

Special Issue

Magnetocaloric and Caloric Materials for Solid-State Cooling

Message from the Guest Editors

The demand for energy is growing continuously, and more than 20% of energy consumption is due to refrigeration and air conditioning. The scientific community has devoted huge efforts toward developing possible alternative cooling techniques that are ecological, demonstrate good performance, and are characterized by low energy consumption. Among these alternatives is caloric cooling. Caloric refrigeration embraces four other main cooling techniques linked to a group of materials that show magnetocaloric, electrocaloric, elastocaloric, and barocaloric effects—phenomena where variation in the temperature of caloric material is registered when an applied external field adiabatically changes its intensity. This Special Issue is focused on caloric materials and welcomes papers on the analysis—either experimental or numerical—of their properties and on their testing in energy systems for cooling.

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