

**2 Seminari di Dipartimento SMFI sul tema Effetti
CALORICI per la Refrigerazione a Stato Solido**

Prof. Neil D. Mathur

Department of Materials Science, University of Cambridge

Electrocaloric effects in epitaxial films of SrTiO_3

Abstract:

First, I will introduce electrocaloric effects. These are reversible or nominally reversible thermal changes that arise when changes of electric field drive changes of local electrical polarization. Then, I will describe electrocaloric effects near the 243 K ferroelectric phase transition in epitaxial films of SrTiO_3 on DyScO_3 substrates. Results will be compared with (1) bulk SrTiO_3 and (2) the canonical Landau description of this system.

Prof. Xavier Moya

Department of Materials Science, University of Cambridge

Barocaloric materials for heating and cooling

Abstract:

Half of the world's CO_2 emissions can be attributed to heating and cooling. This is primarily due to heating with natural gas and cooling with compression of greenhouse gases, which are neither environmentally friendly nor energy efficient. Therefore there is great interest in developing alternative technologies that can replace these gas-based environmentally damaging systems. Barocaloric materials are at the core of novel solid-state heat-pump technologies. During this talk I will describe our work on mechanically responsive barocaloric materials, and present our recent advances on barocaloric systems for heating and cooling applications.

mercoledì 3/7/2024, ore 10:30-12:30, Aula Newton (plesso fisica)

