Abstract Submitted
for the DAMOP06 Meeting of
The American Physical Society

The use of a shaped mesh lens in electron optics.[1] B.A. DEHARAK, N.L.S. MARTIN, U. Kentucky — In electron impact ionization studies, an electron optical system is often used to (a) transport electrons from the interaction region to the entrance of an energy analyzer, and (b) adjust the energy of the electrons to that required by the analyzer. To obtain good resolution using electrostatic energy analyzers, such as the hemispherical sector type, low pass energies (a few eV) are required. However, such analyzers are often used in the detection of electrons with energies of tens of eV (*e.g.* those ejected from the He $2\ell 2\ell'$ autoionizing levels with $E_{ej} \sim 35$eV) and, if conventional electron optics are used, the required retardation increases the angular spread of trajectories at the analyzer entrance. This has the unwelcome effect of either degrading the energy resolution, or, if angular stops are used, substantially reducing the intensity. We have designed an electron optical system that uses shaped mesh lenses to achieve the required retardation without the attendant increase in angular spread. We will present simulations using SIMION 3D 7.0 Ion and Electron Optics Software.

[1]Work supported by NSF Grant PHY-9987861

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Date submitted: 23 Feb 2006 Electronic form version 1.4