

**Martedì 26 Giugno 2018**  
Alle ore 11:00

presso l'aula 1 dell'Edificio F,  
Area della Ricerca CNR, Via Madonna del Piano, 10 - Sesto F.no



Il **Prof. Kai Liu**

Del Department of Physics, University of California terrà il seguente seminario:

**"Magnetic Skyrmions and Magneto-Ionics"**

**Abstract:** The coming end of Moore's law underscores the need for transformative new approaches beyond the complementary metal-oxide semiconductor (CMOS) technology. Nanomagnetism and Spintronics offer an exciting new paradigm to address this grand challenge. For example, in recently discovered magnetic skyrmions, mostly at low temperatures, the unique spin texture and the topologically protected quantum state offer great potentials for low dissipation magnetic information storage. We have recently demonstrated the realization of room temperature artificial Bloch skyrmion lattices in their ground state [1]. In a second area, we have demonstrated effective magneto-ionic manipulation of metal/oxide interfaces due to a redox-driven oxygen migration, manifested through the interface-sensitive exchange bias effect [2] and controllable under an electric field [3]. Similar effects are found in getter/perovskite systems of Gd/LaSrMnO<sub>3</sub> [4] and Gd/LaSrCoO<sub>3</sub> [5]. Time permitting, I will also discuss results in high anisotropy L1<sub>0</sub> FePt for heat assisted magnetic recording. These results show promise towards future spin-based nanoelectronics and information storage.

## Biographic sketch:

[Kai Liu](#) is a Professor of Physics at the University of California - Davis (UCD). He received his Ph.D. in Physics from the Johns Hopkins University in 1998. After postdoctoral research at the University of California - San Diego, he joined the UCD faculty in 2001. His research interest is in experimental studies of magnetism and spin transport in nanostructured materials. He was recipient of an Alfred P. Sloan Research Fellowship and a UCD Chancellor's Fellowship. He is also elected Fellow of the Institute of Physics (UK), American Physical Society and IEEE. He served as the General Chair for the 61<sup>st</sup> Annual Conference on Magnetism and Magnetic Materials (2016 MMM). He is serving as Secretary for the International Union of Pure and Applied Physics (IUPAP) Commission on Magnetism (2018-2020). He is joining Georgetown University in 2018 as the McDevitt Chair in Physics.

