Chairman	Diplas S. - Amin S. Azar
Topic	*Structural Integrity of Materials Processed by Additive Manufacturing Technologies*
Objectives	Advances in additive manufacturing (AM) places this key enabling technology in the forefront of physical processing routes used to produced complex single- and/or multi-material geometries. Variations in physicochemical and mechanical properties of additive manufactured products have their origin amongst others, in the surface condition of the feedstock powder and the built layers as well as the anisotropy generated due to the directional building process. These properties subsequently affect the material structural integrity and in-service performance in terms of corrosion, fracture, mechanical and wear behavior. Moreover, additive manufacturing is often followed by post processing such as heat treatments and hot/cold isostatic pressing, which would also influence/alter the microstructure and consequently the mechanical properties and structural integrity of the material. The aim of this session is to elevate the understanding of the behavior of additively manufactured materials in comparison with materials produced through conventional processing routes such as casting, rolling, extrusion, forging etc. Emphasis will be given on the effect of processing and post-processing on degradation mechanisms via an understanding of the process parameters on the microstructure, surface conditions, material texture/anisotropy and mechanical/environmental behavior. Simulations/modelling of processing and (micro) structures are necessary to verify the performance of AM materials and products. Abstracts should thus refer to experimental and/or theoretical/modelling studies which focus on and/or relate various aspects within processing, microstructure, properties and performance of additive manufactured materials or products. Topics The session addresses the following topics: • Modern and emerging AM processes and their effect on improved material performance. • Breakthrough performance and applications for AM materials. • AM processes and benchmarking of different process routes on the same material. • New materials produced by additive manufacturing. • New material and geometry design possibilities targeting to unique combination of properties. • Hybrid and composite materials • Advanced characterisation, modelling and testing of AM materials. • In-situ, real time monitoring of AM processing.