

SEMINARIO
Departamentos de Física Teórica I y II
Universidad Complutense de Madrid

CONFERENCIANTE: Marco Panero

IFT (Universidad Autónoma de Madrid - CSIC)

TITULO: A lattice approach to jet quenching in hot QCD

LUGAR: FACULTAD DE CIENCIAS FÍSICAS UCM

DÍA: 29 de octubre, 2014 (Miércoles)

HORA: 14:30

AULA: Seminario Depto. Física Teórica II, Planta 2ª

ABSTRACT:

Collisions of heavy ions at sufficiently high energies are known to produce a "fireball" of deconfined QCD matter, at a temperature of the order of hundreds of MeV: the quark-gluon plasma (QGP). When the QGP expands and cools down, it produces hadronic jets with distinctive characteristics, including the suppression of large transverse momenta and of correlations between back-to-back particles. This "jet quenching" phenomenon is an important hard probe for the QGP: it indicates that, when a highly energetic parton propagates through the deconfined medium, it undergoes multiple interactions with the plasma constituents, that induce energy loss and momentum broadening. Studying theoretically this process, however, is particularly challenging, because it involves both perturbative and non-perturbative aspects. Moreover, the dynamical, real-time nature of the phenomenon makes it unsuitable for a numerical Monte Carlo study on the lattice. In this talk, I will present a way to tackle this problem, combining the lattice approach with ideas related to dimensional reduction in high-temperature QCD.