

## Wednesday, July 6<sup>th</sup>, 2016

9:00 – 9:20      **OPENING**

### Plenary Session 1: *Atomic Layer Deposition and Assisted CVD Processes*

#### Part I.

Chair: **Emil Vlahov**

- 9:20 – 10:00      **Elżbieta Guziewicz**, T.A. Krajewski, G. Luka  
*Atomic Layer Deposition of semiconducting and dielectric films: tuning of structural, electrical and optical properties*
- 10:00 – 10:20      **Blagov S. Blagoev**, E. Vlahov, V. Videkov, B. Tzaneva, G. Luka, B. Witkowski, J. Leclercq, T.A. Krajewski, E. Guziewicz  
*Atomic Layer Deposition of ZnO:Al on PAA substrates*
- 10:20 – 10:40      **Orsolya Kéri**, E. Kocsis, L. Kócs, L. Kárpáti, Zs. Baji, B. Párditka, Z. Erdélyi, I.M. Szilágyi  
*ALD on polymers and inorganic nanoparticles*
- 10:40 – 11:00      **Nóra Justh**, K. László, B. Berke, B. Nagy, G. Mikula, L. Bakos, Z. Erdélyi, B. Párditka, K. Hernádi, G. Kiss, B. Réti, Zs. Baji, I. M. Szilágyi  
*Preparation of carbon nanomaterial/semiconductor oxide composites by atomic layer deposition*
- 11:00 – 11:30      *Coffee break*

#### Part II.

Chair: **Kostadinka Gesheva**

- 11:30 – 12:10      **Frank Hamelmann**  
*Thin Film Zinc Oxide deposited by CVD and PVD*
- 12:10 – 12:30      **Stefan Boyadjiev**, K. A. Gesheva, I. M. Szilágyi  
*Preparation of WO<sub>3</sub>/TiO<sub>2</sub> core/shell nanocomposites by controlled annealing and atomic layer deposition for electrochromic applications*
- 12:30 – 12:50      **Dávid Hunyadi**, E. Majzik, I. M. Szilágyi  
*Solid-gas phase synthesis of ammonium paratungstate and amine-WO<sub>3</sub> hybrid catalysts*
- 13:00 – 14:00      *Lunch*

**Wednesday, July 6<sup>th</sup>, 2016**

**Plenary Session 2: Assisted CVD Processes, Carbon Nanostructures**

**Chair: Peter Rafailov**

**14:00 – 14:40** **Vesselin Shanov**, N. Alvarez, L. Zhang, R. Malik, S. Gbordzoe, S. K. Narayan, M. Haase, M. Zhang, W. Cho, M. Schulz, D. Mast

*CVD synthesis, characterization and applications of carbon nanotubes and grapheme*

**14:40 – 15:20** **Evgeni Penev**, V. I. Artyukhov, B. I. Yakobson

*Chiral-selective carbon nanotube growth: New insights from computer experiments*

**15:20 – 15:40** **Peter Sveshtarov**, V. Mehandzhiev, J. Leclercq, B. Blagoev, D. Dimitrov

*The Growth of Graphene and Carbon Nanotubes: a Practical Application-Oriented Approach*

**15:40 – 16:10** *Coffee break*

**Plenary Session 3: Carbon Nanostructured Materials, Multifunctional Surfaces, Organic Layers**

**Chair: Vesselin Shanov**

**16:10 – 16:50** **Ciril Popov**

*Properties and applications of CVD nano- and ultrananocrystalline diamond films*

**16:50 – 17:10** **Peter Rafailov**

*Characterization of CVD grown graphene and carbon nanotubes with Raman Spectroscopy*

**17:30 – 18:30** **POSTER SESSION 1 – Topics 1, 2, 3**

Thursday, July 7<sup>th</sup>, 2016

**Plenary Session 4: Multifunctional Materials, Nanomembranes, Modeling, Characterization Techniques**

**Part I.**

Chair: **Julia Genova**

- 9:30 – 10:10**     **Alexander Petrov**  
*Disposable biosensors based on bilayer lipid membranes containing nanosized ion channels*
- 10:10 – 10:30**     **Hari Krishna Koduru**, M. Iliev, T. Vlachov, N. Scaramuzza  
*Investigations on Poly (ethylene oxide) (PEO) – blend based solid polymer electrolytes for sodium batteries*
- 10:30 – 10:50**     **Dimitar Mitev**, D. Peshev, G. Peev, L. Peeva  
*Antioxidant activity of membrane-fractionated coffee extracts in dependence of the storage*

**11:00 – 11:30**     *Coffee break*

**Part II.**

Chair: **Peter Rafailov**

- 11:30 – 12:10**     M. Castriota, **Enzo Cazzanelli**, A. Fasanella  
*Micro-Raman characterization of thin films for electrochromic applications*
- 12:10 – 12:30**     **Valentin Popov**  
*Two-phonon Raman scattering in single-layer graphene for laser excitation beyond the  $\pi$ -plasmon energy*

**12:30 – 14:00**     *Lunch*

**Thursday, July 7<sup>th</sup>, 2016**

**Plenary Session 4: *Multifunctional Materials, Nanomembranes, Modeling, Characterization Techniques***

Chair: **Victoria Vitkova**

**14:00 – 14:40**    **Ludmila Peeva**, J. Burgal, M. Cook, D Mitev, E Radeva, A Livingston  
*Preparation and Modification of Nanomembranes via CVD Methods*

**14:40 – 15:00**    **Georgi Popkirov**  
*The 'many faces' of the resistors used as building blocks of an equivalent circuit*

**15:00 – 15:30**    *Coffee break*

**Plenary Session 5: *Laser Induced Processes in Metal Oxide and Carbon Nanostructures***

Chair: **Anna Szekeres**

**15:30 – 16:10**    **Christian Mihailescu**, E. Symeou, R. Negrea, C. Ghica, V. Teodorescu, J. Giapintzakis  
*Low transition temperature in strain-free VO<sub>2</sub>/TiO<sub>2</sub> epitaxial thin films*

**16:10 – 16:30**    **Ekaterina Iordanova**, G. Yankov, N. E. Stankova, Ru.G. Nikov, R.G. Nikov, P.A. Atanasov, K.N. Kolev, Dr. M. Tatchev, M. Grozeva  
*Ultrafast laser irradiation applied for surface modification on medical grade PDMS*

**17:30 – 18:30**    **POSTER SESSION 2 – Topics 4, 5, 6, 7**

**Friday, July 8<sup>th</sup>, 2016**

**Plenary Session 6: PVD Thin Film Materials**

Chair: **Frank Hamelmann**

- 9:30 – 10:10**     **Claes - Goran Granqvist**  
*Thermochromic vanadium-dioxide-based thin films and nanoparticles: Survey of some buildings-related advances*
- 10:10 – 10:30**     **Miguel A. Arvizu**, C. G. Granqvist, G. A. Niklasson  
*Preliminary results on the rejuvenation of electrochromic DC sputtered MoO<sub>3</sub> thin films*
- 10:30 – 10:50**     **Kostadinka Gesheva**, M. Arvizu, G. Bodurov, T. Ivanova, G. Niklasson, M. Iliev, T. Vlachov, P. Terzijska, G. Popkirov, Y. Marinov  
*Optical, structural and electrochromic properties of sputter-deposited W–Mo oxide thin films*
- 11:00 – 11:30**     *Coffee break*

**Plenary Session 7: Solar energy, Photovoltaic coatings materials,  
Transparent conductive coatings**

Chair: **Georgi Popkirov**

- 11:30 – 12:10**     **Krassimir Denishev**  
*Some Metal Oxides and Their Applications for Creation of Microsystems (MEMS) and Energy Harvesting Devices*
- 12:10 – 12:50**     **Plamen Ivanov**  
Photovoltaic solar energy conversion devices fabricated by CVD processes: application and future developments
- 12:50 – 13:10**     **Maxim Ganchev**, M. Sendova-Vassileva, G. Popkirov, P. Vitanov  
Solution – processed nano sized thin films of molybdenum oxide after thermal treatment
- 13:10 – 13:30**     **CLOSING**
- 13:30 – 14:30**     *Lunch*
- 14:30 -**             **SOCIAL EVENT**

## POSTER SESSION 1 → Topics 1, 2, 3

- P1.1** G. Peev, D. Peshev, *How to avoid concentration unsteadiness with a CVD precursor delivery system employing bubbler?*
- P1.2** G. Peev, D. Peshev, *How to supply a CVD reactor with a steady-state mixture of two precursors vaporized from a single heated boat?*
- P1.3** I. Balchev, Kr. Tzvetkova, P. Terziiska, A. Szekeres, I. Miloushev, T. Tenev, M. Tsvetkov, G. Avdeev, R. Titorenkova, S. Kolev, T. Milenov, S. Tinchev, *Synthesis and characterization of diamond-like carbon films on (001) Si substrates*
- P1.4** Kr. Tzvetkova, I. Balchev, P. Terziiska, A. Szekeres, I. Miloushev, T. Tenev, T. Ivanova, S. Kolev, T. Milenov, S. Tinchev, *Synthesis and characterization of thin amorphous carbon films on (001) Si substrates*
- P1.5** E. Radeva, D. Mitev, P. Terziyska, L. Peeva, *PECVD Synthesis and Characterization of Thin Carbon Nanostructured Films*
- P1.6** O. Angelov, D. Stoyanova, I. Ivanova, *Antimicrobial effect of TiO<sub>2</sub> doped with Ag and Cu on Escherichia coli and Pseudomonas putida*
- P1.7** A. Vasev, I. Ilievska, V. Mihailov, S. Karatodorov, V. Petrov, A. Stoyanova-Ivanova, *Elemental composition analyses of heat activated archwires during orthodontic treatment*
- P1.8** O. Angelov, D. Stoyanova, S. Todorova, I. A. Ivanova, *Antimicrobial effect of Al<sub>2</sub>O<sub>3</sub>, Ag and Al<sub>2</sub>O<sub>3</sub>/Ag thin films on Escherichia coli and Pseudomonas putida*
- P1.9** S. I. Boyadjiev, I. M. Szilágyi, N. Serban, A. Visan, N. Stefan, I. N. Mihailescu, M. Zaharescu, K. A. Gesheva, *Characterization of PLD and MAPLE deposited WO<sub>3</sub> thin films for electrochromic applications*
- P1.10** S. Kolev, I. Balchev, C. Tzvetkova, T. Milenov, *Ab Initio Molecular Dynamics Simulation of Graphene*
- P1.11** G. Kolev, M. Aleksandrova, K. Denishev, B. Tzaneva, *Chemical microsensor for ammonia (NH<sub>3</sub>), using thin film of ZnO*

## POSTER SESSION 2 → Topics 4, 5, 6,7

- P2.1** B.S. Blagoev, E. Vlahov, G. Łuka, M. Iliev, P. Terziyska, T.A. Krajewski, E. Guziewicz, *Impedance investigations of TiO<sub>2</sub>/ZnO/Al<sub>2</sub>O<sub>3</sub> sandwich structures on Si substrate obtained by ALD*
- P2.2** D. Spassov, U. Paskaleva, E. Guziewicz, G. Łuka, T. A. Krajewski, K. Kopalko, A. Wierzbicka, B. Blagoev, *Electrical characteristics of multilayered HfO<sub>2</sub> – Al<sub>2</sub>O<sub>3</sub> charge trapping stacks deposited by ALD*
- P2.3** H. Tonchev, A. A. Donkov, H. Chamati, *Numerical study of a single mode field cavity interacting with a spin-½ XY spin chain molecule*
- P2.4** D. Nesheva, M. Šćepanović, M.-G. Brojčin, V. Dzhurkov, S. Kaschieva, I. Bineva S. N. Dmitriev, Z. V. Popović, *Photoluminescence from 20 MeV electron beam irradiated homogenous SiO<sub>x</sub> and composite Si-SiO<sub>x</sub> films*
- P2.5** J. X. Wang, A. M. Nilsson, G. A. Niklasson, *Light Scattering by 2D- and 3D- Angle - Resolved Spectroscopy*
- P2.6** V. Tomov, P. Rafailov, E. Vlaikova, *Raman characterization of as grown and transferred graphene synthesized on Ni catalyst*
- P2.7** P. Terziyska, B. Blagoev, A. Szekeres, D. Dimitrov, V. Mehandzhiev, *Optical properties of ZnO films doped with Al, deposited by ALD: A Spectroscopic Ellipsometry Study*
- P2.8** T. Ivanova, A. Harizanova, T. Koutzarova, B. Vertruyen, *Characterization of nanostructured TiO<sub>2</sub>:Ag films: structural and optical properties*
- P2.9** D.Z. Dimitrov, C.-H. Liu, C.-H. Liu, J.-Y. Juang, *CaMn<sub>7</sub>O<sub>12</sub> thin films prepared by pulsed laser deposition*
- P2.10** N. Mihailescu, A. Ficai, C. Ristoscu, C.N. Mihailescu, L. Floroian, M. C. Chifiriuc, I. Negut, C. Bleotu, I.N. Mihailescu, *Bioactive glass thin films synthesized by advanced pulsed laser techniques*
- P2.11** M. Sopronyi, F. Sima E. Axente, I. N. Mihailescu, *Combinatorial Matrix Assisted Pulsed Laser Evaporation: thin films deposition of two biocompatible materials with variable composition*
- P2.12** Hr. Dikov, T.Ivanova, P. Vitanov, *Oxide/ metal/oxide nanolaminate structures for application of transparent electrodes*
- P2.13** M. Sendova-Vassileva, Hr. Dikov, P. Vitanov, G. Popkirov, R. Gergova, G. Grancharov, V. Gancheva, *Magnetron Sputtered Molybdenum Oxide for Application in Polymers Solar Cell*
- P2.14** E. Dimova, A. Rangelov, E. Kyoseva, *Broadband and ultra-broadband polarisation rotators composed by stacks of ordinary half-wave plates*
- P2.15** V. G. Ivanov, N. D. Todorov, L. S. Petrov, E. S. Vlahov, T. Ritacco, M. Giocondo, *Strong surface enhanced Raman scattering from gold nanoarrays obtained by direct laser writing*