Scientific Programme

20TH INTERNACIONAL CONFERENCE ON SURFACE MODIFIDATION OF MATERIALS BY ION BEAMS

Lisbon, 9-14 th of July 2017

Wednesday - July 12: Biomedical and Applications

09:00	**Session VIII** Chair: Iñigo Braceras	PL-03: Giovanni Marletta (Italy) - Ion beams for nanomedicine: driving biosystem at nanostructured interfaces		
09:45		I-09: Paul Chu (China) - Plasma surface modification of biomaterials		
10:15		I-10: Noriaki Toyoda (Japan) - Enhancement of cell adhesion on PEEK with gas cluster ion beam irradiation		
10:45	Coffee-break			
11:15	**Session IXa** Chair: Paul Chu	O-37: L.D. Yu (Thailand) - Ultra-low-energy C-ion beam modification effect on DNA cooperated with Geant4-DNA	**Session IXb** Chair: João Cruz	O-40: Rantej Bali (Germany) - Ion induced magnetic phase transitions in B2 alloys
11:35		O-38: Emel Sokullu (Turkey) - Surface characterization and bioactivity behavior of gold implanted poly(L-lactose)		O-41: Sérgio Magalhães (Portugal)* - Crystal damage analysis of Ar implanted Al1-xGaxN (0≤x≤1) by X-ray diffraction
11:55		O-39: Wolfgang Ensinger (Germany) - Sputtering of nanostructured silver coatings for the preparation of Ag-containing DLC		O-42: Jinglai Duan (China) - Sharp nanoridge boosted cascaded optical field enhancement in nanopillar-nanogroove plasmonic hierarchical architecture for quantitative and ultrasensitive SERS detection
12:15	Lunch			
14:00-23:00	**Social Program and Banquet**			

*Young Student Award

BOOK OF ABSTRACTS

20TH INTERNACIONAL CONFERENCE ON SURFACE MODIFIDATION OF MATERIALS BY ION BEAMS

Plasma surface modification of biomaterials

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Biomaterials interact with biological tissues and fluids depending on the surface properties of the biomaterials and induced biological responses. Many types of biomaterials possessing desirable bulk properties such as strength, hardness, sturdiness, and surface chemistry may not induce the proper and pre-designed biological functions and therefore, surface modification is commonly adopted to improve selective chemical, physical, and biological properties of the biomaterials to cater to the biological environment. Plasma technology offers the unique capability that certain surface properties can be modified to address specific biological requirements and the favorable bulk attributes of the biomaterials such as those mentioned above can be preserved. In particular, plasma immersion ion implantation and deposition (PIII&D) is one of the widely used plasma-based surface treatment techniques for biomaterials and biomedical implants. Being a non-line-of-sight technique, it is particularly suitable for biomedical devices and implants with a complex shape including orthopedic and dental implants, scoliosis correction rods, cardiovascular stents, and artificial heart valves. In this invited presentation, recent research conducted in the Plasma Laboratory of City University of Hong Kong related to plasma treatment of biomaterials and biomedical devices will be described. Examples will include biocompatibility of nanostructured coatings, bio-functionalized surfaces, biodegradable metals, antimicrobial properties, and osteogenesis.