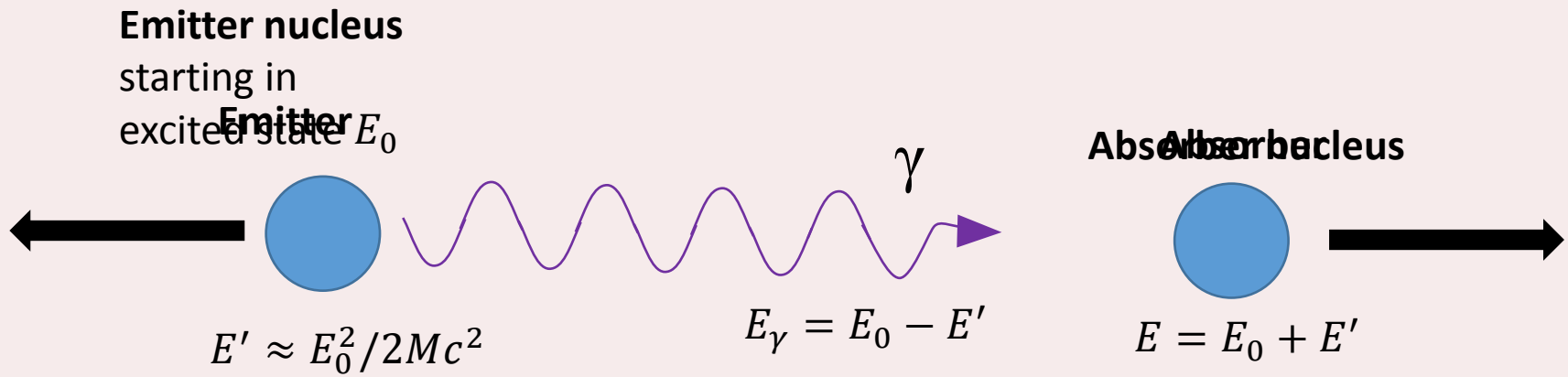


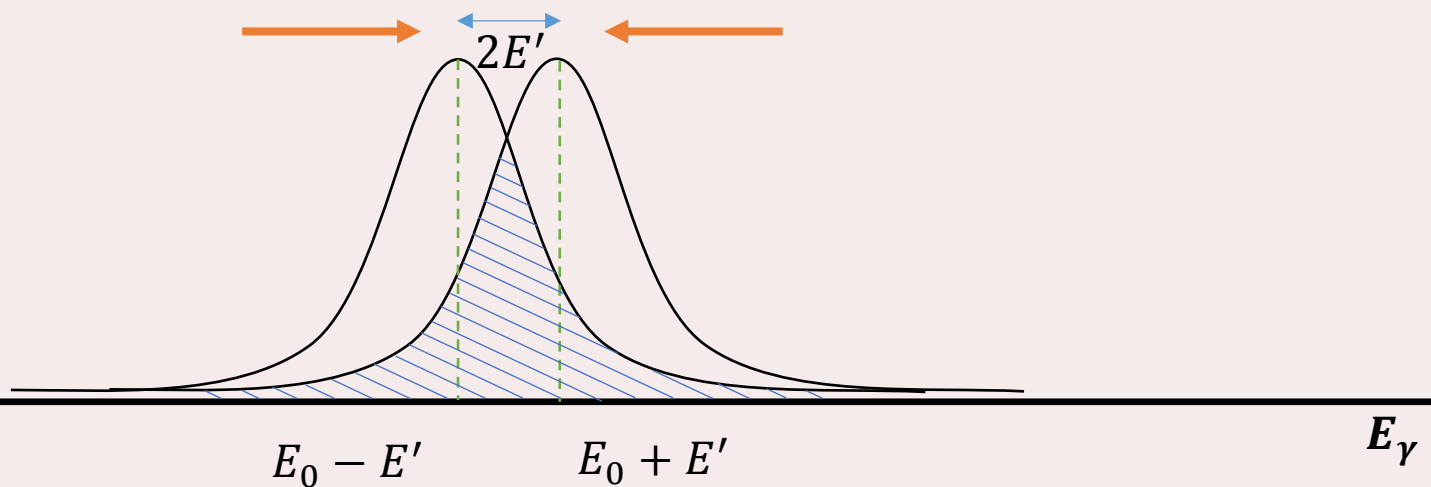
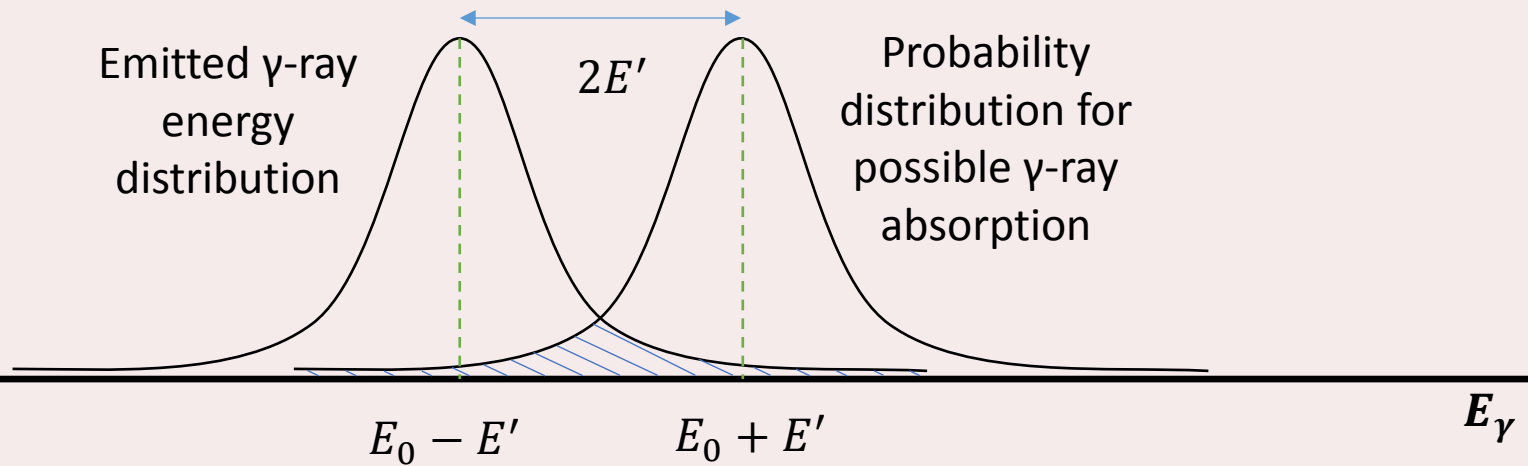
Measurement of the Transverse Doppler Shift using the Mossbauer Effect

Micah Coats, Mark Yuly, Houghton College

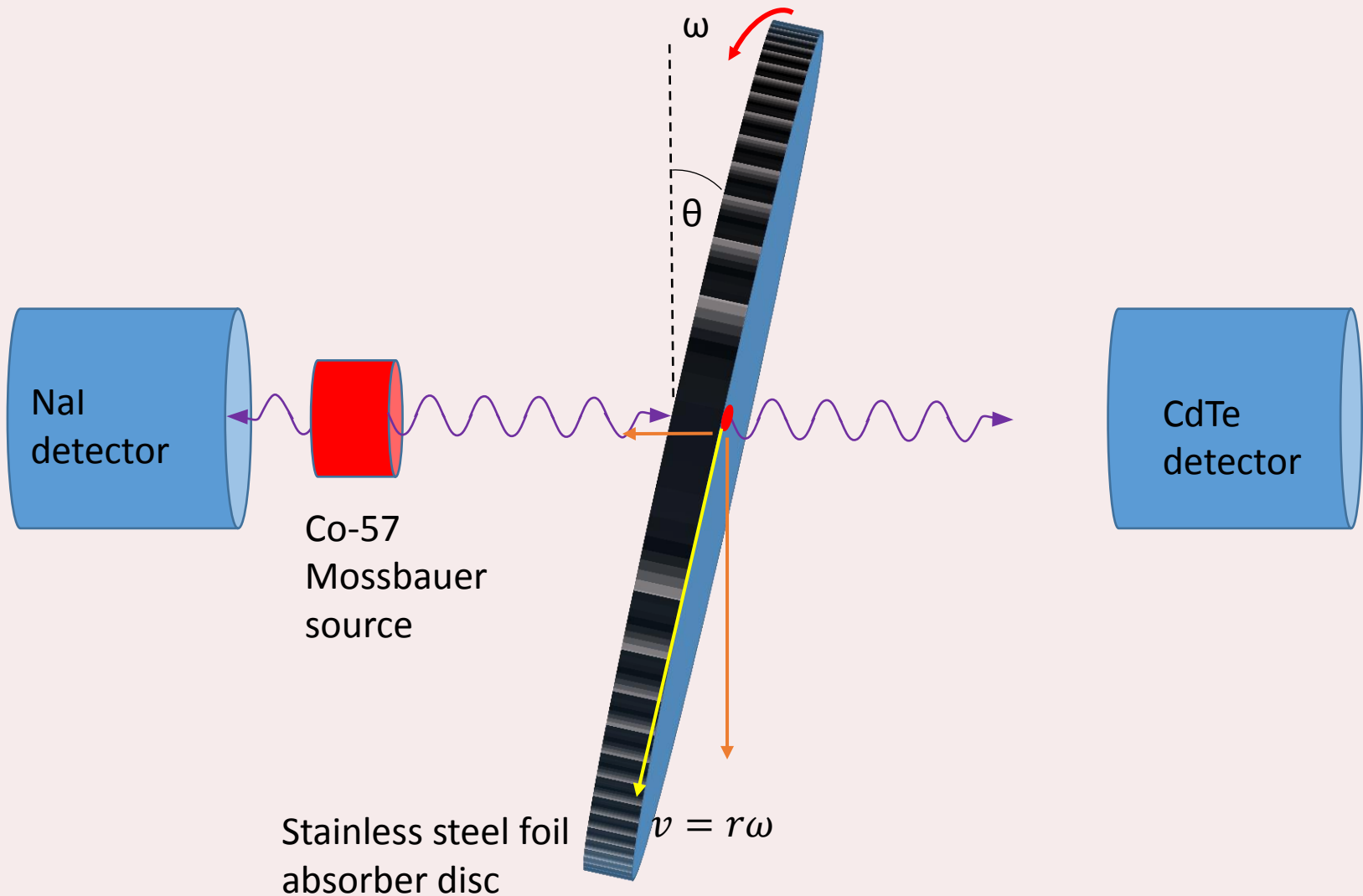
The Mossbauer Effect



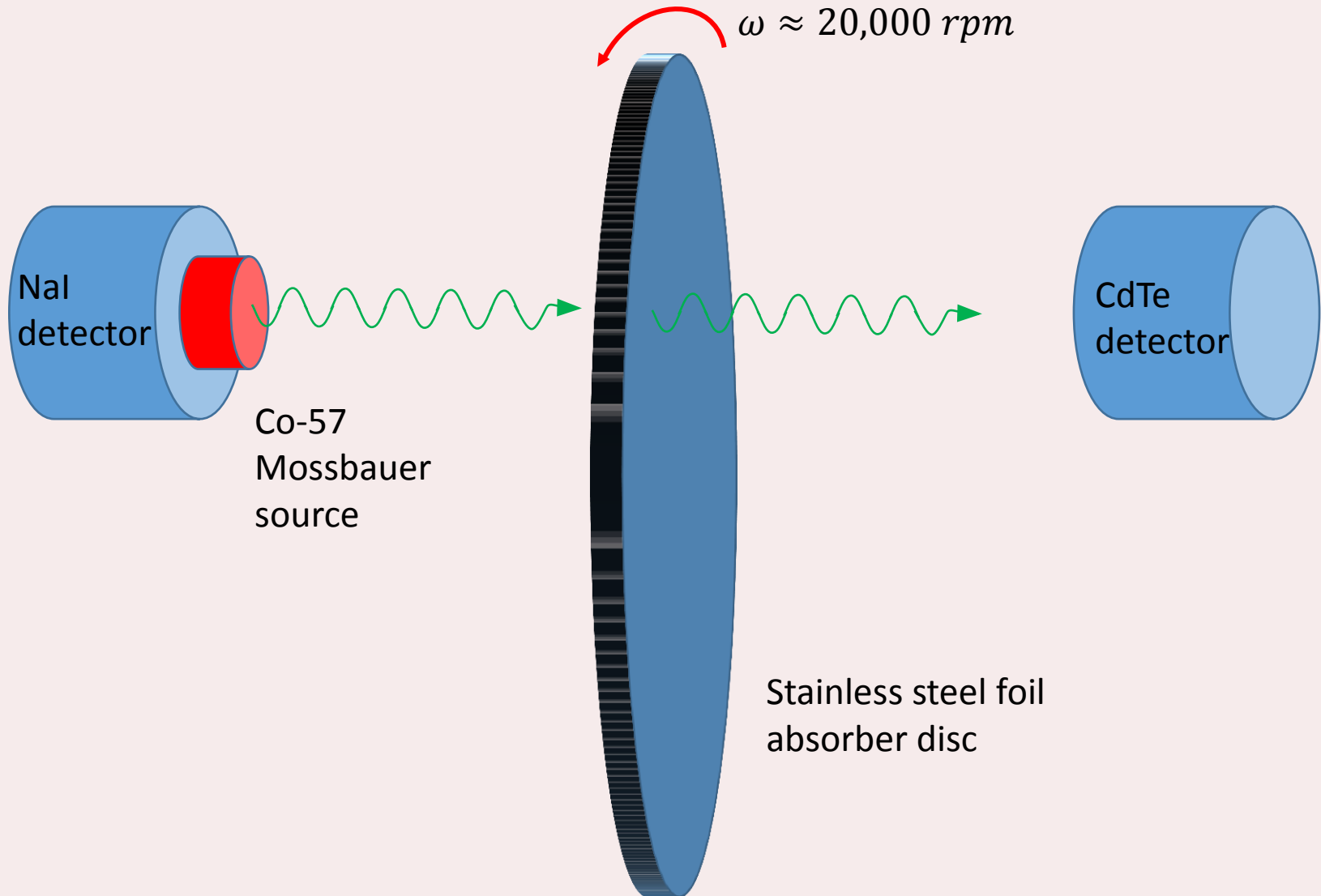
Resonance Fluorescence



Longitudinal Doppler Shift



Transverse Doppler Shift



Experimental Procedure

Step 1: Making a Co-57 Mossbauer Source

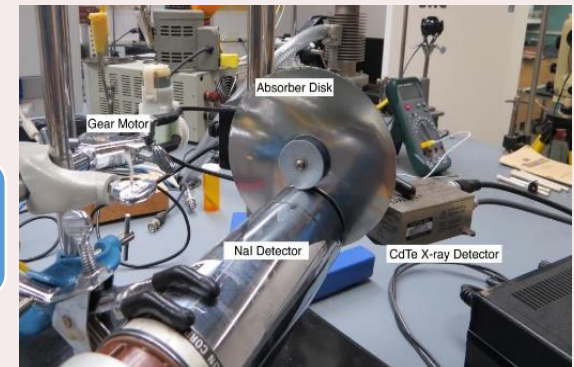
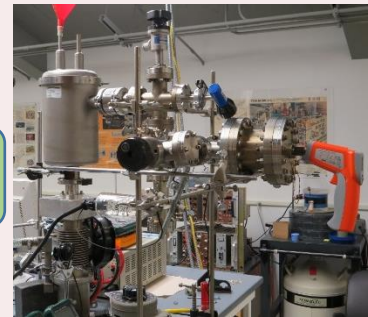
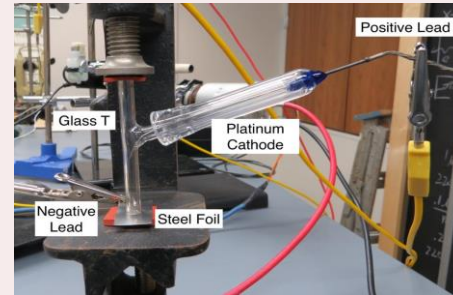
Electroplating Co-57 onto steel foil

Heat Foil

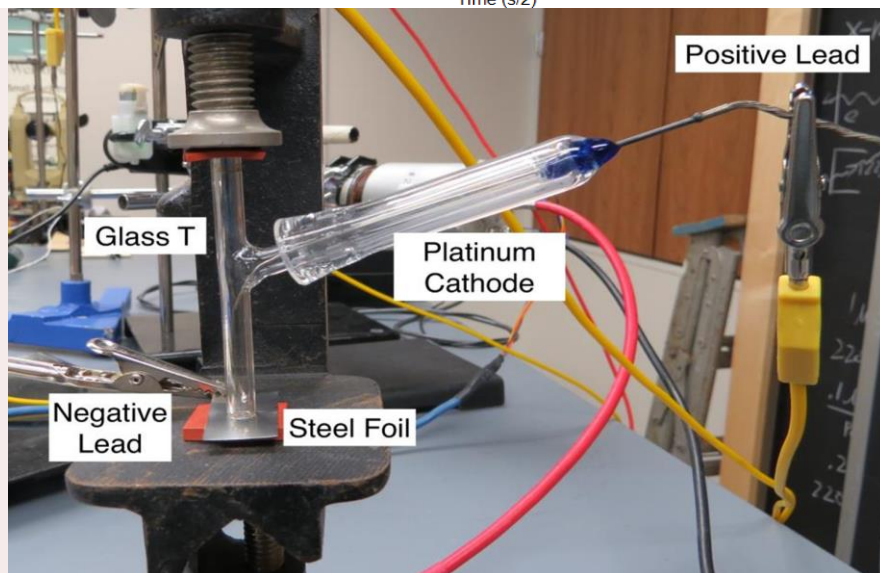
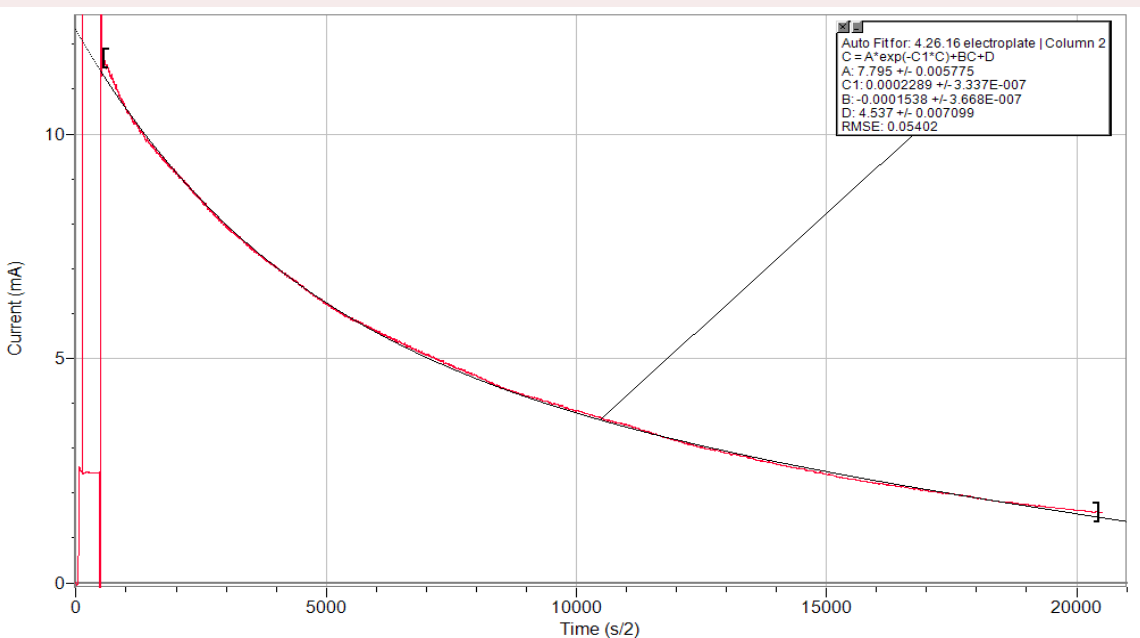
Calibrate IR sensor

Step 2: Longitudinal Doppler Shift

Step 3: Transverse Doppler Shift

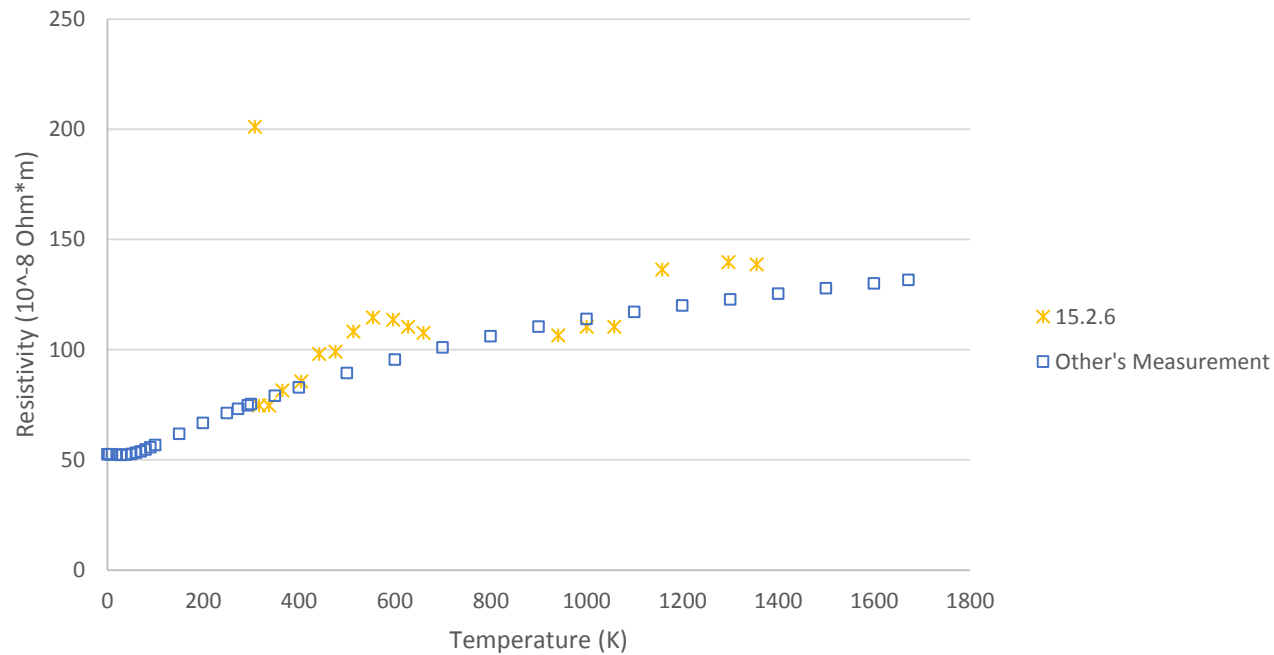
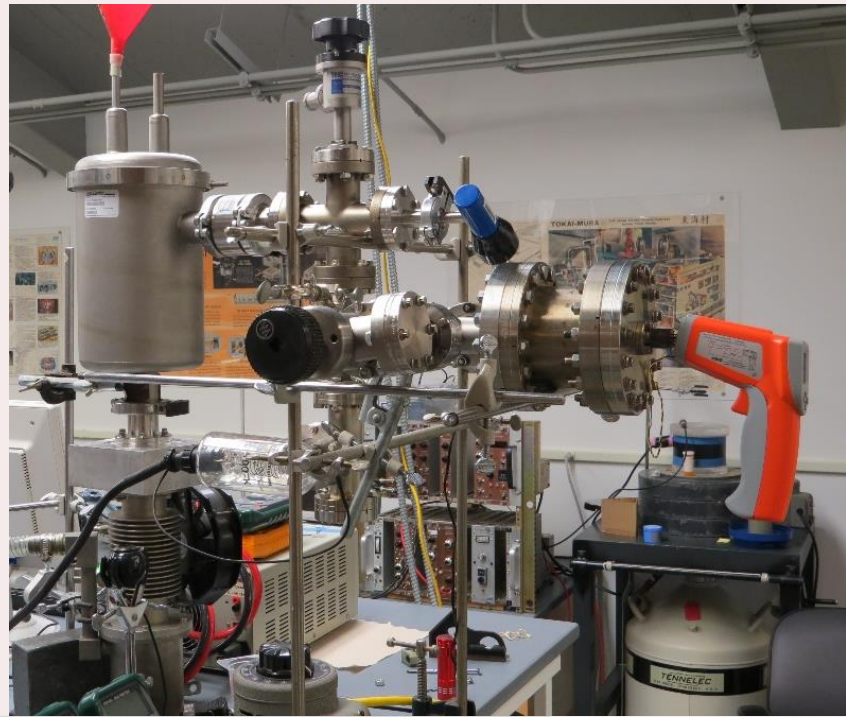


Step 1-Electroplating Co-57

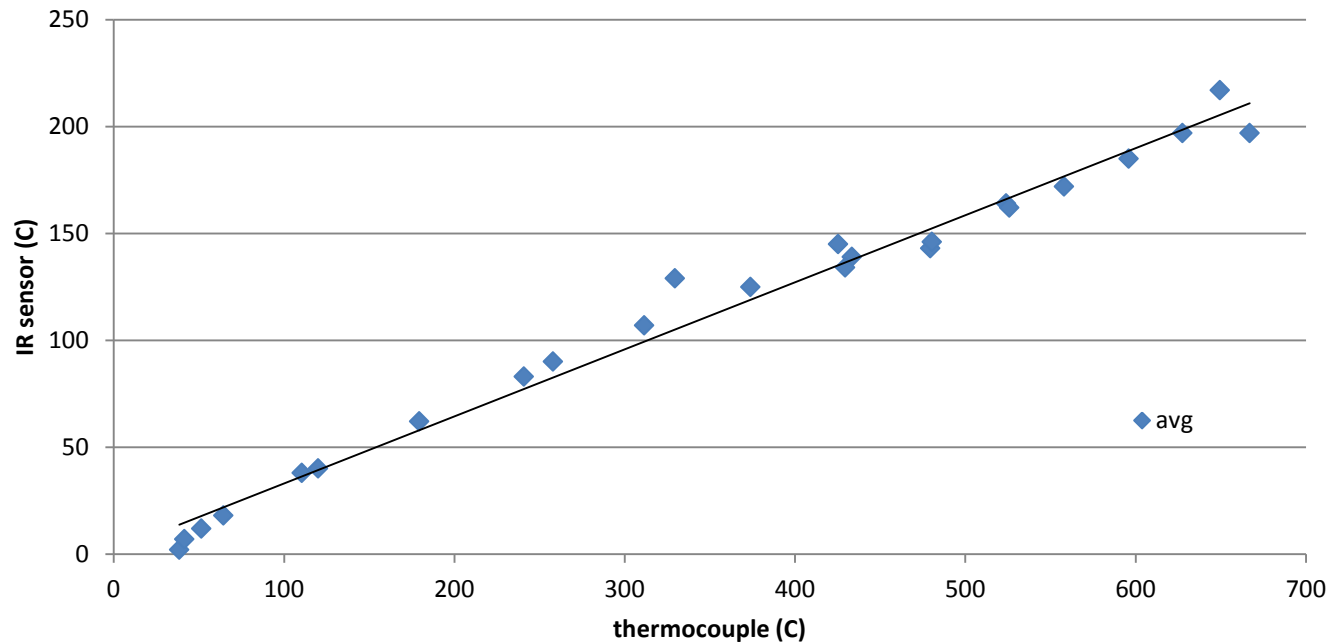
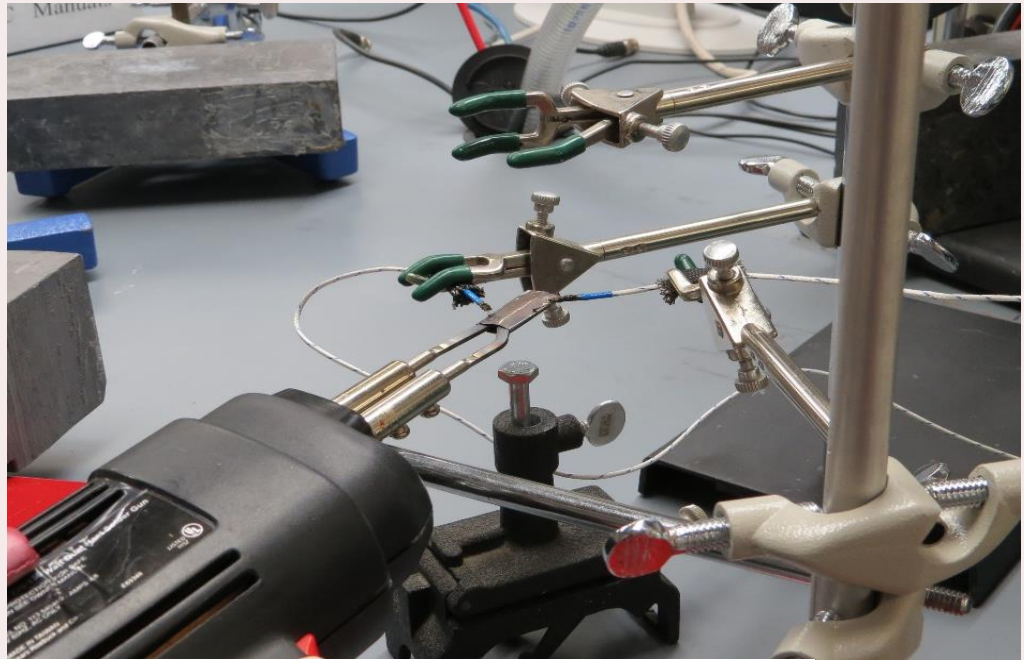


Method	Co-57 electroplated
Radioactivity	78%
Mass gain during electroplating	77%
Charge electroplated onto foil	82%

Step 1-Heating the foil



Step 1-Calibrating temp. data for IR measurements



Future Plans/Steps 2 and 3

- Completing Mossbauer source preparation process from start to finish
- Making initial measurements of the longitudinal Doppler effect

