

EUROMAT 2017/ Symposia Structure/Area C: Processing

C1	Title: Coatings and Surface Modification Techniques		
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	Summary		
	<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>		
	<p>C1.1: Coatings and thin films</p> <ul style="list-style-type: none"> • Relations between synthesis conditions, microstructure and properties of thin films • Mechanical, electrical, optical and sensing properties of thin films • Wear& low-friction mechanism identification using advanced surface analytical techniques • Coatings with advanced properties (self-cleaning, wettability, smart coatings, thermal barrier coatings, bioactivity, anti-fouling, anti-bactericide,etc) • Metallic coatings for oxidation and corrosion protection (deposition, properties, performance, and modelling) • Applications of films and coatings 		
	<p>C1.2: Coatings deposition routes and novel characterization techniques</p> <ul style="list-style-type: none"> • Plasma deposition and related technologies • Diagnostics and modeling of plasma during deposition • Development of new PVD sources and low damage deposition techniques • New coating technologies, pulsed plasmas, HiPIMS and industrial coating units • Fabrication of nanoparticles and nanostructures by plasma based methods. • Non-plasma deposition of coatings and thin films (CVD, laser assisted, plating, electrodeposition, etc) • Novel fabrication and synthesis routes • Investigation of initial phases of thin films growth • In situ characterization of coatings during deposition • High resolution characterization techniques of thin films 		
<p>C1.3: Surface engineering and modification for coatings and substrates with tailored and enhanced properties</p> <ul style="list-style-type: none"> • Chemical methods for surface modification (electroless, anodization, electrochemical,...) • Non chemical methods for surface modification (thermal, photons, laser, ions, spraying, machining, mechanical treatments, etc) • Hybrid coatings deposition routes with in situ surface engineering • Surface engineering for performance and durability in gas turbine and aero engine applications. 			