Strangeness Physics with FOPI

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Heavy Ion collisions at SIS energies (1-2 AGeV) offer an unique tool to probe the properties of hot and dense nuclear matter. In particular, strange particle production below or close to the threshold energy is a useful probe to investigate these in-medium effects. Recently new data for K^+ and K^- stemming from Ni+Ni, Ru+Ru and Ni+Pb collisions at 1.65-1.93AGeV have been measured at GSI with the FOPI spectrometer after a detector upgrade which included a RPC system. Current results will be presented and comparison to transport models will be shown, that allow to investigate the kaon-nucleon potential. The broad experimental program of the FOPI collaboration includes the quest of rare particles as hypertriton, K^* and Kaonic bound states in both heavy ion collisions and proton induced. This wide ensemble of measured particles allows to apply a statistical model to extract the temperature and density of the system created after the collision, in the same fashion of higher energy experiment. The out-coming results will be presented as well. Finally an outlook on the future experiments will be given. We indeed plan measurements with a pion beam and a novel GEM-TPC central tracker to extend the study of kaon production at subnormal nuclear densities.

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