



Symposium J: Solidification of metals and alloys

Scope of the Symposium

This proposal refers to a general symposium covering several topics in solidification science. Solidification is a multidisciplinary field of high importance for comprehension of industrial processing involving molten alloys such as welding, continuous casting, powder metallurgy and foundry. Process limits are still present and are to be overcome. Many groups in Brazil and abroad have carried out valuable research regarding to particular subjects like nucleation, macrostructure, structural transitions, as-cast microstructure, porosity, inverse segregation, metal/mold interface, interdendritic fluid flow, and mechanical properties of as-cast metals. All these topics have been studied following either experimental or modeling approaches, with remarkable complementary aspects between them. Nowadays, complementary research has been developed concerning the evaluation of experimental data from stationary and transient directionally solidified alloys.

Abstracts will be solicited in (but not limited to) the following areas:

- Dendritic and cellular growth
- Correlations between dendritic/cellular arrangement and mechanical properties Negative compressibility
- Corrosion resistance of as-cast structures
- Zone melting
- Microsegregation and macrosegregation in binary and ternary alloys
- Porosity in binary and ternary aluminium alloys
- Modeling of heat and mass transfer during solidification
- Laser surface remelting (LSR)
- Eutectic and monotectic growth
- Bridgman technique
- Continuous casting
- Influence of convection on as-cast structures

Tentative list of invited speakers

Jaime Alvares Spim Jr (LAFUN/UFRGS)

Carlos Alexandre dos Santos (PUCRS)

Prof. Guillaume Reinhart (IM2NP - Institut Matériaux Microélectronique Nanoscience de Provence, France)

Organizers:

José Eduardo Spinelli, DEMa/UFSCar, Brazil

Amauri Garcia, DEMa/FEM/UNICAMP, Brazil

Nathalie Manginck-Noël, Institut Matériaux Microélectronique Nanoscience de Provence, France.