



Beitrag ID: 9

Typ: Talk

Electron Spectra obtained at Zero Degrees in Collisions of B(3,4)+ Beams with Methane Molecules

Mittwoch, 17. September 2025 11:55 (25 Minuten)

The interaction of fast ions with molecules of biological interest is a topic of unceasing research interest due to its inherent application to radiation damage of biological tissue [1]. Additionally, such collision systems provide stringent tests for advanced distorted-wave collision theories [2]. Here we report measurements of electron DDCS spectra obtained at zero-degree emission angle with respect to the ion beam from collisions of 11 MeV H-like and He-like boron ions with CH₄ molecules. Theoretical DDCS spectra resulting from CDW and CDW-EIS theories along with their respective variants are critically compared to the measurements. While both theories show good overall agreement, specific differences and features observed in the cusp and BEe peak regions provide a basis for further discussion regarding the theories considered.

References

- [1] H. Takabe and Y. Kuramitsu, High Power Laser Sci. Eng. 9, e49 (2021).
- [2] S. Nanos et al, Phys. Rev. A 107, 062815 (2023).

Autoren: NANOS, Stefanos (Department of Physics, University of Crete, GR-70013 Heraklion, Greece); Dr. QUINTO, Michele Arcangelo (Instituto de Física Rosario (CONICET-UNR), Bv 27 de Febrero 210 bis, Rosario 2000, Argentina); Herr SPITHAKIS, Giorgos (Department of Physics, University of Crete, GR-70013 Heraklion, Greece); Prof. ZOUROS, Theo J. M. (Department of Physics, University of Crete, GR-70013 Heraklion, Greece & Tandem Accelerator Laboratory, Institute of Nuclear and Particle Physics, NCSR “Demokritos”, GR-15310 Ag. Paraskevi, Greece); Herr ESPONDA, Nicolas (Instituto de Física Rosario (CONICET-UNR), Bv 27 de Febrero 210 bis, Rosario 2000, Argentina); Prof. RIVAROLA, Roberto (Instituto de Física Rosario (CONICET-UNR), Bv 27 de Febrero 210 bis, Rosario 2000, Argentina & Laboratorio de Colisiones Atómicas, FCEIA, IFIR, Universidad Nacional de Rosario, Avenida Pellegrini 250, Rosario 2000, Argentina); Prof. MONTI, Juan Manuel (Instituto de Física Rosario (CONICET-UNR), Bv 27 de Febrero 210 bis, Rosario 2000, Argentina & Laboratorio de Colisiones Atómicas, FCEIA, IFIR, Universidad Nacional de Rosario, Avenida Pellegrini 250, Rosario 2000, Argentina); Prof. BENIS, Emmanouil (Department of Physics, University of Ioannina, GR-45110 Ioannina, Greece)

Vortragende(r): NANOS, Stefanos (Department of Physics, University of Crete, GR-70013 Heraklion, Greece)

Sitzung Einordnung: Session 7