Conferencia

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Current challenges in magnetocaloric research

The eventual implementation of magnetocaloric temperature control systems as a replacement of less environmentally friendly devices in sectors ranging from home appliances to gas liquefaction requires detailed knowledge of the thermomagnetic response of the phase transformations that take place during device operation, with a significant focus on hysteresis and reversibility. In this talk, after an introduction to the topic, we will focus on two aspects of this research endeavor: From the characterization point of view, we will present the physics behind the recently proposed Temperature-First-Order-Reversal-Curves (TFORC) technique for magnetocaloric materials, its use to identify detailed information of phase transitions, and its suitability for the prediction of the thermomagnetic response of a material in arbitrary conditions. From the materials point of view, we will highlight materials for additive manufacturing.

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