gaussian characteristic of the Molière theory, which is somewhat wider than $M_{A1}(y)$ for the method of selecting y' discussed above.

Figs. 1, 2, and 4 show the characteristic functions when only elastic processes are included. It is seen that $M_1(y)$ remains considerably greater than g_B in a region where the Moliere curve is almost the same as the point nucleus single scattering curve. This is consistent with the above discussion since the logarithmic slope of the point nucleus g(y) is much smaller than the extended nucleus g(y) so the required sidewise displacement is less, and the result of a given sidewise displacement is also less (using Eq. 15.). When inelastic scattering is included, Figs. 3 and 5, the curves approach those for a point nucleus, decreased by a factor Z^{-1} at very large y.

It is instructive to make a further comparison of this method and the second method (of the next section) for $y > 4$, say. This method folds together the small angle multiple scattering gaussian with the large angle <u>multiple</u> scattering distribution, while the second method essentially folds together a <u>wider</u> gaussian and the law for <u>single</u> scattering. The second method uses an expansion in terms of the parameter $(4G)^{-1}$ described below, neglecting terms of order $(4G)^{-2}$ and beyond. This very roughly corresponds to neglecting multiple large angle scattering, so the first method would be expected to be more reliable in cases where such effects are not negligible.

As a final point of interest, we note that the curves given in terms of y apply for all relativistic momenta where $\beta \approx 1$.