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Multiple Scattering Effects in Ionization Processes

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The momentum distributions of electrons emitted in the ionization of atoms and molecules by the impact of photons or massive particles usually present interference patterns similar to those of the demonstrations with light proposed by Thomas Young more than two centuries ago. Furthermore, these cross sections also display richer structures due to the same multiple-scattering effects that are at the origin of different techniques to probe atomic aggregates and solid samples. In this talk, I will review these effects and discuss some of their most important characteristics, showing that they lead to distortions that are not fully replicated by non-scattering or even single-scattering approximations.