

**EUROMAT 2017/ Symposia Structure/Area C: Processing**

Title: Coatings and Surface Modification Techniques		
Organizer	Institution	Contact e-mail
Elias Aperathitis	FORTH, GR	<a href="mailto:eaper@physics.uoc.gr">eaper@physics.uoc.gr</a>
Albano Cavaleiro	Univ. Coimbra, PT	<a href="mailto:albano.cavaleiro@dem.uc.pt">albano.cavaleiro@dem.uc.pt</a>
Rainer Cremer	KCS Europe, DE	<a href="mailto:cremer@kcs-europe.de">cremer@kcs-europe.de</a>
Ru Lin Peng	Linköping Univ, SE	<a href="mailto:ru.peng@liu.se">ru.peng@liu.se</a>
<b>Summary</b>		
<p>Recent innovations and research in materials, coatings and processes are designed to make surfaces or substrates more useful, more durable in harsh environments (high-T (temperature), high-P (stress), corrosive, etc.) and/or more cost effective.</p> <p>This symposium addresses current scientific and technological progress in traditional and cutting edge coating and thin film processes as well as surface modification treatments or techniques such as vacuum-based processes, electroless deposition, plasma processing, ion-beam methods, thermal and chemical diffusion, hardfacing and anodization.</p> <p>Important topics to be covered include, but are not limited:</p>		
<b>C.1</b>	<p><b>C1.1: Coatings and thin films</b></p> <ul style="list-style-type: none"> <li>• Relations between synthesis conditions, microstructure and properties of thin films</li> <li>• Mechanical, electrical, optical and sensing properties of thin films</li> <li>• Wear&amp; low-friction mechanism identification using advanced surface analytical techniques</li> <li>• Coatings with advanced properties (self-cleaning, wettability, smart coatings, thermal barrier coatings, bioactivity, anti-fouling, anti-bactericide, etc)</li> <li>• Metallic coatings for oxidation and corrosion protection (deposition, properties, performance, and modelling)</li> <li>• Applications of films and coatings</li> </ul>	
	<p><b>C1.2: Coatings deposition routes and novel characterization techniques</b></p> <ul style="list-style-type: none"> <li>• Plasma deposition and related technologies</li> <li>• Diagnostics and modeling of plasma during deposition</li> <li>• Development of new PVD sources and low damage deposition techniques</li> <li>• New coating technologies, pulsed plasmas, HiPIMS and industrial coating units</li> <li>• Fabrication of nanoparticles and nanostructures by plasma based methods.</li> <li>• Non-plasma deposition of coatings and thin films (CVD, laser assisted, plating, electrodeposition, etc)</li> <li>• Novel fabrication and synthesis routes</li> <li>• Investigation of initial phases of thin films growth</li> <li>• In situ characterization of coatings during deposition</li> <li>• High resolution characterization techniques of thin films</li> </ul>	
	<p><b>C1.3: Surface engineering and modification for coatings and substrates with tailored and enhanced properties</b></p> <ul style="list-style-type: none"> <li>• Chemical methods for surface modification (electroless, anodization, electrochemical,...)</li> <li>• Non chemical methods for surface modification (thermal, photons, laser, ions, spraying, machining, mechanical treatments, etc)</li> <li>• Hybrid coatings deposition routes with in situ surface engineering</li> </ul>	

- Surface engineering for performance and durability in gas turbine and aero engine applications.

**Confirmed Invited Speakers**

- Dr. N. Bagcivan, Schaeffler AG
- Dr. M. Bender, Applied Materials GmbH & Co.
- Prof. T. Polcar, Univ. of Southampton