

Universität



Potsdam

4th DEA CLUB MEETING



BOOK OF ABSTRACTS

19th to 21st June

Potsdam, Germany, 2024



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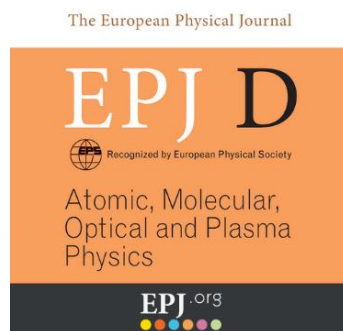
Local Organizers

- João Ameixa
- Daniela Höpfner
- Ilko Bald

Cover Editing & Photography

- Sibylle Rüstig

Sponsor



Thursday – Day 2 – Morning Sessions – 20.06.2024

Session 6		<i>Electron Dynamics: From Interstellar Clouds to Materials</i>		Chair: Mónica Mendes
09:00-09:30	Keynote Lecture	Ann Orel	University of California Davis, USA	
			<i>"DEA as a Possible Source for CN- in Interstellar Clouds"</i>	
09:30-09:50	Lecture	Kate Nixon	The Open University, UK	
			<i>"Electron momentum spectroscopy of benzonitrile"</i>	
09:50-10:10	Lecture	Daly Davis	Somaiya Vidyavihar University, Mumbai, India	
			<i>"Low Energy Electron-Induced Chemistry: Insights into Astrochemistry"</i>	
10:10-10:30	Lecture	Simone Taioli	European Centre for Theoretical Studies in Nuclear Physics and Related Areas (ECT), Fondazione Bruno Kessler - Trento (Italy)	
			<i>"Electron collisions: From materials science to astrophysics"</i>	
10:30-11:00	Coffee Break			
Session 7		<i>Exploring Electron Interactions with Gaseous Molecules</i>		Chair: Dhananjay Nandi
11:00-11:30	Keynote Lecture	Vaibhav S. Prabhudesai	Tata Institute of Fundamental Research, India	
			<i>"Electron attachment to overlapping resonances"</i>	
11:30-11:50	Lecture	Jelena Maljkovic	Institute of Physics Belgrade, Serbia	
			<i>"Electron interaction with anaesthetic molecules in the gas phase"</i>	
11:50-12:10	Lecture	Shanxi Tian	University of Science and Technology of China, China	
			<i>"Dissociative electron attachment of molecular CO₂ and clusters"</i>	
12:10-12:30	Lecture	Gustavo García	Consejo Superior de Investigaciones Científicas (CSIC), Spain	
			<i>"New insights into the electron attachment to nitric oxide (NO)"</i>	
12:30-14:00	Lunch			

Absolute differential cross sections for elastic electron scattering by desflurane - a case of anesthetic molecule in gas phase

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Motivation for this research has become by the significant impact of anesthetic molecules in global warming¹. Relative differential cross sections (DCSs) were obtained and normalized on an absolute scale by using the relative flow technique, with argon as the reference gas. Independent Atom Model and the Screening Corrected Additivity Rule with incorporated Interference effects (IAM-SCAR+I) was used to calculate the theoretical differential cross sections. Measurements have been carried out for anesthetics molecules, such as isoflurane¹, sevoflurane² and desflurane.

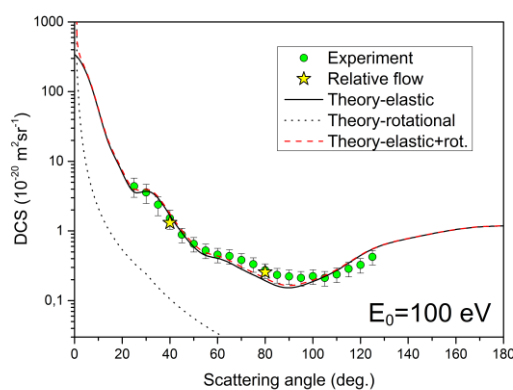


Figure 1 Angular dependence of the DCSs for elastic electron scattering from desflurane at 100 eV. Circles represent absolute experimental differential cross sections; stars represent absolute values obtained by relative flow method and lines represent calculations.

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¹ J.V. & J.B.M., (2024) Investigating Theoretical and Experimental Cross Sections for Elastic Electron Scattering from Isoflurane, *Phys. Chem. Chem. Phys.* **26**, 985-991, doi: 10.1039/D3CP05052A.

² J. V. & B.P. M. (2022) Absolute differential cross-sections for elastic electron scattering from sevoflurane molecule in the energy range from 50-300 eV, *Int. J. Mol. Sci.* **23** 10021, doi: 10.3390/ijms23010021