E10-001: Study of Light $\Lambda$-Hypernuclei by Spectroscopy of Two Body Weak Decay Pions

- Conditionally approved as we expected
- PAC supports our request for 5 days test in Hall A
- We have about two years to prepare Enge and the needed equipment or parts
  - Enge optics study by $\alpha$ source (Po-210, 5,304.33±0.07keV) and precise B-I measurement
  - New vacuum extension boxes with tracker and one SSD
  - New target chamber with target ladder
  - New Enge support
  - New or refurbished sieve slit plate and new vacuum connection to the Hall A target chamber
  - Detectors and supports
- We need supports from Hall A and C, and Engineering Group
Hall A Experimental Layout

Trigger I: HRS(K) & Enge(π) - Decay Pion Experiment

Trigger II: HRS(K) & HRS(e') - Spectroscopy Experiment
Enge Optics Calibration

Vacuum box 1

A min. waist

SSD on a two way tracker

Vacuum box 2

Blank Window

Vacuum box 2 is in place for experimental detectors
Po-210 or Po-208 $\alpha$ source with precisely known position with respect to Enge. (Survey & optics study)

An open pocket with two crossing wires with precisely known position with respect to the position of the source. This is used to determine the precise beam spot position in the Enge optics.

Experimental target: $^7$Li