Symposium K: i-Caloric Materials and Applications

Scope of the Symposium

This symposium is focused on materials that present at least one of the i-caloric effects and, in addition, have emerging technological applications. The general definition of i-caloric effect can be stated as a thermal response of the material when exposed to a change of external perturbations (where i stands for intensive thermodynamic variable, including external fields). The nature of the response depends on the thermodynamic process performed on the material. The effects are characterized by a temperature change, when the material undergoes an adiabatic process; or an entropy change, when the material undergoes an isothermal process. Depending on the nature of this external perturbation (magnetic field, electric field or stress), i-caloric effects can be categorized as magnetocaloric effect, electrocaloric effect and mechanocaloric effect. Mechanocaloric effect can still be divided in elastocaloric effect, driven by uniaxial stress; barocaloric effect, driven by isotropic stress variations; and torsiocaloric effect, driven by pure shear stress of torsion. It is worth mentioning that a few materials present more than one i-caloric effect and are called multicaloric materials.

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

- Materials: theory
- Materials: experimental
- Devices: theory, design
- Devices: experimental
- Other experimental setups
- Novel effects and applications

Tentative list of invited speakers (To be confirmed)

Victorino Franco (Universidad de Sevilla) Paulo Vinicius Trevizoli (Universidade Federal de Minas Gerais) Joo Pedro Esteves Arajo (Universidade do Porto) Valdirene Sullas Teixeira Peressinotto (Companhia de Desenvolvimento de Minas Gerais (CODEMGE))

Symposium Organizers

Alexandre Magnus Gomes Carvalho (CNPEM) Mario de Souza Reis Junior (UFF) Jader R. Barbosa Jr. (UFSC) Vladimir I. Zverev (M. V. Lomonosov Moscow State University)

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