

COLLOQUI di FISICA

21 febbraio 2025
ore 14:30
aula M6

Luigi Coraggio

Dipartimento di Matematica e Fisica dell'Università degli Studi della Campania "Luigi Vanvitelli", e Sezione INFN di Napoli

A historical journey: 90 years of the evolution of our knowledge of the nuclear interaction

Historically, the first attempt to develop a fundamental theory of nuclear forces was carried out by the Japanese physicist Hideki Yukawa in 1935, who proposed that the force among nucleons would explicate through the exchange of mesons. This meson theory has been the most popular approach to nuclear forces for more than half a century, and also the cornerstone of modern approaches that are grounded on the effective field theory (EFT) in order to match the fundamental theory of strong interactions - the quantum chromodynamics (QCD) – and the physics of low-energy nuclear systems. I will review the history of the development our understanding of the nuclear potential, and present modern ideas which apply the concept of an effective field theory to low-energy QCD, as well as our present knowledge of the interaction among nucleons as also allowed the advance of microscopic calculations of the properties of many-nucleon systems.

The contents of my presentation are aimed to an audience of non-experts in nuclear-physics problems, in particular to graduate students.

