SURFACE ENGINEERING FOR BIOMEDICAL APPLICATIONS

Engineering with a Medical Perspective: Future Begins Today

PROGRAM

11 November 2020

BG TIME	LECTURER	PASSWORD
08:30 – 9:15	Establishing of Connection Administration & Technical Remarks	
09:15 – 09:30	Opening Remarks: ***Academician Prof. Bogdan Petrunov, MD, PhD, DSc,*** ***Chairman of the Board of Trustees of MU-Pleven,*** ***Prof. Slavcho Tomov, MD, PhD, DSc, MU-Pleven and*** ***Prof. Petar Petrov, DSc, IE, BAS***	
I panel: BIOENGINEERING AND FUNDAMENTAL APPLICATIONS **Chaired by: *Chief Assist. Prof.* Stefan Valkov, PhD** ***Institute of Electronics, BAS***		
	Oral presentations	
09:30 – 09:40	***1. Influence of femtosecond laser processing parameters on surface morphology and wettability properties of polylactic acid (PLA)*** ***Assoc. Prof. Albena Daskalova, PhD*** ***Institute of Electronics, BAS***	
09:40 – 09:50	***2. Ultra-short laser modification of chitosan/ silver nanoparticles (AgNPs) thin films for potential antimicrobial applications*** ***Assoc. Prof. Ekaterina Iordanova, PhD*** ***Institute of Solid State Physics, BAS***	
09:50 – 10:00	***3. Impact of base pressure, post annealing and ageing on electrical properties of silver nanofilms*** ***Shiva Udachan*** ***Rani Channamma University, Karnataka, India***	
10:00 – 10:10	***4. Enhanced acetone-sensing properties of ZnO–noble metals composite nanostructures*** ***Assoc. Prof. Anna Dikovska, PhD*** ***Institute of Electronics, BAS***	

10:10 – 10:15	***5' Technical Brake***	
10:15 – 10:25	***5. Effect of interfacial compatibilization on PLA/Mg biocomposites for bioresorbable implants*** ***Meriam Ben Abdeljawad*** ***Laboratory of Polymeric and Composite Materials (SMPC), Center of Innovation and Research in Materials and Polymers (CIRMAP), University of Mons, Belgium***	
10:25 – 10:35	***6. Atmospheric plasma: a simple way to improve the interface between polysaccharides and polyesters*** ***Xavier Carette*** ***Laboratory of Polymeric and Composite Materials (LPCM), University of Mons, Belgium***	
10:35 – 10:45	***7. A femtosecond laser-based strategy to modulate the race for the surface: micro/nanostructured ceramics surfaces to improve osteogenic differentiation and diminish bacterial adhesion*** ***Angela Carvalho[1,2]*** ***[1]i3S - Instituto de Investigação e Inovação em Saúde, U. Porto, Portugal; [2]INEB - Instituto de Engenharia Biomédica, U. Porto, Portugal***	
10:45 – 10:50	***5' Technical Brake***	
	Plenary lectures	
10:50 – 11:20	***8. Femtosecond laser surface treatment for application in biomedicine*** ***Prof. Rui Vilar*** ***Technical University of Lisbon, Lisbon, Portugal***	
11:20 – 11:50	***9. Laser synthesis of the new Ti-based alloys for prosthetic application*** ***Prof. Amelia Almeida*** ***Technical University of Lisbon, Lisbon, Portugal***	
11:50 – 13:00	***Lunch Break***	
II panel: NEW MATERIALS AND TECHNIQUES FOR BIOMEDICAL APPLICATIONS **Chaired by: *Assoc. Prof. Albena Daskalova, PhD*** ***Institute of Electronics, BAS***		
	Plenary lectures	
13:00 – 13:30	***10. Hybrid functionalized biomaterials for tissue engineering*** ***Prof. Endzhe Matykina*** ***Departamento de Ingenieria Química y de Materiales, Facultad de Ciencias Químicas, Universidad Complutense, 28040 Madrid, Spain***	

13:30-14:00	**11.** ***Graphene potential for optoelectronic and biomedical application*** ***Prof. Vera Marinova*** ***Institute of Optical Materials and Technologies (IOMT-BAS), Sofia 1113, Bulgaria***	
14:00 – 14:05	***5' Technical Brake***	
	Oral presentations	
14:05 – 14:15	**12.** ***Structure and biocompatibility of PVD deposited TiN/TiO_2 coatings on electron beam treated Ti6Al4V alloy*** ***Assoc. Prof. Maria Nikolova, PhD*** ***Dept. of Material Science and Technology, University of Ruse "A. Kanchev", Ruse, Bulgaria***	
14:15 – 14:25	**13.** ***The altered behavior of mesenchymal stem cells on 2D collagen matrices in oxidative environment*** ***Svetoslava Stoycheva*** ***Department of Biochemistry, Medical University-Pleven, Bulgaria***	
14:25 – 14:35	**14.** ***Electron-beam surface alloying of Ti substrate with Ta films*** ***Chief Assist. Prof. Stefan Valkov, PhD*** ***Institute of Electronics, BAS***	
14:35 – 14:45	**15.** ***Roughness and mechanical properties of electron beam surface modified and TiN/TiO_2 coated Ti6Al4V alloy for biomedical application*** ***Assoc. Prof. Maria Nikolova, PhD*** ***Dept. of Material Science and Technology, University of Ruse "A. Kanchev", Ruse, Bulgaria***	
14:45 – 14:55	**16.** ***Surface modification of Co-Cr-Mo alloys by electron beam treatment*** ***Chief Assist. Prof. Stefan Valkov, PhD*** ***Institute of Electronics, BAS***	
14:55-15:05	**17.** ***Biogenic ferroxides for application in electronics, biomedicine and biotechnology derived from leptothrix bacteria*** ***Ralitsa Angelova, PhD*** ***Institute of Electronics, BAS***	
15:05 – 15:10	***5 ' Technical Brake***	

III panel: APPLICATION OF MODERN ENGINEERING TECHNOLOGIES IN THE MEDICINE **Chaired by: Assoc. Prof. Nadia Veleva, PhD** **Medical University - Pleven**		
	Plenary lectures	
15:10 – 15:40	***18. Haemo-compatibility of plasma-treated vascular implants*** ***Prof. Miran Mozetič*** ***Department of Surface Engineering, Jozef Stefan Institute, Ljubljana, Slovenia***	
15:40 – 16:10	***19. How robotics has changed modern surgery*** ***Prof. Slavcho Tomov, MD, PhD, DSc*** ***Medical University – Pleven, Bulgaria***	
16:10 – 16:40	***20. Comparative analysis of robot-assisted and abdominal radical hysterectomy for patients with cervical cancer*** ***Prof. Grigor Gorchev, MD, PhD, DSc, Corresponding member of Bulgarian AS***	
16:40 – 16:45	***5 ' Technical Brake***	
	Oral presentations	
16:45 – 16:55	***21. Investigation of the deviation during the information transfer from the prosthetic field to the laboratory scanners*** ***Hristina Galeva*** ***Faculty of Dental medicine, Medical University, Sofia, Bulgaria***	
16:55 – 17:05	***22. Effect of deposition parameters on the structural and mechanical stability of Ta-based coatings deposited on polymers for biomedical applications*** ***Assoc. Prof. Nikolai Donkov, PhD*** ***Institute of Electronics, BAS***	
17:05 – 17:15	***23. The digital axiograph – a novel tool in bruxism prevention*** ***Iva Taneva*** ***Faculty of Dental medicine, Medical University, Sofia, Bulgaria***	
17:15 – 17:25	***24. All-optically controlled density of alkali atom vapors for biomagnetic sensing applications*** ***Chief Assist. Prof. Stoyan Tsvetkov, PhD*** ***Institute of Electronics, BAS***	

17:25 – 17:35	**25.** ***Genetic landscape of primary lung adenocarcinoma - single institution experience*** ***Assoc. Prof. Nataliya Chilingirova, MD, PhD*** ***Science and Research Institute, Medical University – Pleven, Bulgaria***	
17:35 – 17:40	***5 ' Technical Brake***	
17:40 – 17:50	**26.** ***Atmospheric particulate matter pollution over residential urban areas during COVID-19 Quarantine*** ***Prof. Ivan Nedkov, DSc*** ***Institute of Electronics, BAS***	
17:50 – 18:00	**27.** ***3D bioprintinng of vascularised bone tissue: current advances and challenges*** ***Vladislav Nankov, University Scientific Research Laboratory, Medical University – Pleven, Bulgaria***	
18:00 – 18:10	**28.** ***Stereotactic vacuum aspiration biopsy of the breast – current indications and technical challenges*** ***Prof. Dobromir Dimitrov, MD, PhD*** ***Medical University – Pleven, Bulgaria***	
18:10 – 18:20	**29.** ***Clinical application of Next generation sequencing technology*** ***Prof. Katia Kovacheva, MD, PhD*** ***Medical University – Pleven, Bulgaria***	
18:20	Closing Remarks	