Kaonic hydrogen measurement with DEAR at DAFNE

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The DEAR experiment [1] at the DAFNE facility of LNF measured the energy of X-rays emitted in the transitions to the ground state of kaonic hydrogen. The hadronic shift and the width of the 1s state are sensitive quantities for studying the low energy antikaon-nucleon interaction. The preliminary results on the shift and width are smaller than the corresponding values from a previous experiment at KEK and have significantly smaller errors. The results are in good agreement with recent theoretical work [2]. The experimental method [3] and the results on kaonic hydrogen as well as an outlook to the future will be given.

[1] S. Bianco et al., The DEAR case. Rivista del Nuovo Cimento 22, No.11, (1999) 1.

[2] A.N. Ivanov et al., On Kaonic Hydrogen. Quantum Field Theoretic and Relativistic Covariant Approach. Accepted for EPJA. arXiv:nucl-th/0310081 v3 14 Dec 2003

[3] M. Cargnelli et al., Kaonic Hydrogen: Status of the DEAR Experiment, Prog. Theor. Phys. Suppl. 149 (2003) 240 - 246.

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