

EUROMAT 2019 / Area D

SYMPOSIUM: D1

Title: Materials Science with Synchrotron Radiation and Free Electron Lasers		
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Abstract		
<p>This symposium intends to bridge the gap between the synchrotron radiation (SR) and free electron laser (FEL) methods and innovative materials research. It aims at fostering the dialog between materials scientists and experts in SR and FELs.</p> <p>Thanks to orders of magnitude improvements in source brilliance and increased availability, great progress in the application of SR methods to materials science has been made. An improved control of the space-time structure of the probing photons and the concurrent development of sophisticated experimental set-ups and data analysis schemes is resulting in highly refined characterization of materials and devices. Very recently, FEL sources with extraordinary characteristics (brilliance, coherence, pulse duration) have become available, opening new research opportunities.</p> <p>We welcome abstracts on:</p> <ul style="list-style-type: none">• Novel applications of SR and FEL methods to the study and characterization of advanced materials and devices.• New instruments, methods and/or analysis tools and protocols.• Complementary studies with laboratory sources. <p>The program will be defined with particular attention to the following focus topics:</p> <ul style="list-style-type: none">• Time resolved investigations: from seconds to femtoseconds.• Nanostructured materials and thin films, nanoparticles and nanowires• Advanced spectroscopies: absorption, emission, resonant and non - resonant.• Materials for energy conversion and storage• Novel in-situ techniques for catalysis and electrochemistry• Structures and processes at surfaces and interfaces• Novel imaging techniques:<ul style="list-style-type: none">○ In situ characterisation of materials <i>in operando</i> in complex environment (<i>batteries, fuel cells, high pressure, temperature...</i>)		

- High resolution (*nanotomography, ptychography*)
- High (to very high) speed imaging ("*deep*" *sub second radiography, sub second tomography*)