

# EUROMAT 2019 / Area C: Processing

## SYMPOSIUM: C10

Title: Severe Plastic Deformation and Thermomechanical Processing: Nanostructuring and Properties		
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<b>Abstract</b>		
<p>Severe plastic deformation (SPD) is a very attractive research field for metallic materials because it provides new possibilities for manufacturing nanostructured materials in large quantities and allows microstructural design on different hierarchical levels. Besides also through Thermo-Mechanical Processing (TMP) or combinations of TMP and SPD, ultra-fine-grained structure in bulk materials can be achieved by the refinement of phases by using hot, warm, cold and even cryogenic deformations, or combination of them. In addition to grain size refinement, several metallurgical processes, highly desirable for alloy design take place during SPD. Among them are mechanically driven phase transformations, formation of metastable phases, grain boundary engineering and the formation of desirable textures. This Symposium provides a unique opportunity to bring together experts working in the field of SPD in order to discuss the actual scientific problems in the field.</p>		
<p><b>Topics of interest, as they relate to advanced manufacturing processes, include, but are not limited to:</b></p> <ul style="list-style-type: none"><li>• novel SPD processes as well as recent advancements of established processing methods.</li><li>• deformation mechanisms, microstructure evolution and grain refinement in single- and multi-phase alloys as well as composites</li><li>• strategies to enhance the microstructure stability at elevated temperatures</li><li>• mechanically driven phase transformations in UFG materials related to SPD-processing</li><li>• surface nanocrystallization by SPD, gradient and layered nanostructures and multilayered materials</li><li>• SPD for structural and functional applications (biomaterials, H-storage materials, ...)</li><li>• mechanical and physical properties of SPD-processed materials</li></ul>		
<p><b>NOTE: Papers submitted to the Symposium will be considered for publication in a special issue of "Metals", an Open Access Journal by MDPI. The deadline for the</b></p>		

submission of the full paper is October 10, 2019.