsa K. Georgieva, Bela M. Lilova, Anton D. Zypkov, Gichka G. Tsutsumanova, Stoyan C. Russev: “Silver Nanowires Embedded in Electrospun PVA Nanofibers”
9. N. Nikolov, N. N. Nedyalkov, I. K. Kostadinov and D. B. Karashanova: “Increasing the Productivity of the Method of Pulsed Nanosecond Laser Ablation of Silver in Water using a High Frequency Laser”
10. Aikaterini Teknetzi, Evangelia Tarani, Dimitrios Stathokostopoulos, Eleni Pavlidou, Konstantinos Chrissafis and George Vourlias: “Synthesis of Higher Manganese Silicides by Pack Cementation”
11. Kourtidou Dimitra, Chaliampalias Dimitrios, Teknetzi Aikaterini, Karfaridis Dimitrios, Tarani Evangelia, Pavlidou Eleni, Chrissafis Konstantinos, Vourlias George: “Synthesis Of Al-Ni Coatings By Pack Cementation And Examination Of Their High Temperature Oxidation Resistance”
12. Karfaridis Dimitrios, Kehagias Thomas, Papaioannou Th. Evangelos and Vourlias George: “Nanostructure and magnetization correlation in Fe/Pt bilayers”
13. N. Kojouharova, E. Halova, S. Alexandrova, A. Szekeres: “Nanoparticles formation in lightly nitrogen doped SiO<sub>2</sub>”
14. T. Hikov, N. Krasteva, K. Hristova-Panusheva, D. Dechev, N. Ivanov, P. Petrov: “Study on the Biocompatibility of TiN/TiO<sub>2</sub> Multilayer Coatings Deposited by DC Magnetron Sputtering on Stainless Steel”
15. Stoyan Parshorov, Petar Petrov, Stefan Valkov: “Non isothermal Transformations in TRIP /Transformation Induced Plasticity/ Steels”

16. Stoyan Parshorov, Petar Petrov, Stefan Valkov, Rumiana Lazarova, Rosiza Dimitrova: “Kinetics of deformation martensite formation in TRIP /Transformation Induced Plasticity/ Steels”
17. Pishinkov D., Tzonev L., Avramova I., Avdeev G., Valcheva E., Mladenoff J., Genkov K., Zypkov A., Russev S., Kolev S. and Milenov T.: “Modification of Carbon Black by Thermal Treatment in Air atmosphere”
18. S. Boyadjiev, S. Mihaiu, I. Atkinson, V. Georgieva, I.M. Szilagy: “Atomic layer deposition (ALD) and sol-gel grown ZnO, and Ni- and Li/Ni-doped ZnO thin films for gas sensors”
19. Silvana Mico, Mirela Alushllari, Antoneta Deda, Polikron Dhoqina, Eleni Tsaousi: “Variability of aerosol particle number concentrations using optical particle counter and scanning electron microscope”
20. E. Merkaj, G. Malollari, N. Civici: “Portable EDXRF Spectrometer Using Secondary Target Excitation Mode: Design and Analytical Performance”
21. Dora Krezhova, Kalinka Velichkova: “Remote Estimation of the Fraction of Absorbed Photosynthetically Active Radiation in Crops under Stress”
22. Georgi B. Hadjichristov, Yordan G. Marinov, Alexander G. Petrov, Hari Krishna Koduru, Nicola Scaramuzza: “Ion Electrolytic Flexible Composite from Poly (ethylene oxide) and E8 Nematic Liquid Crystals”
23. Andreana Andreeva, Alexander Pimpas, Gergana Mihova, Nikolay Zografov: “Oscillation Modes and Resonant Frequencies of Spherical Pendant Droplets”
24. Irena Mucollari, Artur Xhumari, Aurora Aliraj, Anastela Mano, Gramoz Brace, Rejnardo Tafaj, Bledar Cullhaj, Eldisa Larti: “The Treatment Plan of Brain Metastases with Stereotactic Radiosurgery”
25. Sofia Milenkova, Ivan Bodurov and Maria Marudova: “Effect of Assembly Conditions on Chitosan/Alginate Polyelectrolyte Complexes Particle Size”
26. E. Belina, H. Kisov, E. Pavlova, E. Borisova, G. Dyankov: “Thin Hemoglobin Layers Deposited By MAPLE Technology”
27. D. A. Prousalis, I. N. Stouboulos , C. K. Volos and I. M. Kyprianidis: “Synchronization Phenomena in Coupled Neuronal Circuits via a Memristor”
28. Kozeta Tushe (Bode), Brunilda Daci, Elida Bylyku, Anxhela Metanaj: “Determination of the Radon levels in Berat Region”
29. Brunilda Daci, Kozeta Tushe (Bode), Elida Bylyku, Dritan Prifti: “Study of Optimal Etching Conditions of Passive Radon Detectors (SSNTD’s CR-39)”
30. Amela Softic: “Use of the Arrhenius Model for Acceleration Estimate of the Temperature Aged HP LEDs”
31. S. Atanassova, P. Nikolov, N. Valchev, S. Masheva, D. Iorgov: “Early Detection of Powdery Mildew (*Podosphaera xanthii*) on Cucumber Leaves Based on Visible and Near-Infrared Spectroscopy”

32. G. Zsivanovits, B. Gechev: “Texture Properties of Bread Doughs from Gluten Free and Non-Gluten Free Flour Mixtures”
33. Ginka Exner, Ivanka Vlaeva, Ivan Akrafov: “Chicken Breast Quality Assessment by Lyophilization, Differential Scanning Calorimetry and Electric Impedance Spectroscopy”
34. Biser Gechev, Gabor Zsivanovits and Maria Marudova: “Rheological Models of Gluten Free Bread Dough”
35. A. Iliev, G. Zsivanovits: “Degradation of Fresh Grapes and Blueberries during Cold Storage”
36. Ivaylo Minchev, Iliana Milkova-Tomova, Krastena Nikolova, Daniela Kovacheva, Dragomira Buhalova, Stefka Minkova: “Physico-Chemical Parameters Of Chocolate With Improved Functional Properties”
37. Dida Iserliyska, Gabor Zsivanovits, Biser Gechev, Maria Marudova, Todorka Petrova, Milena Ruskova, Ivan Bakalov, Angel Iliev, Kristina Ivanova and Desislava Teneva: “Influence of Different Polysaccharides on Rheological Behavior and Thermal Properties of Gluten Free Dough”
38. Ivanka Vlaeva, Bissera Pilicheva, Antoaneta Marinova, Ivan Bodurov, Temenuzhka Yovcheva, Asya Viraneva, Ginka Exner, Yordanka Uzunova, Sotir Sotirov and Mariya Marudova: “Investigation of Flexible Polyelectrolyte Multilayered Structure by Using Different Techniques”
39. Poli Radusheva, Iliana Milkova-Tomova, Kr. Nikolova, Dragomira Buhalova, Nadya Hristova-Avakumova, Vera Hadjimitova, Darina Najdenova: “Optical Properties And Antioxidant Effect For Juices Of Raspberry (*Rubus idaeu*)”
40. Todorka Petrova, Zdravko Manev, Ivan Bakalov, Nadezhda Petkova, Kristina Ivanova, Milena Ruskova, Nikolay Penov: “Rheological Characteristics of Fruit Jam Enriched with Fibres”

**29 AUGUST 2018 (WEDNESDAY)**

**Section 19: Metrology and Instrumentation**

**15:30 – 17:00 Poster session**

1. G. Stoilov, D. Pashkouleva, V. Kavardzikov: “Speckle patterns for multiscale monitoring of deformation”

**29 AUGUST 2018 (WEDNESDAY)**  
**Section 16: Biophysics and Medical Physics**  
**Hall Rodopi**

**09:00 – 10:30 1<sup>st</sup> session (oral talks) Chair: Isak Bivas**

9:00 – 9:30 B. Tenchov: “Thermodynamics of protein fibrilization. Relation to molecular basis of diseases”

9:30 – 10:00 P. Ch. Ivanov: “The new emerging field of network physiology: statistical physics and nonlinear dynamics approach to building the human physiome”

10:00 – 10:20 I. Gueorguiev, A. Avramov, Y. Yankova, N. Velikova, A. Tonev: “Post-operative Radiation Treatment for Left Breast Cancer in the Radiation and Radiotherapy Surgery Department, Adjabed City Clinic Oncology Center – Clinical Dosimetry Outcomes”

**10:30 – 11:00 Tea/Coffee**

**11:00 – 12:30 2<sup>nd</sup> session (oral talks) Chair: Plamen Ivanov**

11:00 – 11:20 P. Dhogina, K. B. Tushe, G. Xhixha, B. Daci and E. Bylyku: “Measurements of Indoor Radon Concentrations in Schools in Some Cities of North Albania”

11:20 – 11:40 L. Todorov, M. Traykova, T. Traykov, I. Kostova: “Impact of 5-amino Orotic Acid and Its Complex with Gallium (III) on the Luminol-Dependent Chemiluminescence in Presence of Sodium Hypochlorite”

11:40 – 12:00 R. Hazarosova, V. Yordanova, V. Vitkova, A. Momchilova, G. Staneva: “Impact of oxidized lipids on the membrane architecture and functions”

12:00 – 12:20 N. Kenar, E. Ozturk and E. Kacar: “Tissue Optics Studies for External Angioplasty Applications of Human Aortic Plaques for Yb:YAG laser at wavelengths of 1024 nm”

**12:30 – 14:00 Lunch**

**14:00 – 15:30 3<sup>rd</sup> session (oral talks) Chair: Boris Tenchov**

14:00 – 14:20 D. Kotlorz, M. Stachera and K. Sznajder: “Magnetic Resonance as a Valuable Tool in Neurodiagnostics”

14:20 – 14:40 G. Nikolova, V. Kotev and D. Dantchev: “Results for Female’s Mass-Inertial Parameters in Basic Body Positions for Space Exploration as Classified by NASA”

14:40 – 15:00 M. Mihalev: “Finite Element Analysis of Fatigue of Bare Metal Stents”

15:00 – 15:20 M. Mihalev: “Design Method for Bare Metal Stents and Finite Element Simulation”

15:20 – 15:40 I. J. Lalov, N. A. Kojouharova: “Excitonic model and circular dichroism spectrum of Bacteriorhodopsin”

**15:40 – 16:00 Tea/Coffee**

### 15:30 – 17:00 Poster session

1. A. Kostadinova, R. Veleva, A. Nesheva, R. Hazarosova, D. Djilianov, D. Monyakova, T. Topouzova-Hristova, G. Staneva: "Impact of Haberlea rhodopensis glycoside miconoside on artificial and cellular membranes and cell adhesion properties"
2. M. Karabaliev, B. Paarvanova, I. Ivanov and B. Tacheva: "Electrostriction techniques for preparation of thin lipid films on different solid supports"
3. D. Mitkova, G. Staneva, O.V. Batishchev<sup>3</sup> and V. Vitkova: "Bending Rigidity of Bolalipid-containing Membranes"
4. D. Mitkova, K. Antonova and V. Vitkova: "Mechanical and electrical properties of biomimetic membranes in the presence of sweeteners (aspartame and sorbitol)"
5. M. Tanovska, M. Rahmani, L. Vladimirova – Mihaleva, M. Berger, D. Neshev, A. Momchilova, R. Tzoneva: "An Ellipsometric Study of Interaction of Anti-cancer Agent Erufosine on Lipid Model Systems"
6. B. Parvanova, M. Karabaliev, B. Tacheva and Ivan T. Ivanov: "Impact of Permeant Cryoprotectors on Under-Membrane Skeleton of Human Erythrocytes"
7. R. Veleva, T. Topouzova-Hristova, V. Moskova-Doumanova, J. Doumanov, A. Kostadinova, A. Trendafilova, G. Staneva: "Effect of Polyphenolic Compounds Extracted from Inula Oculus-christi on Lipid Oxidation and Packing in Artificial Membranes"
8. V. Yordanova, R. Hazarosova, V. Vitkova, A. Momchilova and G. Staneva: "Raft breaking or raft making are oxidized lipids?"
9. T. Genova, E. Borisova, B. Vladimirov, M. Kermedchiev, N. Penkov and L. Avramov: "Statistical Evaluation of Fluorescence Tumour Spectral Features Through Excitation-Emission Matrices for Gastrointestinal Cancer"
10. D. Kishta: "Monitoring doses of patients in interventional radiology in cardiology at "Mother Teresa" University Hospital Center"
11. I. Selmani and P. Malkaj: "The assessment of dependence of wedge factor from the size of radiation field"
12. I. Selmani and P. Malkaj: "The Use of Wedge in the Treatment Planning System"
13. E. Telhaj, E. Bakiu, A. Kalaj: "Comparison between EBT3 radiochromic film and EPID in IMRT QA"
14. D. Ivanov, E. Borisova, T. Genova, L. Nedelchev, D. Nazarova: "Tissue polarimetric discrimination analysis of skin and colon histological samples"
15. L. Daci, D. Rodriguez Latorre, D. Mitrushi: "Dosimetric leaf gap comparisons for Varian True Beam machines in three different clinics"
16. I. Berdufi, M. Shyti, F. Cfarku, K. Bode, E. Bylyku: "Assessment of occupational exposure among medical staff of University Hospital Center "Mother Theresa" in Tirana during 2012 – 2017"

17. B. Antonova, B. Tenchov: "A new thermodynamic method for monitoring the blood plasma proteome thermal behavior upon sequential chemotherapy treatments of cancer patients"
18. A. Gisbrecht, S. Mamilov, S. Esman," Laser-assisted blood carboxyhemoglobin photodissociation: a promising method for reduction of carbon monoxide intoxication"
19. E. Djurdjic, B. Pajic, M. Pavkov-Hrvojevic, Z. Cvejic: "Soft tissue analysis by Raman spectroscopy: lipids to water ratio"
20. V. Doltchinkova, E. Chikov: "The influence of ultrasound (22 kHz) on  $\beta$ -thalassemia erythrocyte membranes"
21. V. Doltchinkova, M. Shkodrova, N. Mouleshkova, S. Stoylov: "Effects of L-glutamic acid, gamma-aminobutyric acid and kainic acid on the surface electrical charge and enzyme activity of rat brain synaptosomes"
22. B. Robev, N. Hristova-Avakumova, R. Nikolov, T. Traykov, V. Hadjimitova: "Chemiluminescent investigation of the antioxidant status in lung cancer patients"
23. M. Tzvetkova, N. Hristova-Avakumova, L. Atanasova, M. Panayotov, V. Hadjimitova: "Effect of extraction conditions on the antioxidant activity of diazo cocoon extracts"
24. M. Tanovska, M. Niihori, M. Rahmani, L. Vladimirova- Mihaleva, D. Neshev: "Ellipsometric detection of ferritin adsorption on gold after UV irradiation"
25. B. Vladimirov, L. Vladimirova – Mihaleva: "Effect of UV radiation on the ferritin activity"
26. S. Gosav, M.-M.Coman and M. Praisler: "Artificial Neural Networks Applied for the Identification of JWH Cannabinoids Based on Structural Descriptors"
27. S. Ciochina, M. Praisler and M.-M.Coman: "Choosing between quantum cascade lasers (QCL) equipping a new hollow fiber infrared scanner designed to detect new psychoactive substances (NPS)"
28. C. Negoita, M.Praisler and A. Ion: "Artificial intelligence application designed to screen for new psychoactive drugs based on their ATR-FTIR spectra"
29. S. Gosav, A. Ion and M. Praisler: "DFT characterization of MDMA methylene homologue, a chemical compound with psychoactive properties"
30. R. Paskaleva and A. Atanasov: "Mathematic modeling of the Mushkov quadrangle for the evaluation of the spinal deformities in children and adults"
31. I. Ilievska, M. Gueorgieva, V. Petrova, V. Petrov, L. Andreeva, A. Zaleski, V. Mikli, A. Stoyanova-Ivanova: "Studies on clinically retrieved titanium orthodontic archwire"
32. D. Hyka (Xhako), N. Hyka, J. Jani: "A method for determination of relative bone density in implantology"
33. D. Andreeva, L. Todorov, M. Varadinova, M. Valcheva-Traykova: "Effects of sodium overload on memory parameters and oxidative status of rat brain cortex"
34. A. Diukendjieva, M. Mori, I. Tsakovska, P. Alov, M. Botta, I. Pajeva: "Flavonolignans of the medicinal plant Silybum marianum: evaluation of new potential target proteins"

**29 AUGUST 2018 (WEDNESDAY)**  
**Section 10: Computational Physics**  
**Hall Rodopi**

**16:00 – 17:50 1<sup>st</sup> session (oral talks) Chair: D. Bakalov**

16:00 – 16:30 V. Popov: “Two-phonon Raman scattering in graphene”

16:30 – 16:50 D. Hyka (Xhako), R. Osmanaj (Zeqirllari), A. Borici, J. Jani: “The Physical Scale From String Tension in LQCD”

16:50 – 17:10 T. Kупenova: “Investigation on the efficiency of Tikhonov regularized approximation algorithm”

17:10 – 17:30 T. M. Mishonov, A.M. Varonov: “On the practical realization of epsilon-algorithm for calculation of limits of numerical sequences and N-point Pade approximations”

17:30 – 17:50 Ç. Kaderoğlu: “DFT Modeling of Silole/Si(001) Surface”

**17:30 – 19:00 Poster session**

1. B. Batgerel, S.N Dimova, T.N. Kупenova, I.V. Puzynin, T.P. Puzynina, Z.K. Tuxhliev, I.G. Hristov, R.D. Hristova, Z.A. Sharipov: “Molecular-dynamic modeling of thermophysical processes in metals irradiated by nanoclusters”

2. J. Jani, D. Hyka (Xhako), and N. Hyka: “Simulation a Solid State Laser Operating in Chaotic Mode”

3. R. Osmanaj (Zeqirllari), D. Hyka (Xhako), A. Borii: “Preliminary Results of the Hypercubic Symmetry Restauration of Boriçi - Creutz Fermions in the Light Hadrons Spectrum”

4. R. Shkevov, N.S. Erokhin, V.M. Loznikov, N.N. Zolnikova and L.A. Mikhailovskaya, “Alpha particle energy gain analysis for the resonant wave-particle interactions in heliosphere periphery”



**29 AUGUST 2018 (WEDNESDAY)**  
**Section 02: Astronomy and Astrophysics**  
**Hall Ruen**

**09:00 – 10:30 1<sup>st</sup> session (oral talks) Chair: E. Semkov**

09:00 – 09:30 O. Kuzmanovska: “Numerical Methods for the Solution of Spectral Line Formation Problems in the Stellar Atmospheres”

09:30 – 09:50 T. M. Mishonov, A. Varonov: “Magnetohydrodynamics of the Solar Transition Region”

09:50 – 10:10 S. Georgiev, R. Konstantinova-Antova, A. Borisova, D. Kolev, M. Auriere, P. Petit, M. Belcheva, H. Markov, R. Bogdanovski, B. Spassov, R. Zamanov, N. Tomov and A. Kurtenkov: “A Long-Term Spectral Study of the Single Active Giant OP Andromedae”

10:10 – 10:30 A. Mutafov, E. Semkov, S. Ibryamov, S. Peneva: “Long-time Photometric Study of UX Orionis Stars”

**10:30 – 11:00 Tea/Coffee**

**11:00 – 12:30 2<sup>nd</sup> session (oral talks) Chair: S. Ibryamov**

11:00 – 11:20 G. Nikolov, H. Markov: “Characterising LMC Star Cluster NGC 2004”

11:20 – 11:40 S. Allak, A. Akyuz, S. Avdan: “Luminous X-ray source population in spiral galaxy NGC 925”

11:40 – 12:00 A. Akyuz, Ş. Avdan, N. Aksaker: “A Search For Optical Counterparts of ULX X-4 in M51 Galaxy”

12:00 – 12:20 R. Tashseva, I. Stefanov: “The Millisecond Pulsar XTEJ1807-294 – Mass Evaluation by Means of the Relativistic Precession Model”

**12:30 – 14:00 Lunch**

**14:00 – 15:30 3<sup>rd</sup> session (oral talks) Chair: O. Kuzmanovska**

14:00 – 14:30 G. Jovanovic: “MHD Waves in Plasma in Gravitational Field”

14:30 – 14:50 M. Milosevic, N. Bilic, D. Dimitrijevic, G. Djordjevic, M. Stojanovic: “Numerical Calculation of Hubble Hierarchy Parameters and Observational Parameters of Inflation”

14:50 – 15:10 T. M. Mishonov, Z. D. Dimitrov, V. I. Danchev, A. Varonov: “Generation of wave turbulence by shear flow in a magnetized accretion disk”

15:10 – 15:30 M. Parvu, A. Chiriacescu, I. Lazanu, A. Jipa, O. Ristea, M. Calin: “Muon induced radioactivity in the next generation of neutrino experiments”

**15:30 – 16:00 Tea/Coffee**

**16:00 – 17:30 4<sup>th</sup> session (oral talks) Chair: G. Jovanovic**

16:00 – 16:20 A. Chiriacescu, M. Parvu, I. Lazanu, A. Jipa, O. Ristea, M. Calin: “Investigation of the Cherenkov light emission as indirect consequence of cosmogenic reactions in LAr detectors”

16:20 – 16:40 A. Tchordadjieff; I. Angelov: “Space weather study using Change Point Analysis for in situ observations of Cosmic Rays muons”

16:40 – 17:00 A. Ayriyan: “Bayesian analysis for extracting properties of the nuclear equation of state from observational data”

17:00 – 17:20 Y. Mutafchieva, Z. Stoyanov, N. Chamel, “Equations of State of Magnetar Crusts”

**17:30 – 19:00 Poster session**

1. Ts. Tsvetkov, R. Miteva, N. Petrov: “Filaments related to solar energetic particles”

2. R. Miteva, T. Tsvetkov: “Spectral analysis of SOHO/ERNE protons in solar cycle 23 and 24”

3. D. P. Kirilova, V. M. Chizhov: “Chiral Tensor Particles in the Early Universe - BBN Constraint”

4. E. V. Bebekovska, A. Kostov, Z. Donchev, G. Apostolovska: “Asteroid Photometry in 2017 from National Astronomical Observatory Rozhen”

5. T. Arsov: “Simulating the Optical Performance of an Image Atmospheric Cherenkov Telescope”

6. D. Kirilova, M. Panayotova: “Baryon Asymmetry of the Universe Generated by Scalar Field Condensate Baryogenesis Model in Different Inflationary Scenarios”

7. L. Slavcheva-Mihova, B. Mihov: “IRAS 16511+2354: A Type II Quasar”

8. B. Mihov, L. Slavcheva-Mihova: “A study of the high-luminosity quasar HS 1946+7658”

9. P. Duchlev, M. Dechev, K. Koleva: “Different Types of Filament's Flux Rope Eruptions Initiated by Helical Kink Instability”

**29 AUGUST 2018 (WEDNESDAY)**

**Section 05: High Energy Physics**

**Hall Pirin**

**09:00 – 10:30 1<sup>st</sup> session (oral talks) Chair: E. Christova**

09:00 – 09:30 L. Litov for the CMS collab.: “Recent results from the CMS experiment at the LHC”

09:30 – 09:50 R. Hadjiiska for the CMS collab: “The Performance of the CMS Muon System During Run2”

09:50 – 10:10 B. Pavlov for the CMS collab: “Upgrade of the CMS muon system”

10:10 – 10:30 I. Manthos: “Charged Particle Timing at sub-25 ps Precision: The PICOSEC Detection Concept”

**10:30 – 11:00 Tea/Coffee**

**11:00 – 12:30 2<sup>nd</sup> session (oral talks) Chair: S. Petcov**

11:00 – 11:30 P. Hristov: “Recent results in Heavy Ion Physics”

11:30 – 11:50 I. Maznas, I. Manthos, I. Maniatis, M. Tsopoulou, P. Paschalias, T. Koutsosimos, S. Kompogiannis, Ch. Petridou, S.E. Tzamarias, K. Kordas, I. Tsiafis and D. Sampsonidis: “The Micromegas Project for the ATLAS new small wheel”

11:50 – 12:20 R. Tsenov: “The NICA Accelerator Complex at the Joint Institute for Nuclear Research in Dubna”

**12:30 – 14:00 Lunch**

**14:00 – 15:30 3<sup>rd</sup> session (oral talks) Chair: P. Hristov**

14:00 – 14:20 S. Ignjatovic, V. B. Jovanovic, D. Borka and P. Jovanovi: “Hyperfine Interactions of Constituent Quarks and the Mass Spectrum of Tetraquark States”

14:20 – 14:40 J. Sungu, A. Turkan, H. Dag and E. V. Veliev: “Mass and Pole residue of  $Y_b(10890)$  state with  $J^P=1^-$  at finite temperature”

14:40 – 15:00 E. Christova, E. Leader and M. Stoilov: “Boer-Mulders functions - a test of the assumptions made in their determination”

15:00 – 15:30 D. Kotlorz, S. V. Mikhailov, O. V. Teryaev and A. Kotlorz: “A new effective method for determination of the Bjorken sum rule from experimental data”

**15:30 – 16:00 Tea/Coffee**

**16:00 – 18:00 4<sup>th</sup> session (oral talks) Chair: D. Kotlorz**

16:00 – 16:30 S. Petcov: “Discrete Symmetries, Neutrino Mixing and Leptonic CP Violation”

16:30 – 16:50 N. Sonmez: “Investigation of Chargino Pairs in Stau-Neutralino Annihilation Scenario at the Future Colliders”

16:50 – 17:10 Z. Kirca, C. S. Ün and Z. Altin: “Associated Production of Charged Higgs Boson and Heavy Top Quark in the Left-Right Twin Higgs Model at High Energy e-e+ collider”

17:10 – 17:30 V. Kozhuharov for PADME collaboration: “The PADME experiment at LNF-INFN”

17:30 – 17:50 S. Ivanov for PADME collaboration: “The charged particle veto system of the PADME experiment”

**17:30 – 19:00 Poster session**

1. T. Arsov, G. Bakirova: “Comparison of Extended Air Showers Simulation Results using CORSIKA Code for Different High-Energy Interaction Models”

2. I. Angelov, T. Arsov, N. Nikolova, C. Angelov, A. Chilingarian, T. Karapetyan: “Cosmic Rays Muons Variations Measurements With The Muon Telescope And The SEVAN Detector At BEO - Moussala”

**29 AUGUST 2018 (WEDNESDAY)**

**Section 07: Optics and Lasers**

**17:30 – 19:00 Poster session**

B. Papajani, E. Vataj, A. Hasimi, P. Malkaj: “Spherulitic Microstructure and the Effect of Factors on the Crystallization Kinetics of Pure Isotactic Polypropylene”

**29 AUGUST 2018 (WEDNESDAY)**

**Section 04: Atomic and Molecular Physics**

**17:30 – 19:00 Poster session**

Esmeralda Vataj, Blerina Papajani, Stefan Röhrs, Elio Hobdari, Nikolla Civici: “Archaeometric Study of Antique Window and Vessel Glass Objects Excavated in Basilica of Elbasan, Albania”

**29 AUGUST 2018 (WEDNESDAY)**

**Section 06: Condensed Matter Physics & Statistical Physics**

**11:00 – 12:30 Poster session**

Meeting point is at the end of the morning coffee break 11:00 on Wednesday 29 August. The cluster of participants will visit all the posters together listening to each speaker for 2 minutes. After that free diffusion amidst the presented posters until the lunch break at 12:30.

1. P. Mali, V. Mrkajić, M. Pantića, M. Pavkov-Hrvojević, S. Radošević: „Low temperature thermodynamics of two-dimensional O(3) ferromagnets“
2. Stevan Jankov, Elvira Djurdjic, Sonja Skuban, Vladimir Srdic, and Zeljka Cvejic: “Electrical Transport Modeling in Nano Crystalline Nickel Ferrites”
3. Galin Valchev and Daniel Dantchev: “Interplay between the critical Casimir and dispersion forces in ellipsoid-plate systems immersed in non-polar fluid”
4. Biljana Mitreska and Danica Krstovska: “In-plane Second Harmonic Wave Generation in Multiband Organic Conductors”
5. S. K. Varbev, R. S. Kamburova and M. T. Primatarowa: “Soliton interaction with different point defects in classical anisotropic ferromagnets”
6. Boyko Katranchev, Minko Petrov, Peter Rafailov, Haritun Naradikian and Neno Todorov: “Electrical Driving By Graphen Electrodes Of Doped With Graphen Flakes Dimeric Liquid Crystal System”
7. A. Vasev, P. Lilov, Y. Marinov, A. Stoyanova, D. Karashanova, G. Ivanova, A. Stoyanova-Ivanova: “Electrochemical redox behavior of BSCCO cuprate ceramics”
8. Ekaterina S. Pisanova and Ivan Kr. Ivanov: “Universal Critical Amplitudes in a Quantum Spherical Model: Entropy, Internal Energy and Specific Heat”
9. M. Georgiev and H. Chamati: “Magnetic excitations in  $\text{Ca}_3\text{Cu}_{3-x}\text{Ni}_x(\text{PO}_4)_4$ ”
10. Ina Angelova, Chong Chin Chiou, Vera Marinova, Shiuan Huei Lin, Dimitrina Petrova and Dimitre Dimitrov: “Polymer Dispersed Liquid Crystals Devices on Rigid and Flexible Substrates Using Graphene Electrodes”
11. B.S. Blagoev, E. Moraliyski, K. Buchkov, P. Terziyska and T. Nurgaliev: “RF magnetron sputtering and characterization of LSMO nanofilms on Si substrate”
12. N. D. Todorov, P. M. Rafailov, M. Petrov, B. Katranchev and H. Naradikian: “Micro-textural and spectral polarization analysis of the phase transitions in mixtures of dimeric liquid crystals and non mesogenic nanoparticles”
13. Todor Dimov, Ilia Iliev, Antonina Hristova and Horst Lange: “Torsion induced giant gyrotropy in hexagonal CdS and CdSe crystals”

14. Todor Dimov, Ilia Iliev and Antonina Hristova: “Optical activity and Faraday rotation around the edge absorption of the crystals  $\text{Bi}_{12}\text{SiO}_{20}$ : M (M = Co,Fe)”
15. Atanas N. Tzonev, Anton D. Zyapkov, Stoyan C. Russev: “Plasmonic modes of infinite metallic cylinder, embedded in a gain medium: conditions for loss compensation”
16. Krastyo Buchkov, Milen Valkovski, Konstantin Nenkov, Elena Nazarova: “Scaling Behavior of Current-Voltage Characteristics of  $\text{Fe}_{1.02}\text{Se}$  crystal”
17. Georgi B. Hadjichristov, Yordan G. Marinov, Todor E. Vlahov and Alexander G. Petrov: “Graphene-Nematic Liquid Crystal E7 Nanocomposite: The Effect from Nanodopants”
18. Ginka K. Exner, Yordan G. Marinov, Vlado K. Shumanov and S. Krishna Prasad: “Thermal properties and structure of nematic liquid crystal polymer nanocomposite with single wall carbon nanotubes”
19. Yordan G. Marinov, Georgi B. Hadjichristov, Alexander G. Petrov and S. K. Prasad: “UV Light Enhanced Confined Freedericksz Transition in Photoisomerizable Nematic Nanocomposite with Photoactive Molecules of Azobenzene Nematic Liquid Crystal”
20. Tanya Malakova, Kiril Krezhov: “Half Replacement of Bismuth by Neodymium in Half-Hole Doped Bismuth-Based Manganites  $\text{Bi}_{0.25}\text{Nd}_{0.25}\text{X}_{0.5}\text{MnO}_3$  (X=Sr, Ca): A Neutron Diffraction Study”
21. Hari Krishna Koduru, Lucia Marino and Nicola Scaramuzza: “Electro-optical and dielectric characterization of  $\text{WO}_3$ -doped PDLC films”
22. George R. Ivanov, Ekaterina Borisova and Tsanislava Genova: “Investigation of Langmuir-Blodgett Films from Fluorescently Labelled Phospholipids with Fluorescence Lifetime Spectroscopy and Atomic Force Microscopy”
23. Predrag Miranović and Zorica Popović: “How to measure small exchange field in weak ferromagnets?”
24. Javier Rodríguez-Laguna, Otti D’Huys, Manuel Jiménez-Martín, Elka Korutcheva and Wolfgang Kinzel: “Dynamics and synchronization of complex networks with coupling delays”
25. Tsvetelina Fidanova, Vera Marinova, Dimitrina Petrova, Daniela Karashanova, Dimitre Dimitrov and Blagovest Napoleonov: “Single and multilayer graphene grown by CVD technique: characterization for electro-optical applications”
26. A. A. Donkov, N. B. Ivanov, and J. Richter: “Phase Diagram of the Spin-1/2 Kagome Strip”

**29 AUGUST 2018 (WEDNESDAY), 19:30 – 22:00**

**Conference dinner**

**Best Western Hotel Expo**

**30 AUGUST 2018 (THURSDAY)**

**Section 17: Physics Education**

**Hall Rodopi**

**09:00 – 10:30 1st session (oral talks) Chair: M. Gaydarova**

09:00 – 09:30 Boce Mitrevski: “Teaching Critical Thinking and Problem Solving in Physics”

09:30 – 10:00 M. Milosevich, G.S. Djodjevic, V. Urumov: “Balkan Web of Physics”

10:00 – 10:15 Gordana Lastovicka-Medin: “Co-Creation of Knowledge for Science Education with Victorian Automata, Puppetry Theatre and Tangible User Interface Laboratory”

10:15 – 10:30 Maria Garalova: “The new model of teaching physics”

**10:30 – 11:00 Tea/Coffee**

**11:00 – 12:30 2<sup>nd</sup> session (oral talks) Chair: Ivelina Kotseva**

11:00 – 11:30 Kostas Vourlias: „Teaching Physics through Sports: Physics is Fun”

11:30 – 11:45 Nikolaos Fotou, Ian Abrahams: „Prediction-making in Novel Situations and the Role of Self-Generated Analogies”

11:45 – 12:00 Ruska Draganova-Hristova, Snezhana Yordanova: „Open practice by physics, the world of colors, another way for education by physics”

12:00 – 12:15 Ivan Antonov, Lilia Atanasova, Nadya Hristova-Avakumova, Vera Hadjimitova: “Problems And Tasks Ahead Of The Medical Physics Education Of Students Studied For “Public Health Inspector””

12:15 – 12:30 Lilia Atanasova, Ivan Antonov, Nadya Hristova-Avakumova, Vera Hadjimitova: ““Fundamentals Of Optical Spectroscopy” Course As A Part Of The Education And Stimulation Of The Scientific Activity Of The Students From MU-Sofia”

**12:30 – 14:00 Lunch**

**14:00 – 16:00 3<sup>rd</sup> session (oral talks) Chair: Zhelyazka Raykova**

14:00 – 14:15 Albert Varonov, T. M. Mishonov, A. A. Stefanov, E. G. Petkov, I. M. Dimitrova, V. N. Gourev: “Determination of Boltzmann constant by equipartition theorem for capacitors”

14:15 – 14:30 Albert Varonov, T. M. Mishonov, A. A. Stefanov, E. G. Petkov, I. M. Dimitrova, V. I. Danchev, V. N. Gourev, N. Zh. Mihaylova and A. M. Varonov: “Simple do-it-yourself experimental set-up for electron charge  $q_e$  measurement”

14:30 – 15:00 Assen Kyuldjiev, Boyka Aneva: “Young physicists’ tournament and regional cooperation”

15:00 – 15:15 Kotsifakos Dimitrios, Christos Douligeris: “Updating the directions and didactic approaches of the specialty of electronics: How do the fields of study of specialty contribute to the development of 21st century scientific innovations and what should be the principles of today's curriculum?”

**15:30 – 16:00 Tea/Coffee**

**17:30 – 19:00 Poster session**

1. Dragoljub Cucich, Ljiljana Jankovic, Aleksandar S. Nikolic and Nenad Dj. Lazarov: “Work with motivated and gifted students in physics in RCT "Mihajlo Pupin" from Pancevo - a review of the last 10 years”
2. Milica Pavkov-Hrvojevic, Ivana Bogdanovic: “Making Real-life Connections and Connections between Physics and Other Subjects”
3. Milan Cavic, Ivana Bogdanovic, Milica Beljin, Sonja Skuban, Maja Stojanovic: “Effect of Cooperative Learning on the Development of Metacognition”
4. Gergana Kalpachka: “Internet as Computer Educational Technology in Physics Teaching”
5. Vera Hadjimitova, Nadya Hristova-Avakumova, Lilia Atanasova, Ivan Antonov: “How to Encourage Medical Students to Learn Physics and Biophysics, a Task with Many Possible Solutions”
6. Zhelyazka Raykova, Georgi Vuldzhev, Nataliya Moneva: “Alternative Online Resources as an Approach in the Physics Education”
7. Apostolos Michaloudis: “Research on How Simulations Affect Learning”
8. Kostadina Katsarova, Zhelyazka Raykova: “An Opportunity to Study Mechanical Waves by the Use of Inquiry Methods”
9. Victor Danchev, V. Buchova, R. Avramova, P. Nikolova: “InnoSpaceComm free space demo module initiative”
10. Ivelina Kotseva, Maya Gaydarova, Kalin Angelov, Fisnik Hoxha: “Physics Experiments and Demonstrations Based on Arduino”
11. Lorena Kelo, Marie Dede, Sotiraq Marko, Esmeralda Guliqani: “Complex problems - The pathway to expertise in physics”
12. Maya Gaydarova, Kotseva I., Hoxha Fisnik: “Models and Modeling in Physics Education”
13. Elena Maslenkova: “The First Bulgarian Textbooks on Physics”
14. Svetla Miteva, Svobodan Alexandrov: “Student Practices Help to Educate Students”
15. Kalin Angelov: “Heuristic methods in the learning process”



**30 AUGUST 2018 (THURSDAY)**  
**Section 18: History and Philosophy of Physics**

**17:30 – 19:00 Poster session**

1. Dragoljub Cucic, Dragoljub Martinovic: “Selective chronology on the topic “Serbia and history of physics” – example: Michael Idvorsky Pupin”
2. E. Nazarova and G. Kamisheva: “Eugene Leyarovski - Founder of the Contemporary Low Temperature Physics in Bulgaria”

**30 AUGUST 2018 (THURSDAY)**  
**Section 08: Plasma and Gas-discharge Physics**  
**Hall Vihren**

**09:00 – 10:30 1<sup>st</sup> session (oral talks) Chair: K. Blagoev**

09:00 – 09:30 S. Karatodorov and V. Mihailov: “Investigation of the Emission Characteristics of a Hybrid Spectral Source: Laser Ablation Assisted Hollow Cathode Discharge”

09:30 – 09:50 P. Topala, A. Ojegov, A. Harbu, V. Beslin and D. Guzman: “Physical and Chemical Phenomena at the Interaction of EDI Plasma with Electrodes Surfaces”

09:50 – 10:10 P. Dobрева, O. Nitcheva, V. Koutev and M. Kartalev: “Gas-dynamic Modeling of the Ion Density Variations in the Magnetosheath: Comparison with Cluster Data”

10:10 – 10:30 A. Blagoev: “Hybrid Nuclear Reactors”

**10:30 – 11:00 Tea/Coffee**

**17:30 – 19:00 Poster session**

1. S. Slaveeva, K. Temelkov, Yu. Fedchenko and T. Chernogorova: “A Comparative Theoretical Study on Electron Temperature in Nanosecond Pulsed Longitudinal Discharge for Maxwellian and Druyvesteyn Electron Energy Distribution Function”

2. S. Iordanova, S. Lishev and A. Pashov: “Spectral Diagnostics on the Two Modes of Operation of Inductive Discharges Based on Doppler-Broadened H<sub>α</sub> Line Shape”

3. G. Lj. Majstorović and M. Vasiljević: “Rotational and Vibrational Temperature Distributions in Cathode Fall Region of Grimm Glow Discharge”

4. Ts. Paunska and St. Kolev: “A 2D Model of a Gliding Arc Discharge for CO<sub>2</sub> Conversion”

5. P. Dobрева, M. Kartalev, V. Koutev, O. Nitcheva: “Numerical Description of Some Flow Characteristics in the Magnetosheath: a Case Study”

6. V. Steflekova and D. Zhechev: “On Self-aligning of Atomic States in a Segmented Hollow Cathode Discharge”

7. A. Avramova-Boncheva, S. Iordanova and A. Pashov: “Spectroscopic Study of Neutral Species in a Pulse Hydrogen Discharge”

8. M. Scepanović: “Stark Widths Predictions from Temperatures Dependencies of Several Multiply Charged Ions Spectral Lines”

**30 AUGUST 2018 (THURSDAY)**  
**Section 04: Atomic and Molecular Physics**  
**Hall Vihren**

**11:00 – 12:50 1<sup>st</sup> session (oral talks) Chair: A. Pashov**

11:00 – 11:30 N.V. Vitanov: “Composite pulses in quantum physics and classical optics”

11:30 – 11:50 S. Cohen, S. Danakas, P. Kalaitzis, F. Lepine, and C. Bordas: “Photoionization Microscopy on Magnesium Atom and Comparison with Hydrogenic Theory”

11:50 – 12:10 S. Falcinelli: “Coulomb Explosion and Fragmentation Dynamics of Propylene Oxide Dication”

12:10 – 12:30 P. Danev: “Electric Quadrupole Transitions in Deuterium Molecular Ion”

12:30 – 12:50 A. Atanasov: “Some Empiric Correlations between the Thermodynamic Properties of Butanoic acid, Aspartic acid, Glucose and Their Infrared Spectra”

**12:30 – 14:00 Lunch**

**17:30 – 19:00 Poster session**

1. P. Todorov, G. Pichler, T. Vartanyan, A. Sargsyan, D. Sarkisyan, A. Krasteva, S. Cartaleva: “High Resolution Spectroscopy of Dimer Molecules Formed in Cesium Vapor Layer of Micrometric Thickness”

2. I. Havalyova and A. Pashov: “Modeling Spectra Of Diatomic Molecules”

3. P. Kalaitzis, D. Spasopoulos, and S. Cohen: “One- and Two-photon Near-threshold Stark Spectra of Sr”

4. A. Georgiev, A. Blagoev and A. Pashov: “Detection of Neutral Tungsten by Laser-Induced Fluorescence”

5. V. Meshkov, E. Pazyuk, A. Stolyarov, A. Pashov: “Calculation of resonance states of coupled-channel radial Schrödinger equation”

6. T. Troev, L. Petrov, St. Peneva and B. Kolev: “ $\Gamma_d$  – Basic Parameters of Positron Lifetime Model Calculations for Body-Centered Cubic and Face-Centered Cubic Lattices”

7. Ts. Tolev, I. Bozhinova, S. Iordanova, G. Dobrev and A. Pashov: “Laser Absorption Spectroscopy of NiH Molecules”

8. Ivan Mančev and Nenad Milojević: “Charge Exchange in Fast p-O Collisions”

**30 AUGUST 2018 (THURSDAY)**

**Section 07: Optics and Lasers**

**Hall Vihren**

**14:00 – 15:30 3<sup>rd</sup> session (oral talks) Chair: P. Atanasov**

14:00 – 14:30 A. Dreischuh, L. Stoyanov, G. Maleshkov, M. Zhekova, I. Stefanov, S. Topuzoski, Lj. Janicijevic, P. Hansinger G. G. Paulus: “Manipulating the Topological Charges of Singular Optical Beams”

14:30 – 15:00 P. Atanasov: “Novel Physics Techniques for Ag and Au Surface Nanostructuring and Application to Surface Enhanced Raman Spectroscopy”

15:00 – 15:20 I. Uzunov, T. Arabadzhiev, and Z. Georgiev: “Transition of Stationary to Pulsating Solutions in the Complex Cubic-quintic Ginzburg-Landau Equation Under the Influence of Intrapulse Raman Scattering, Self-steepening and Nonlinear Gain”

**15:30 – 16:00 Tea/Coffee**

**16:00 – 16:40 4<sup>th</sup> session (oral talks) Chair: A. Dreischuh**

16:00 – 16:20 E. Karakoleva, B. Zafirova, A. Andreev and M. Kuneva: “Local Coordinate Systems in the Galerkin Method for Modeling of Photonic Crystal Fibers with Material Inclusions”

16:20 – 16:40 S. Topuzoski: “Transformation of a Laguerre-Gaussian LG(l,0) beam by the Combination of Axicon and Fork-Shaped Grating”

**17:30 – 19:00 Poster session**

1. Ts. Evgenieva and L. Gurdev: “Wavelength-Dependent Detectability of Saharan Dust Layers by Elastic Lidar through Clear and Hazy Atmospheres”

2. K. Nasyrov, S. Gateva, S. Tsvetkov, S. Cartaleva: “New Behavior of the D1 Line Hyperfine Spectrum of Rb Vapor in a High Quality Paraffin Coated Optical Cell”

3. S. Tsvetkov, S. Gateva, S. Cartaleva, E. Mariotti and K. Nasyrov: “Spin Randomization at Different Alkali Atoms Densities in AR Coated Cell”

4. L. Stoyanov, N. Gorunski, I. Stefanov, A. Dreischuh: “Formation of Stable Elementary Cells of Rigid Optical Vortex Lattices”

5. L. Stoyanov, G. Maleshkov, M. Zhekova, I. Stefanov, G. Paulus, A. Dreischuh: “Far-field Beam Reshaping of Square and Hexagonal Optical Vortex Lattices by a Second Identical Lattice”

6. M. Kuneva, S. Tonchev, E. Karakoleva: “Sensing Elements Based on Proton Exchange Technology in LiNbO<sub>3</sub> – a Short Overview”

7. N. Sultanova, S. Kasarova, I. Nikolov: “Refractive Index Considerations of Polymers for Optics”

8. I. Bliznakova, A. Daskalova, A. Zhelyazkova, A. Trifonov, L. Angelova, I. Buchvarov, L. Avramov: “Laser surface processing of ceramic composites for bone tissue engineering”

9. H. Kisov, G. Dyankov, V. Serbezov, V. Tankova, "DYE Doped Polymer Medium for Photonics Applications"
10. T. Dreischuh, L. Gurdev, O. Vankov, E. Toncheva, D. Stoyanov and L. Avramov: "Measuring the Radial Intensity Distribution of Backscattered Laser Light from Highly Scattering Media"
11. E. Alipieva, E. Taskova, G. Todorov and V. Polishchuk: "Peculiarities of the Nonlinear Magneto-Optical Fluorescence Resonances in a Paraffin-Coated  $^{87}\text{Rb}$  Cell"
12. S. Ognjanski, E. Taskova, E. Alipieva and E. Dimova: "Control of ultra-cold Rb atoms by external fields"
13. Lj. Stevanović, A. Maluckov, N. Filipović and V. Pavlović: "Spatial Solitary like Weak Probe Wave in the Three-level  $\Lambda$ -Type Atoms"
14. V. Atanassova, P. Penkova: "Selective laser cleaning of corroded metal objects"

**30 AUGUST 2018 (THURSDAY)**  
**Section 03: Gravitation and Cosmology**  
**Hall Ruen**

**11:00 – 12:30 1<sup>st</sup> session (oral talks) Chair: P. Nedkova**

11:00 – 11:20 I. Sakalli, G. Tokgoz: “Spectroscopy of Stringy Black Hole”

11:20 – 11:50 G.S. Djordjević: “Inflation and Stringy Cosmology”

11:50 – 12:10 B. Cuadros-Melgar, E. Abdalla, J. de Oliveira, A.B. Pavan, C.E. Pellicer: “Stability of Galileon Black Holes under Spinorial Perturbations”

12:10 – 12:30 M. Dimitrijević, D.D. Dimitrijević, G.S. Djordjević, M. Milosevic: “On Nonstandard Lagrangian as a Constrained System”

**12:30 – 14:00 Lunch**

**14:00 – 15:30 2<sup>nd</sup> session (oral talks) Chair: K. Staykov**

14:00 – 14:30 A. Bakopoulos, G. Antoniou, P. Kanti: “Novel Black Hole Solutions with Scalar Hair in Einstein-Scalar-Gauss-Bonnet Theories”

14:30 – 14:50 G. Lastovicka-Medin: “Dark Matter and Dark Energy: Experimental and Theoretical Overview”

14:50 – 15:10 S. Vossos, E. Vossos: “Explanation of Rotation Curves in Galaxies by Generalization of Schwarzschild Metric and Combination with MOND-type Theories Eliminating Dark Matter”

15:10 – 15:30 B. Dimitrov: “New Mathematical Models of GPS Intersatellite Communications in the Gravitational Field of the Near-Earth Space”

**15:30 – 16:00 Tea/Coffee**

**16:00 – 17:00 3<sup>rd</sup> session (oral talks) Chair: P. Nedkova**

16:00 – 16:20 J. Kunz, P. Nedkova, S. Yazadjiev: “Distorted Black Holes in an External Magnetic Field”

16:20 – 16:40 G. Gyulchev, P. Nedkova, V. Tinchev, S. Yazadjiev: “Cusp Structure in Shadows Casted by Rotating Wormholes”

16:40 – 17:00 K. Staykov, D. Doneva, D. Popchev, S. Yazadjiev: “Compact Stars in Massive Scalar-Tensor Theory with Extended Dilaton Potential”

**17:30 – 19:00 Poster session**

1. A. Shalyt-Margolin: “Minimal Quantities and Measurability Notion for Quantum Theory, Gravity and Thermodynamics: Basic Facts and Implications”

**30 AUGUST 2018 (THURSDAY)**  
**Hall Rodopi**

**18:00 – 19:00 Closing of the Conference**