

Kaonic hydrogen isotopes for unique strong interaction studies

Friday, 5 December 2025 11:00 (30 minutes)

Kaonic atoms provide a unique window into studying the strong interaction at threshold, offering key constraints on low-energy QCD in the strangeness sector. In this talk, I will present the latest results from the SIDDHARTA-2 experiment at the DAΦNE collider, which employs high-performance spectroscopic Silicon Drift Detectors (SDDs) to carry out precision X-ray spectroscopy of kaonic atoms. I will discuss the first ever kaonic deuterium measurement, an important milestone toward determining the isospin-dependent components of the anti-KN scattering lengths, as well as new kaonic hydrogen results that further strengthen our knowledge of the antikaon–nucleon interaction. I will then outline future directions, focusing on the development and laboratory characterisation of the new 1 mm-thick SDDs for the EXKALIBUR program. These next-generation detectors are designed to extend the measurable X-ray energy range and significantly enhance the potentialities for upcoming exotic-atom measurements.

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