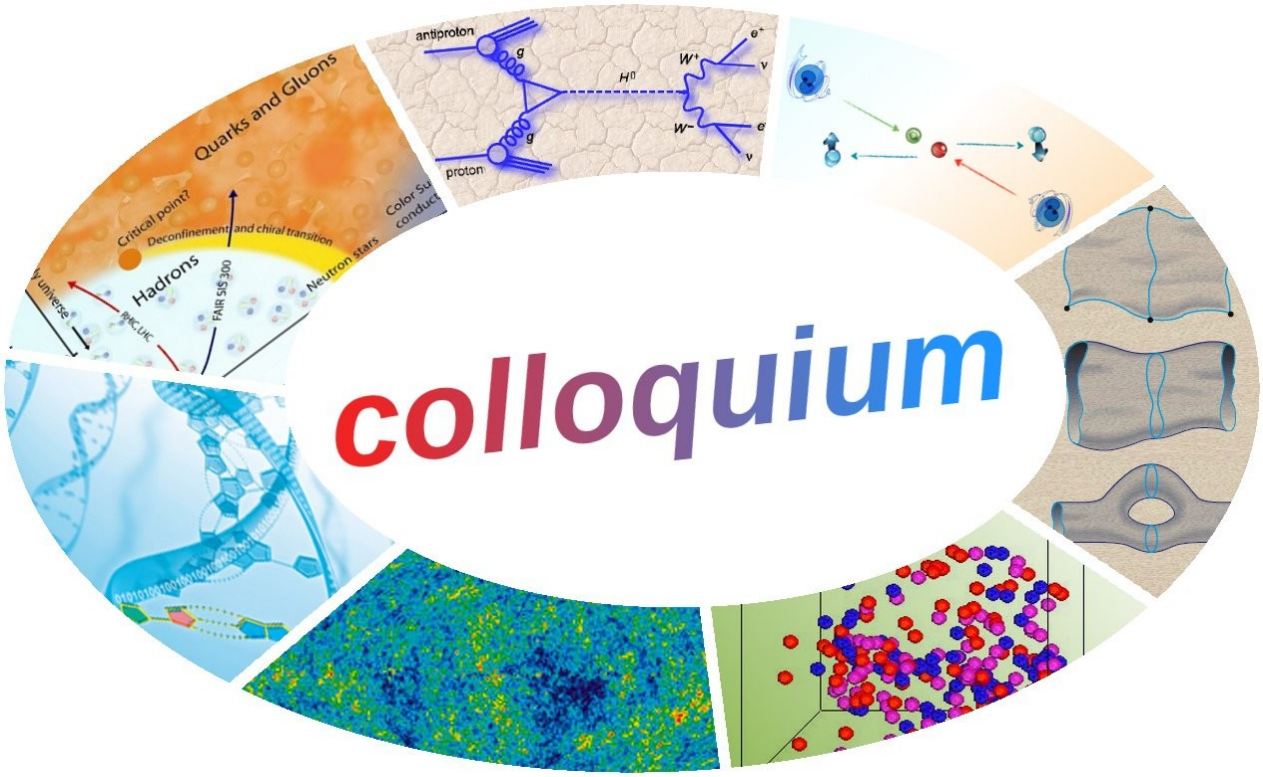
Università di Torino – Dipartimento di Fisica

Sezione di Fisica Teorica



Lunedì 15 Giugno 2015, ore 14:00, Aula Wataghin

Eros Mariani
(University of Exeter)

Manipulating the flavours of real and artificial graphene

In this talk I will first discuss some general aspects of the electronic and mechanical properties of graphene membranes. I will present different strain-induced effects in mono- and bi-layer graphene, describing how elastic deformations in the lattice translate into fictitious vector potentials that affect the electronic degrees of freedom. I will analyse the consequences on quantum transport in ballistic devices and extend this concept to artificial graphene systems, such as honeycomb plasmonic arrays of metallic nanoparticles. In the latter metasurfaces I will show that plasmons behave as massless Dirac particles with a highly tunable bandstructure.