

EUROMAT 2019 / Area C: Processing

SYMPOSIUM: C3

| Title: Challenges in Powder Technologies | | |
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| Abstract | | |
| Scope The symposium covers both fundamental and applied topics concerning any processing step involving powders, either metals, ceramics or composites, including those reinforced with carbon phases. Special attention will be given to the relationships between shaping and microstructure, focusing on the nanoscale and microscale development of microstructure and the production of multimaterials and/or multifunctional systems. | | |
| Description Research and development in particle technology, including all stages of powder processing, such as novel routes of synthesis by chemical or physical routes, new green and energy efficient processing, modification of powders through beneficiation and granulation, shape forming, sintering and modelling and simulation. New science concerning the design and manufacture of metals, ceramics and composites with complex shapes and tailored microstructures will be in focus, as well as the powder processing of materials with especial functionalities including aligned porosity, texturation, lamination, etc. Besides, the frame of the symposium will be used as a placed to discussed sintered structural materials for high performance. | | |
| Targeted topics These themes (that cover Powder Manufacturing and Processing) will be developed by focusing attention on (not exclusively): | | |
| <ul style="list-style-type: none">• Green and Energy Efficient Processing.• Novel powder synthesis routes.• Beneficiation, comminution and granulation.• Colloidal dispersion and surface modification (thin and thick films and coatings).• Colloidal processing and shaping.• Mechanical alloying and high energy milling.• Shaping of porous materials.• Shaping of complex micro- and nanostructures. | | |

- Plastic forming.
- Solid freeform manufacturing.
- Sintering and liquid phase sintering.
- Non-conventional and fast sintering techniques (SPS, flash sintering, microwaves sintering, etc..).
- Secondary and finishing operations.
- Mechanical characterization.
- Modelling and simulation.