Abstract Submitted
for the HAW05 Meeting of
The American Physical Society

Search for $\overline{K}NN$ bound states with the FINUDA spectrometer HIROYUKI FUJIOKA, Department of Physics, University of Tokyo, FINUDA COLLABORATION — The existence of a deeply-bound kaonic state, which includes an antikaon inside the nucleus, is theoretically predicted by Akaishi and Yamazaki, according to their $\overline{K}N$ potential. In their model, the $\Lambda(1405)$ is regarded as a $\overline{K}N$ bound state. We have searched for the lightest kaon-bound system ($\overline{K}NN$) with the FINUDA spectrometer, which is installed at the e^+e^- collider DAΦNE. The ϕ-meson, abundantly produced by DAΦNE, decays into K^+K^-, with the kinetic energy of $K^\pm \sim 16\,\mathrm{MeV}$. This slow K^- stops inside a very thin nucleus target and interacts with a nucleus. We installed five kinds of targets (^{6}Li, ^{7}Li, ^{12}C, ^{27}Al and ^{51}V) surrounding the beam pipe in the first run (2003–2004). In this talk, I will discuss non-mesonic decay modes of a $\overline{K}NN$ bound system, clearly observed in the back-to-back angular correlation between a hyperon and a nucleon emitted from the K^- reaction vertex.

Hiroyuki Fujioka
Department of Physics, University of Tokyo

Date submitted: 23 May 2005 Electronic form version 1.4