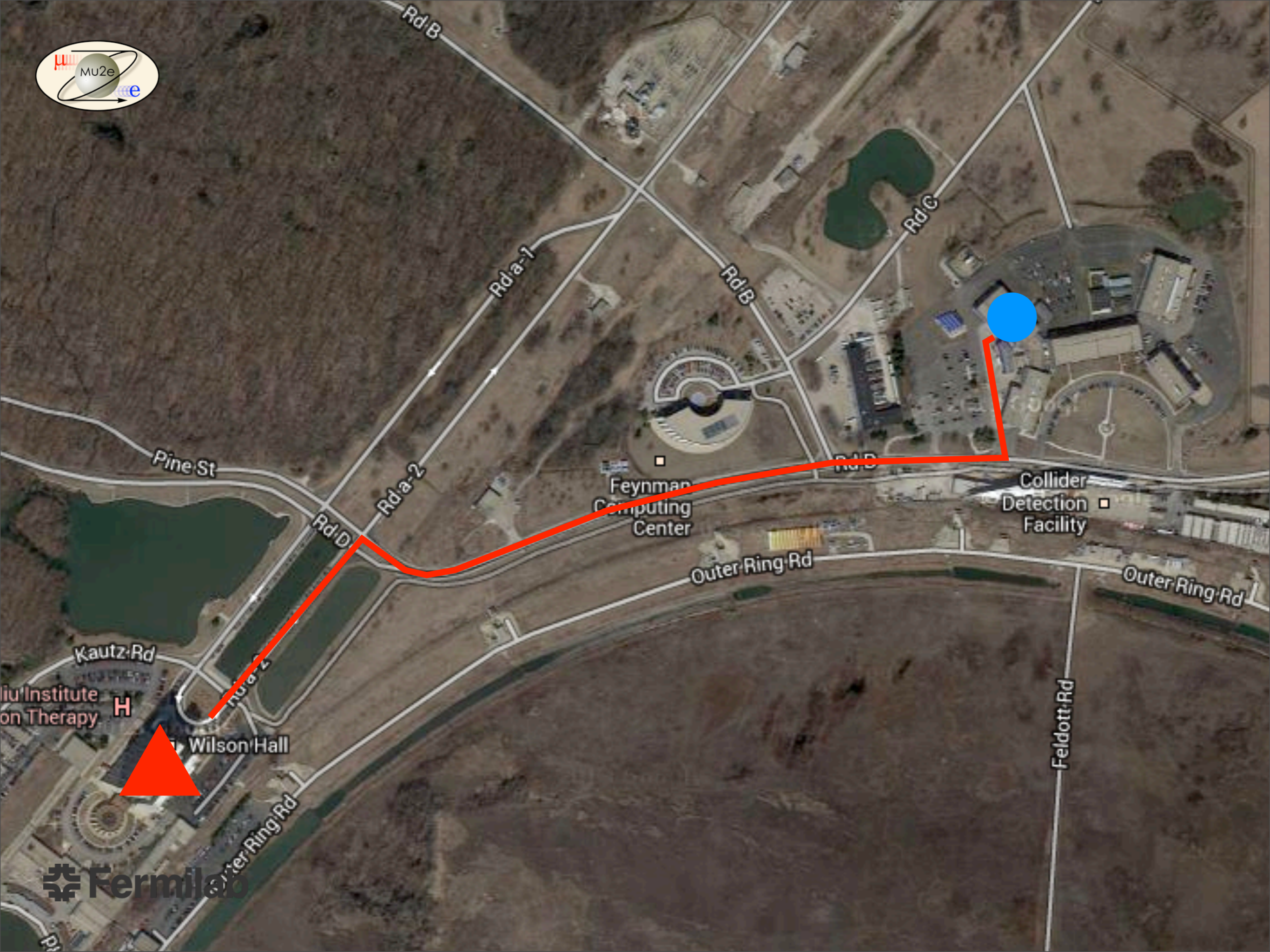




Mu2e Magnetic Measurements

by Sergei Gluchko, Belarusian State University

Supervisor: Marc Buehler (TD/ Magnet Systems Department)

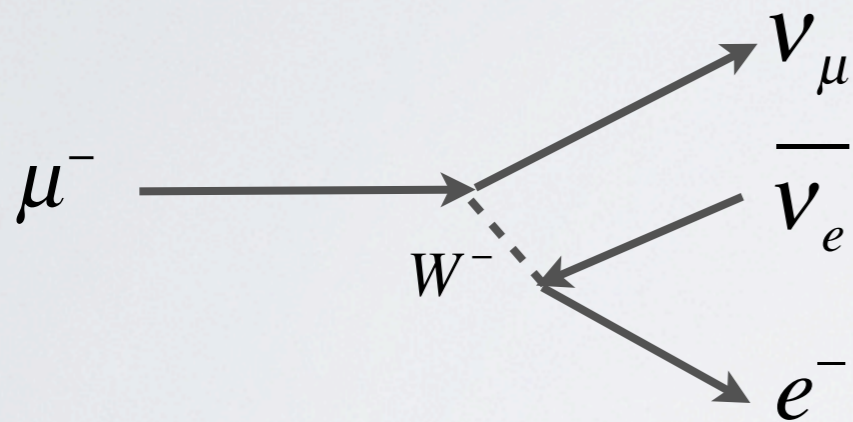


 Fermilab



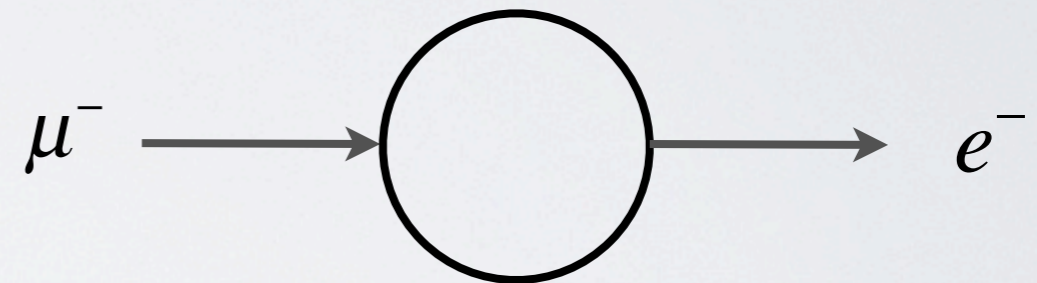
What is Mu2e Conversion?

Ordinary μ^- decay



Standard model

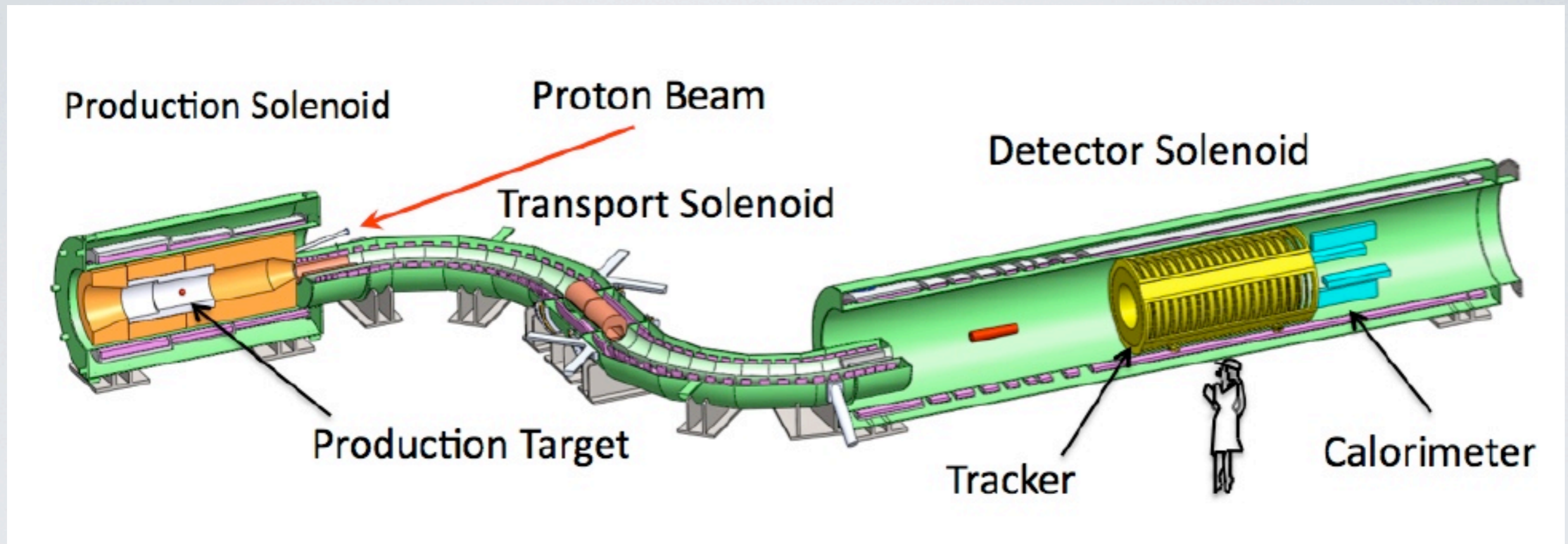
Forbidden μ^- decay



SUSY



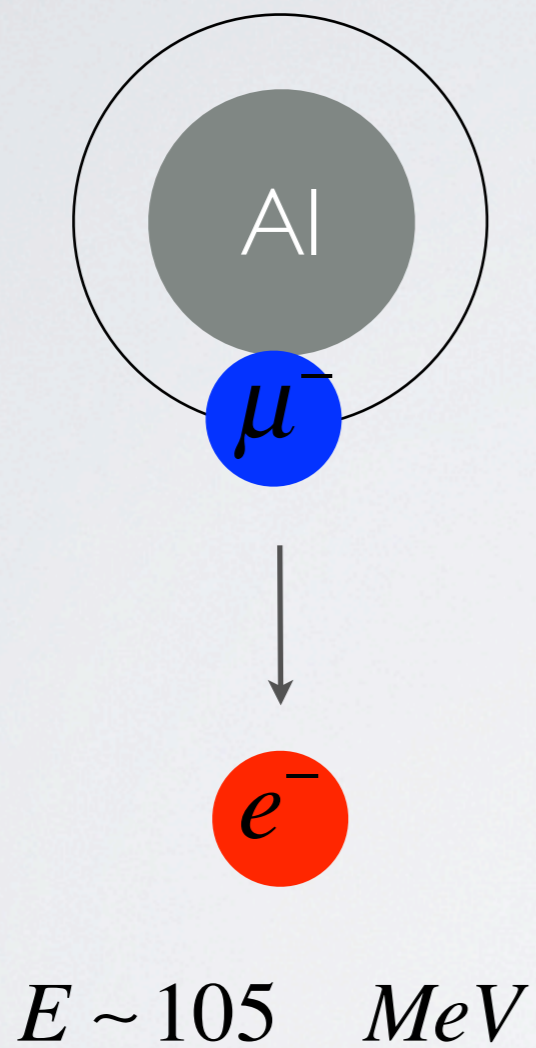
Mu2e Experiment



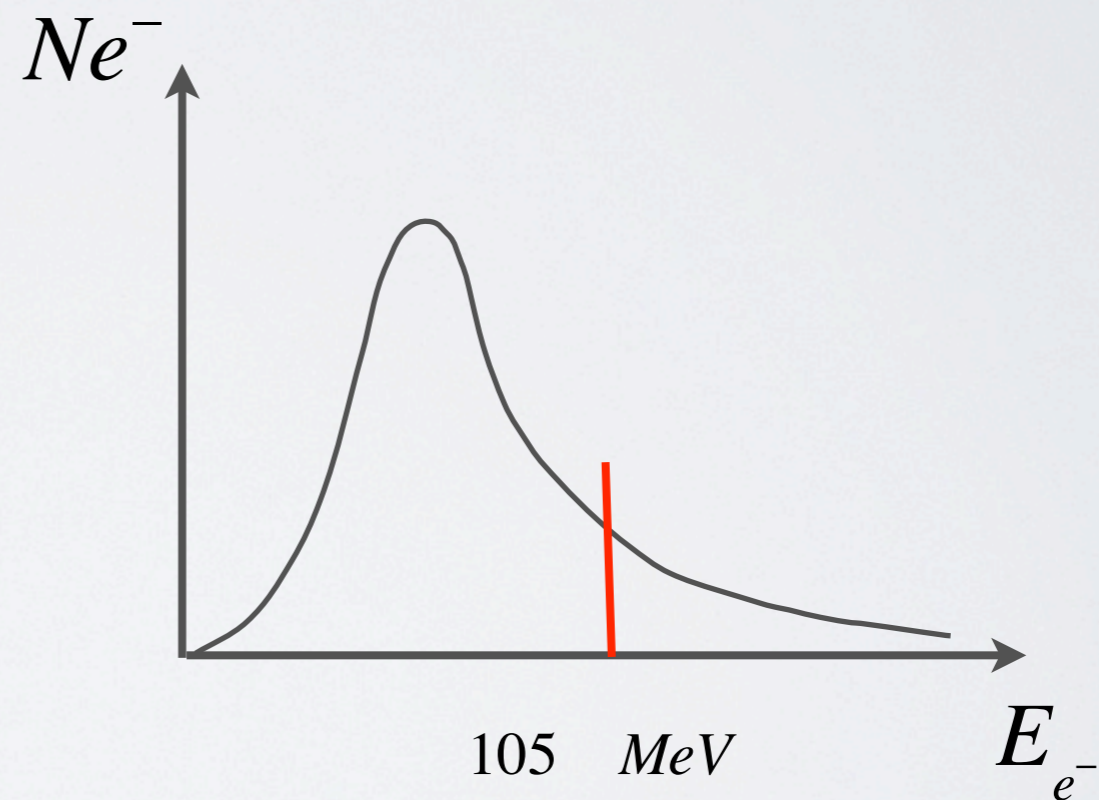
- Target protons at 8 GeV inside superconducting solenoid (Production Solenoid)
- Capture muons and guide through S-shaped region (Transport Solenoid) to Al stopping target (Detector Solenoid)

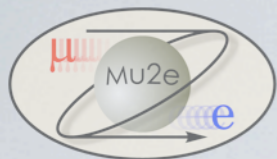


Mu2e expected results



Standard model rate $\sim 10^{-54}$
SUSY rate $\sim 10^{-15}$

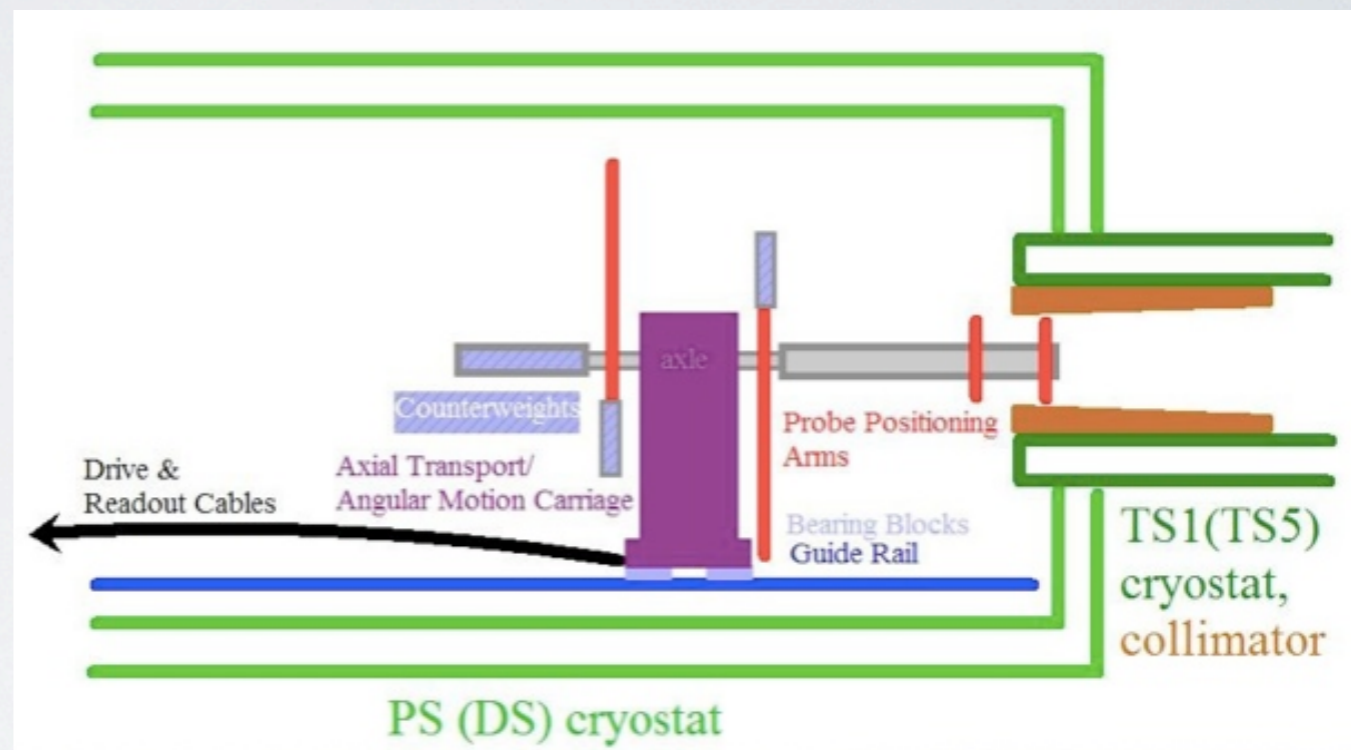




Mu2e Magnetic Measurements



CMS



Mu2e



Goal

- Simulation study of the magnetic field inside the Production Solenoid, Transport Solenoid, Detector Solenoid (using OPERA).
- We are planning to design a device for measuring the magnetic field inside the PS, TS, DS with a high precision.
- Compare experimental data with the simulation results.
- Electron transmission test

My personal goal:

1. To become familiar with the OPERA software.
2. To examine the sensitivity of magnetic measurements.
3. To simulate electron transmission through the PS, TS, DS using OPERA.