Last Results From FINUDA

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The FINUDA (FIsica NUcleare a DAϕne) experiment aims to study the multifacet aspects of the interactions of stopped K^- on nuclei. To reach this scope, it employes a rather unconventional beam: the very slow (about 120 MeV/c) K^- produced by the decay of the $\Phi(1020)$ mesons created almost at rest by the e^+/e^- collider DAΦNE at LNF. The advantage of such a beam is the possibility to use thin targets (about 200 mg/cm^2) to stop the K^-s, and hence to introduce a minimal distorsion on the kinematical properties of the outgoing particles produced in the interactions. A further advantage is that the K^-s are simultaneously emitted to back-to-back K^+, so allowing to employ a tagging technique that greatly reduces the background contamination. To compensate the low intensity inherent in such a type of beam, the FINUDA spectrometer has a rather large acceptance, of the order of 2π sr; it can reach a momentum resolution of about 0.6%.

The FINUDA spectrometer (a superconducting solenoid with a magnetic field of 1 T) is equipped with a vertex region, embedding also the targets (eight, simultaneously), a tracking volume and a set of scintillation detectors for trigger purpose, also partially fulfilling the task of neutron identification.

The specific topics investigated by FINUDA are: single-Λ hypernuclei production (spectroscopy and decay); emission of correlated (Λ-p), (Λ-d) and (Λ-t) pairs following the absorption on nuclei of stopped K^-s; study of charged Σ production in different nuclei.

The FINUDA results corresponding to the collected integrated luminosity of about 1.2 fb^{-1} are presented and discussed.

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