

# Rates of UITF 200 keV Mott Polarimeter

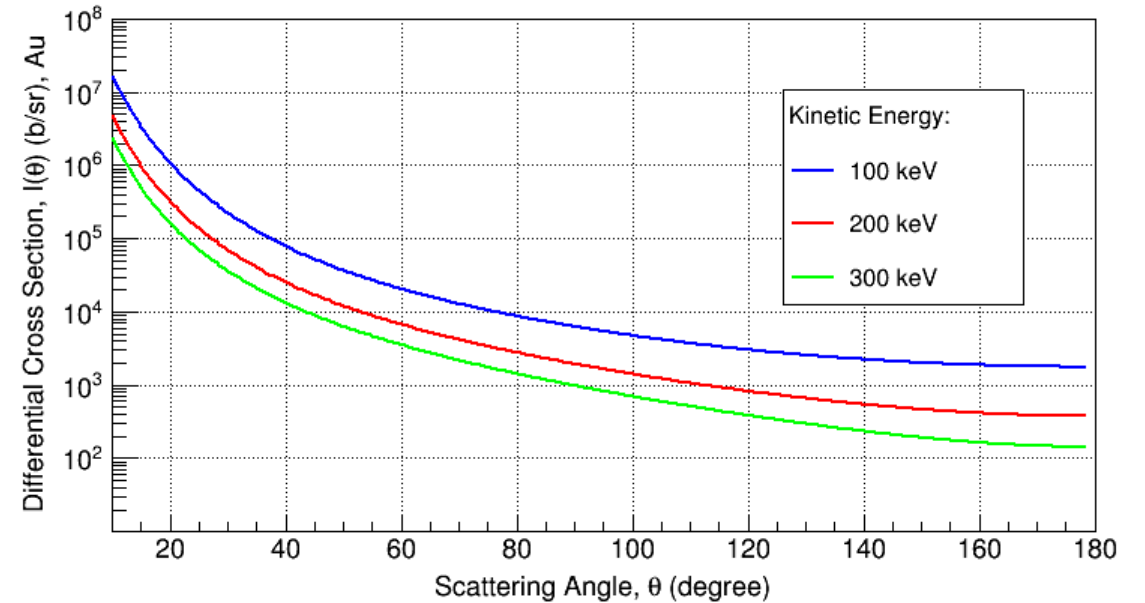
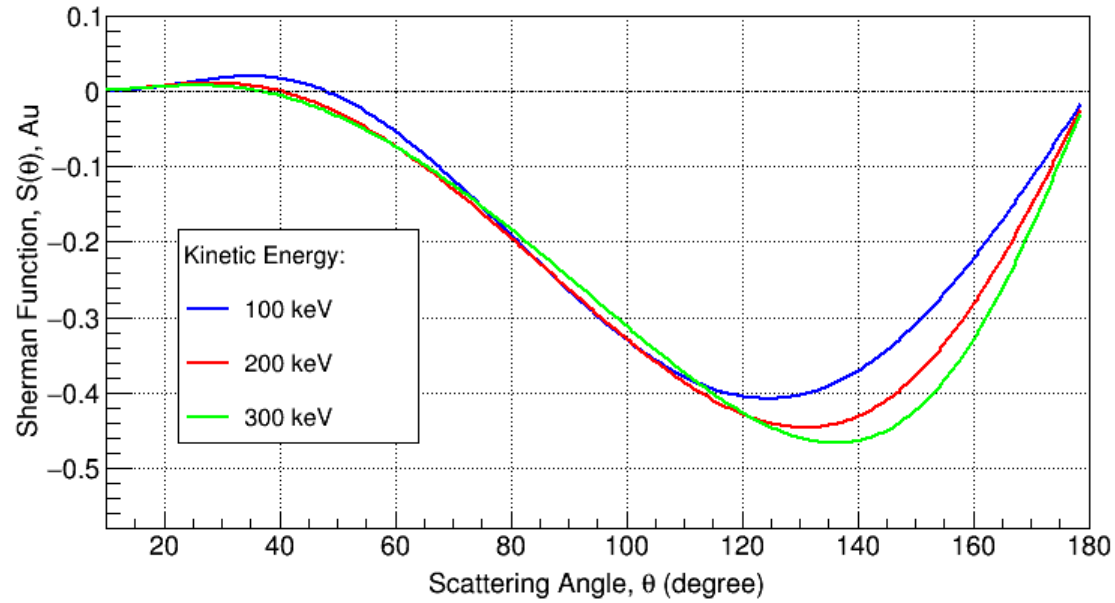
Figure-of-Merit and Rates of New 200 keV  
Mott DAQ

Riad Suleiman

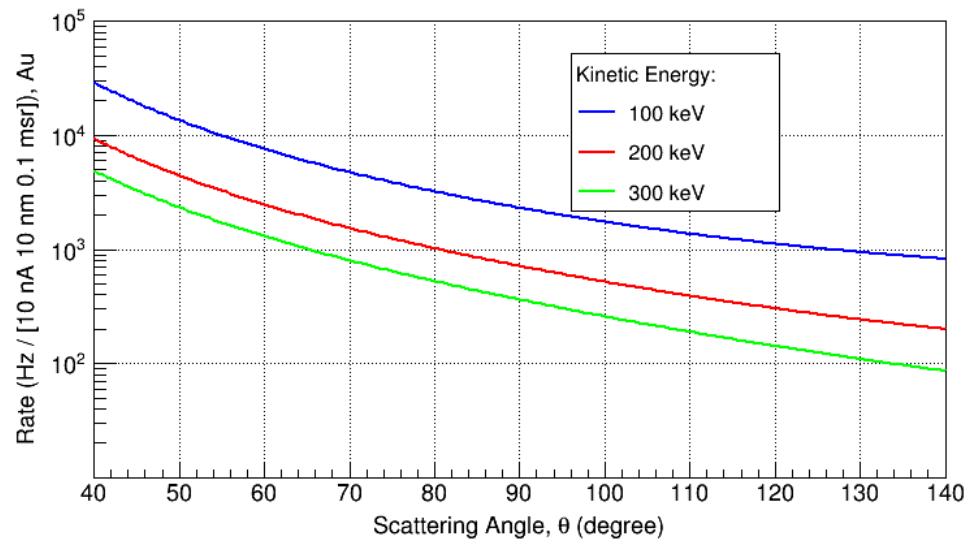
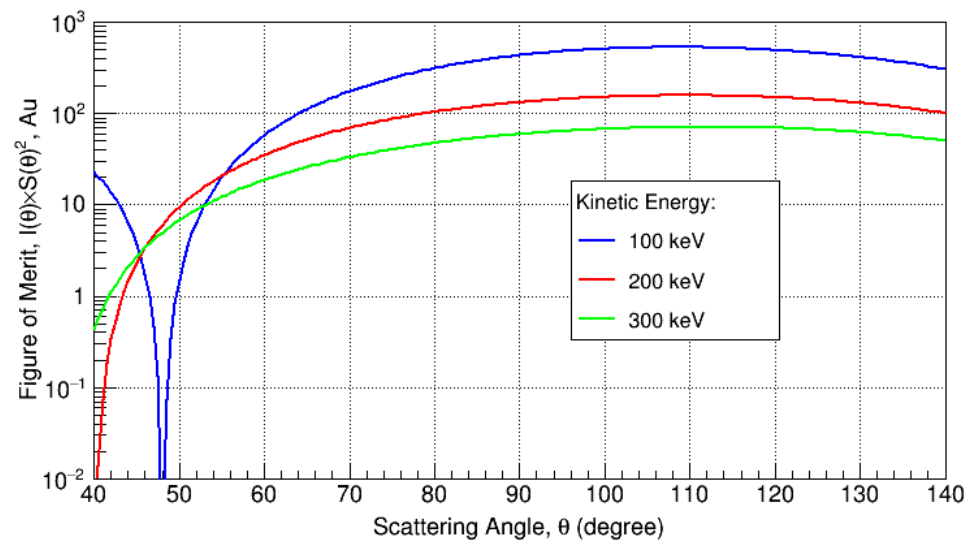
Wednesday, December 8, 2021

 Jefferson Lab

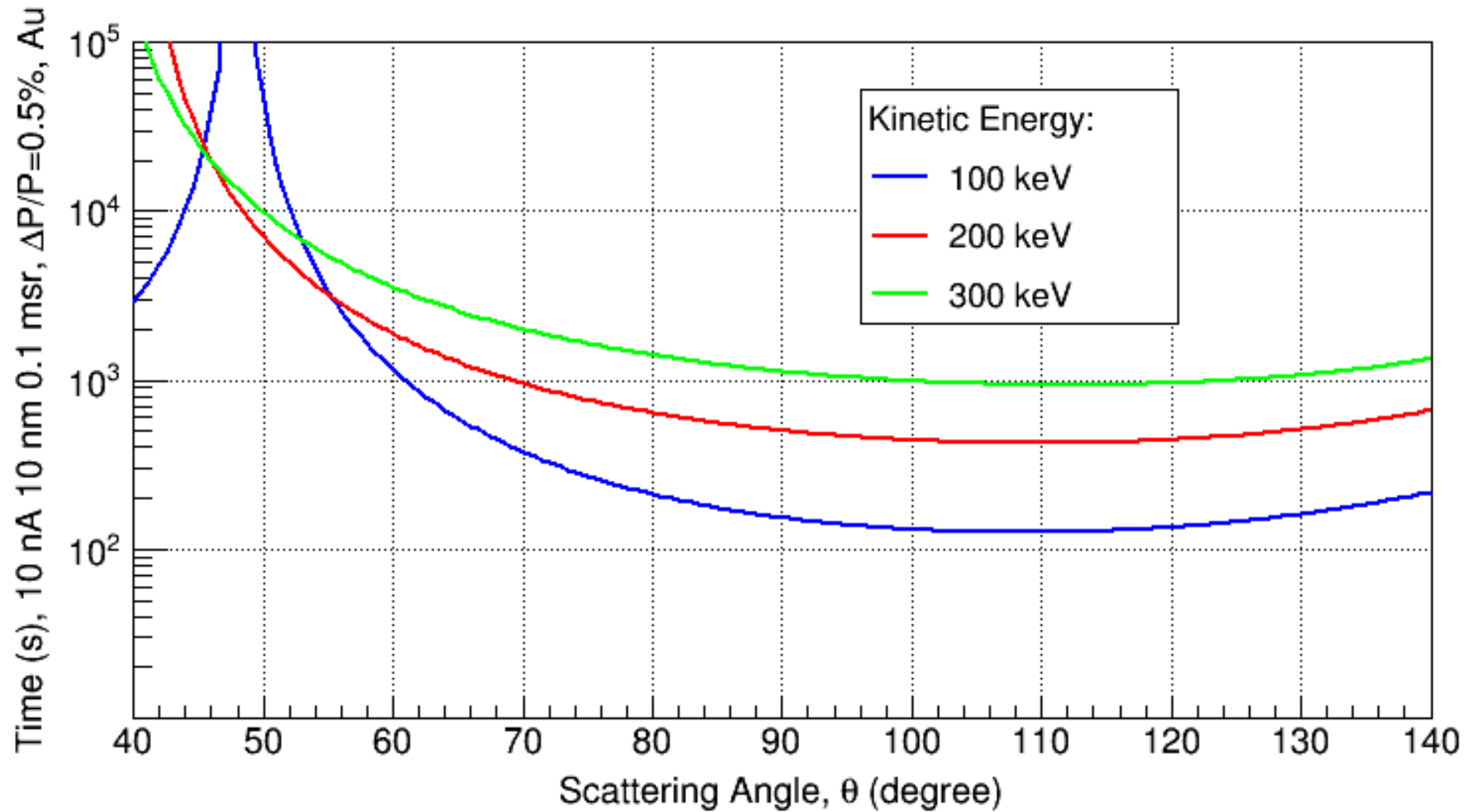
# Sherman Function and Differential Cross Section, Au



# Figure-of-Merit and Rates



# DAQ Time



# Target and Rates

- Gold Targets: 100, 300, 500 Å
- Solid angle of 0.11 msr (hole with diameter of 0.02” at 1.6875”)
- Backward scattering angle of 120 degrees:

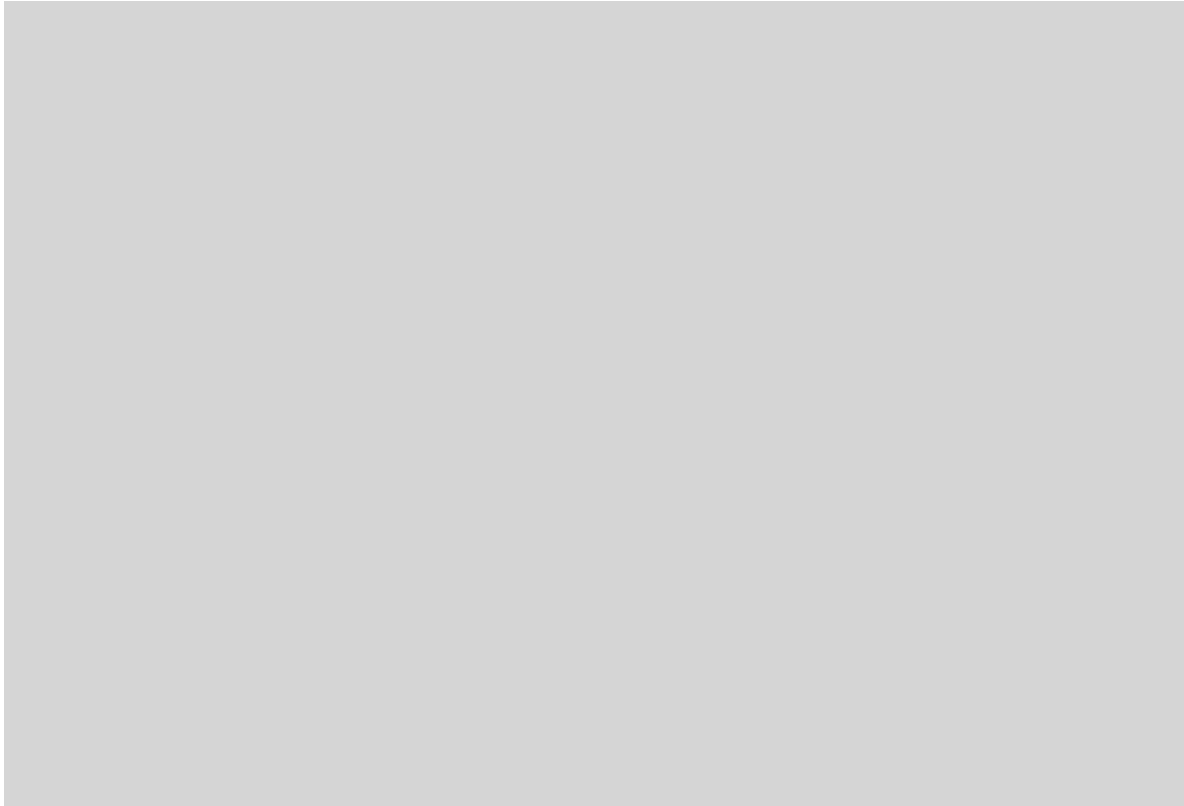
	200 keV
Au Target (Å)	100
Current (nA)	50
Rate per detector(Hz)	1500
Time (s), $\frac{\delta p}{p} = 0.5\%$	100

- New DAQ limit is 10 kHz
- Increase hole diameter from 0.5 mm to 2 mm – new solid angle is 1.76 msr

	200 keV
Au Target (Å)	100
Current (nA)	10
Rate per detector(Hz)	5000
Time (s), $\frac{\delta p}{p} = 0.5\%$	30



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Wednesday, December 8, 2021

