



UNIVERSITÀ DEGLI STUDI
DI PERUGIA

Perugia, 28 maggio 2014

AVVISO DI SEMINARIO

Giovedì 12 Giugno 2014 - ore 11:00

Aula C (II° p. sede di Via Pascoli snc)

“Spin dynamics of magnetic nanostructures: from thin films to nanowires to magnonic arrays”

Prof. Michael Cottam

Department of Physics and Astronomy,
University of Western Ontario, Canada.

Abstract:

The last few years have seen dramatic advances in the growth, fabrication and characterization of low-dimensional magnetic nanostructures (such as those formed from ultrathin films, wires, and discs), formed either singly or in spatially periodic arrays. Studies of the dynamical properties of these artificially engineered materials are driven by their potential for device applications that involve smaller and smaller physical dimensions, e.g., for information storage, high-frequency operation and/or switching. Consequently, the different excitations (including the spin waves or magnons in ordered magnetic materials) need to be understood from the perspective of how their properties are modified in finite structures on the nanometre length scale. The topic of spin (or magnetization) dynamics is particularly fascinating from a fundamental physics point-of-view because of the competing magnetic interactions (long-range dipolar versus short-range exchange interactions), the enhanced role of surfaces and interfaces, the nonlinear as well as linear components in the dynamics, and new effects arising from arrays of nano-elements due to artificial periodicity. An overview of these topics will be presented, along with specific examples. This will be done mainly from a theory perspective, but applications to magnetic resonance and inelastic light scattering experimental techniques will be given.

Tutti gli interessati sono invitati a partecipare.

Il Direttore del Dipartimento