



Symposium D: Surface Engineering: fabrication, characterization, properties and applications of protective coatings and modified surfaces

Scope of the Symposium

The aim of this symposium is to offer an overview on the frontiers of research, technology and applications of protective coatings and surface modifications by plasma, electron, ion or laser beams. Physicists, chemists, materials scientists, mechanical, material, metallurgical and mining engineers working in the field are the target audience. Areas of particular interest will include, but will not be limited to

- Nanostructured coatings, such as diamond-like carbon films, nanodiamond films, multi-component systems based on transition metal nitrides or oxides, hard nanocomposites and multi-functional nanolaminates, with a wide range of applications (automotive and machinery industries, aeronautic and aerospace industries, mining industry, oil and gas industry, medical implants, decoration, electronic industry, etc).
- Surface modifications induced by energetic techniques such as ion implantation, laser treatment, plasma processing, etc.
- Physical and chemical routes of synthesis with emphasis on emerging techniques: hybrid sputtering/CVD techniques, highly ionized sputter deposition, ion enhanced pulsed laser deposition, plasma-assisted chemical vapor deposition, atmospheric plasma, pulsed plasma, plasma-based ion implantation, activated reactive evaporation, cathodic arc, etc.
- Fundamentals of deposition processes, growth modeling, substrate/surface effects, residual stresses;
- Characterization and properties of protective coatings and modified surfaces, including morphology, microstructure, composition, mechanical and tribological properties, tribochemistry, MEMS/NEMS interfaces and chemical properties comprising chemical inertness, anti-microbial or self-cleaning finalities.

Abstracts will be solicited in (but not limited to) the following areas:

- ultra-low friction coatings
- recent progress in nanoindentation
- micro and nanotribology
- super hard coatings
- new deposition techniques
- coatings for oil and gas industry
- hydrophobic and hydrophilic coatings
- nanostructured coatings
- surface metrology
- Negative thermal expansion materials

X Encontro da SBPMat

Gramado-RS

25 a 29 | setembro
2011



X Brazilian MRS Meeting 2011

Tentative list of invited speakers

Pedro Grande (UFRGS, Brazil), **Thomas Hirsch** (Stiftung Institut Werkstofftechnik, IWT Bremen, Germany), **M.P Delplanckee-Ogletree** (Univ. Libre de Bruxelles, Belgium), **T. Belmonte** (Institut Jean Lamour, France).

Organizers:

Fernando Lázaro Freire Junior (Departamento de Física, PUC-Rio).

Carlos Alejandro Figueroa (Centro de Ciências Exatas e Tecnologia - Universidade de Caxias do Sul, RS).

Scientific Committee of the Symposium:

- Amilton Sinatora (USP)
- Clodomiro Alves (UFRN)
- Francisco Marques (UNICAMP)
- Israel J. R. Baumvol (UCS)
- Lívio Amaral (UFRGS)
- Sérgio de Souza Camargo (UFRJ)
- Vladimir Jesus Trava-Airoldi (INPE)

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