

AbstractID: 5211 Title: Low Energy Experimental Elastic Cross Sections for Medical Physics Application

**Purpose:**

Elastic cross sections for electron energies below 10 MeV are fundamental quantities needed in treatment planning systems used at hospitals and health facilities. To date, there is very little if not no data within that energy regime.

**Method and Materials:**

In collaboration with the high current, high energy resolution continuous electron beam of the Department of Energy's Jefferson Lab accelerator, we have performed a first stage of dedicated experiments with energies of 100-150 keV to collect data for this type of reactions. The targets used were gold, copper and silver. A Mott scattering chamber was used to detect the outgoing electrons.

**Results:**

We will present the first results of this program that aims at performing a wide range of measurements including the use of polarization data for spin studies.

**Conclusion:**

This research will provide much needed electron cross section data in the 100-150 keV range for treatment planning, dose calculation, and development of mono energetic Brachytherapy sources. The effects of polarization on cancer cell response will also be studied.