Kaonic Helium Atoms

Ryugo S. Hayano

The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan

This talk will cover two kaonic-helium X-ray spectroscopy experiments, KEK E570 (completed) and J-PARC E17 (soon to start).

The KEK E570 experiment has recently deduced the $2p$-level strong-interaction shift of kaonic helium 4 to be $2 \pm 2(\text{stat.}) \pm 2(\text{syst.})$ eV [1], thereby solving the long-standing kaonic helium puzzle. This high precision was achieved by using silicon drift detectors (SDDs), in-situ X-ray energy calibration, and tight fiducial-volume selection (by tracking incoming kaons and outgoing kaon-absorption products).

The same method will be used to measure the $2p$-level shift of kaonic helium 3 in the J-PARC E17 experiment, the first experiment to be conducted in the hadron hall of J-PARC.

[1] S. Okada et al., Phys. Lett. **B** 653 (2007) 387.

E-mail: hayano@phys.s.u-tokyo.ac.jp