

Kaonic helium measurements in SIDDHARTA experiment

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The SIDDHARTA (Silicon Drift Detector for Hadronic Atom Research by Timing Application) had the aim to perform kaonic atoms X-ray transitions measurements, with the aim to better understand aspects of the low-energy QCD in the strangeness sector. The experiment combined the excellent low-energy kaon beam generated at DAFNE, allowing to use gaseous targets, with excellent fast X-rays detectors: Silicon Drift Detectors. SIDDHARTA was installed on DAFNE in autumn 2008 and took data till late 2009. Apart of the kaonic hydrogen and kaonic deuterium measurements, which will be reported by A. Romero Vidal, we have performed the kaonic helium transitions to the 2p level (L-lines) measurements: for the first time in a gaseous target for He4 and for the first time ever for KHe3. The interest for such type of measurement was rather high, being it triggered by two reasons: the so-called kaonic helium puzzle (even if this was solved by E570 experiment, but a cross-check was useful) and some theoretical predictions of possible high energy shift (at the level of 10 eV). We shall give some details of the data taking procedure, together with data analyses and obtained results and will end with a discussion and future perspectives.

[1] C.J. Batty, Nucl. Phys. A 508 (1990), p. 89c.

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

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