

4th Jagiellonian Symposium on Advances in Particle Physics and Medicine



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Invited talk: Kaonic atoms at DANE: where we are and where we go?

Tuesday, 12 July 2022 15:00 (20 minutes)

The DAΦNE machine at the INFN Laboratories of Frascati is still the most suitable facility in the world, in terms of purity of the kaon beam, luminosity, and kinematic conditions, to perform measurements of kaonic atoms.

Recent progress in the field of X-ray detectors and their readout electronics contributed, in these last years, to a renewed interest in new and more precise measurements.

Beyond the SIDDHARTA-2 experiment, presently installed on the DAΦNE Interaction Point exploiting 450 mm thick Silicon Drift Detectors (SDD) to measure for the first time X-rays from kaonic transitions in deuterium, several other important measurements are still planned or proposed.

These new measurements, among which transitions in kaonic helium, carbon, sulfur, lead, wolfram, nitrogen, and molybdenum, are now feasible thanks to new technologies: 1 mm thick SDDs, CdZnTe, and HPGe detectors as well as crystal spectrometers and TES microcalorimeters.

In this talk, an overview of the already planned and foreseen measurements, together with others proposed for future campaigns, will be presented together with their physics case, possible impacts, and details of the experimental setups.

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