

International Conference on

Atomic and Nuclear Physics

November 17-18, 2016 Atlanta, USA

On the role of bremsstrahlung in electron-nucleus collisions

Doris Jakubassa-Amundsen

Ludwig Maximilian University of Munich, Germany

A precise knowledge of electron-nucleus bremsstrahlung is important for estimating its influence on the electron spectra from nuclear excitation. In coincidence experiments, planned at the S-DALINAC accelerator set-up in Darmstadt (Germany), the photons from electron bremsstrahlung compete with those from 'nuclear bremsstrahlung' resulting from the subsequent decay of the excited nucleus. The sensitivity of such experiments to nuclear structure effects can be increased by measuring, beyond the intensity, the polarization correlations between the projectile electron and the emitted photon. The relativistic partial-wave approach to electron bremsstrahlung is extended to collision energies up to 30 MeV in order to test the validity of the PWBA for heavy nuclei and to extrapolate the extracted PWBA enhancement factors to somewhat higher energies. Our examples include the bremsstrahlung contribution to the excitation spectra from 46MeV $e+^{150}\text{Nd}$ collisions, recently measured at the S-DALINAC, as well as predictions for the coincident ($e; e^0$) experiments focusing on the 2+ excitation of ^{92}Zr .

Biography

Doris Jakubassa-Amundsen has completed her PhD in Natural Sciences from the Technical University of Munich, Germany, and her PhD in Mathematics in 2004 from the LMU University of Munich. She is privatdozent at the Goethe University of Frankfurt, Germany and Research Associate at the LMU University of Munich. Her research interests include theory of radiation from ion-atom and electron-nucleus collisions, low-energy nuclear excitation by electron impact, polarization, etc.

dj@math.lmu.de