



# Possible Study of Rare Decays of Kaons and a Neutrino Near Detector with a Liquid Argon TPC

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# Overview

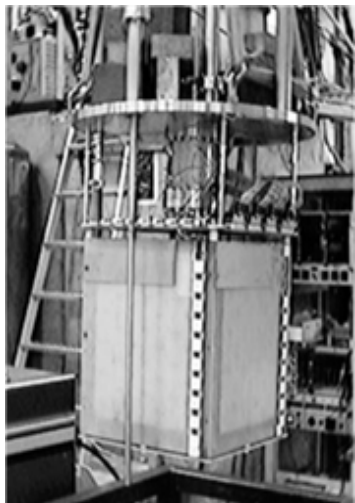
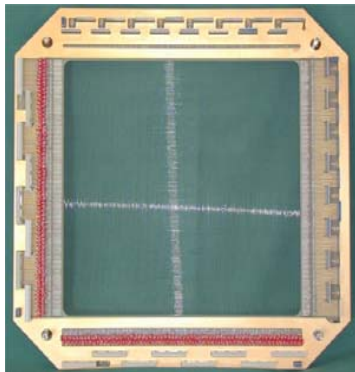
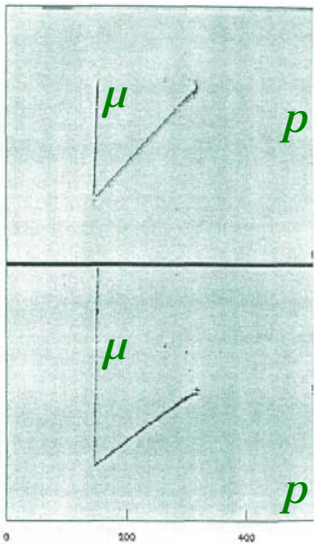
- 50 liter prototype and ICARUS detector
- Drawings of TPC in 80.0 cm bore MRI magnet

# 50-liter LAr TPC

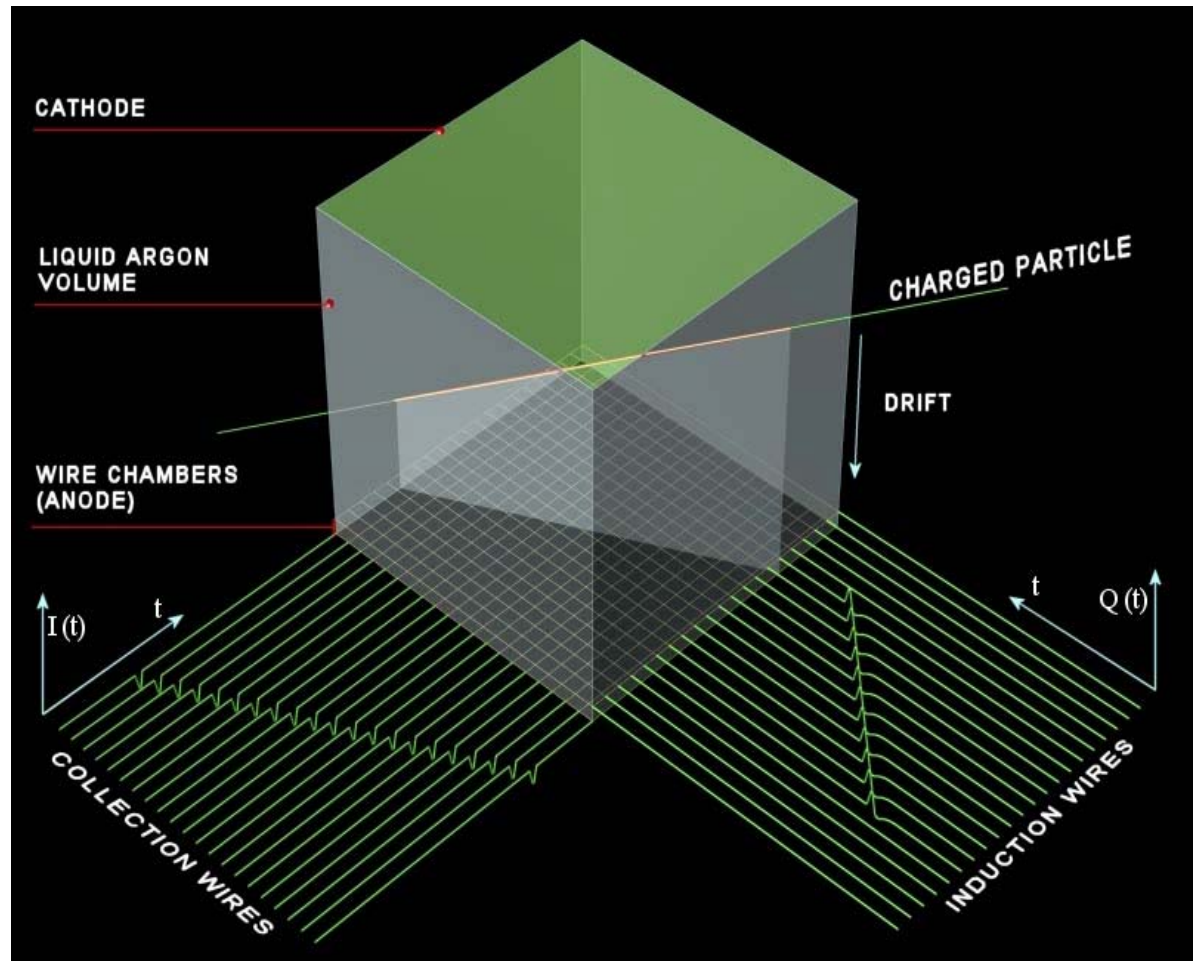
Time projection mechanism suggests for the active LAr volume a “projected” shape (right prism, right cylinder). A square shape for the receiving wire chamber optimizes the readout (all equal-length wires reading equal LAr sub-volumes).

With the 50-liter prototype, 2 orthogonal coordinates experimentally appeared sufficient for unambiguous 3-dimensional event reconstruction.

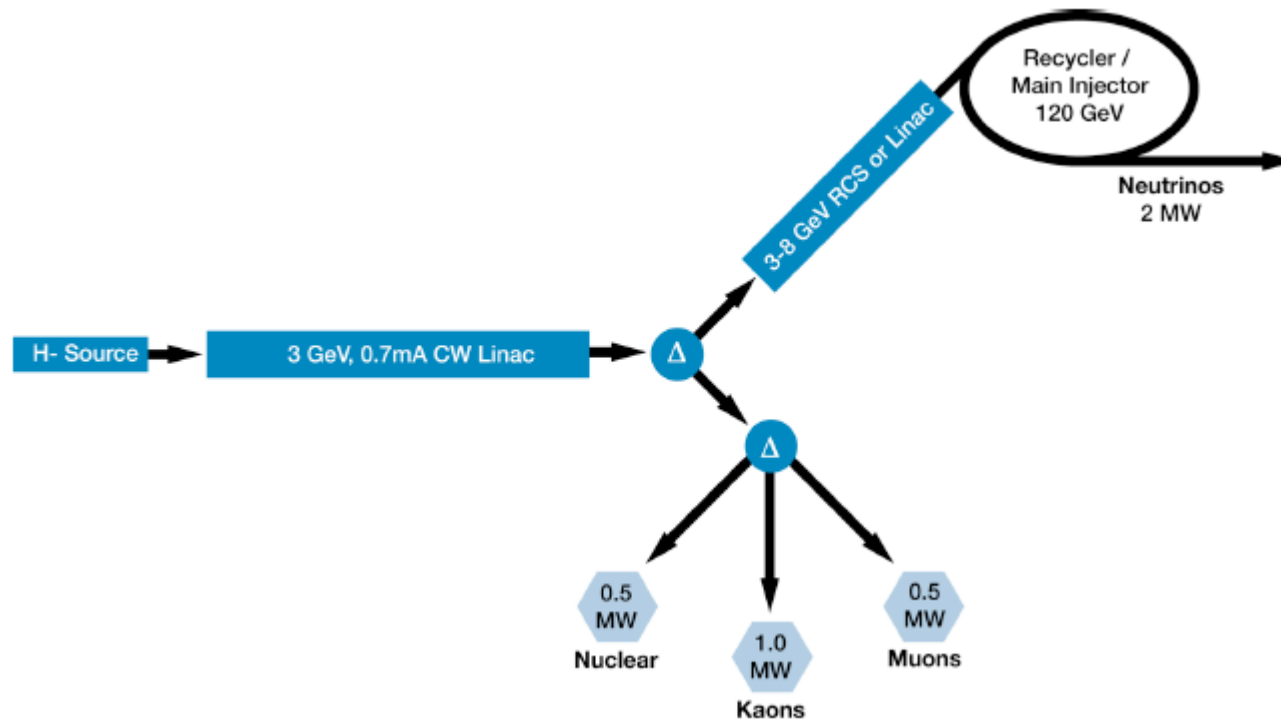
$$\nu_{\mu} n \rightarrow \mu p$$



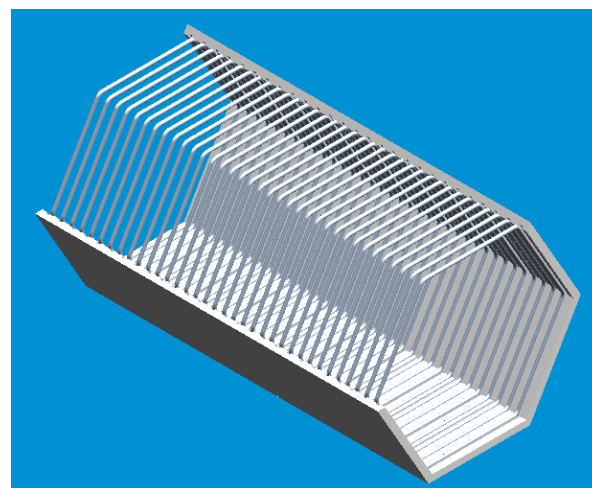
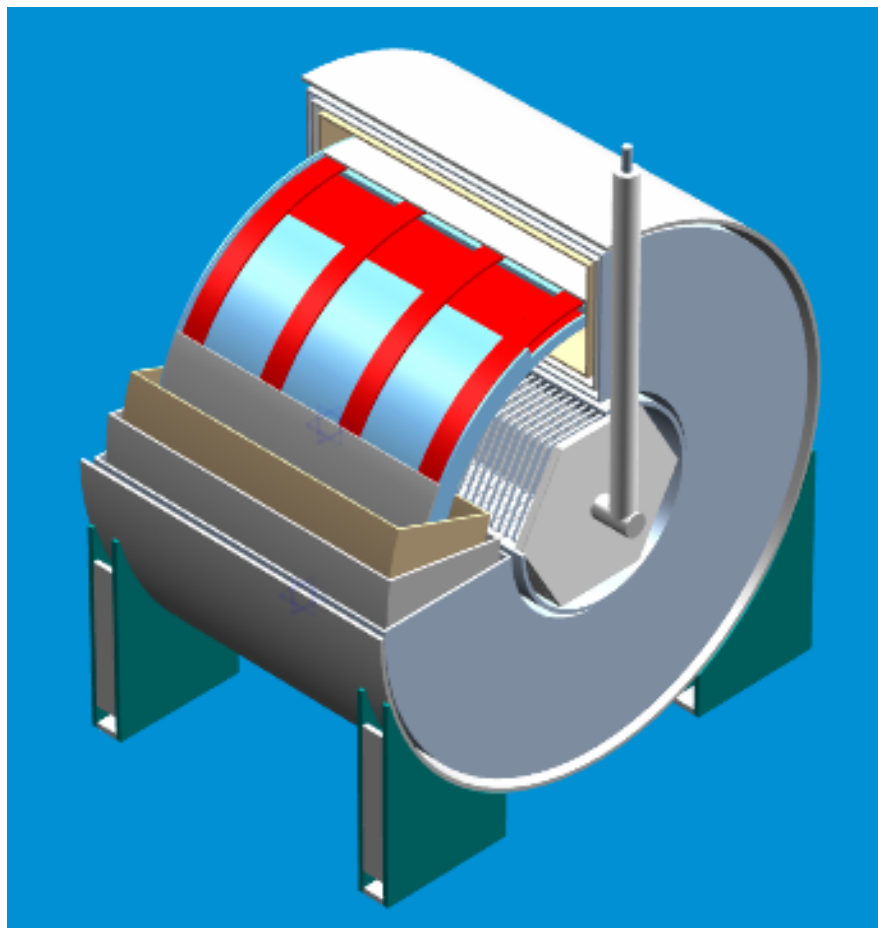
Induction wires:intrinsic differentiator  $(I_{in}^I - I_{out}^I) \rightarrow$  charge sensitive preamplifier  
 Collection wires:intrinsic integrator  $I_{in}^C \equiv -I_{out}^I \rightarrow$  current sensitive preamplifier



# Project Kaon Source



# Hexagonal TPC in 1.5 T MRI Magnet





# Summary

- More conceptual design studies to be done in the future.