



33rd SUMMER SCHOOL AND
INTERNATIONAL SYMPOSIUM ON
THE PHYSICS OF IONIZED GASES

August 25-28, 2026
Belgrade, Serbia

BOOK OF ABSTRACTS

Editors

Dragana Marić · Saša Dujko · Sanja Tošić
Jelena Marjanović · Bratislav Obradović



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ELASTIC ELECTRON SCATTERING FROM GAS-PHASE INHALATION ANAESTHETIC MOLECULES

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Electron interactions with biologically relevant molecules play an important role in radiation physics, plasma medicine, and electron-driven chemical processes. In this work, we investigate elastic electron scattering from the gas-phase inhalation anaesthetics halothane (Maljković *et al.* 2023), sevoflurane (Vukalović *et al.* 2022), isoflurane (Vukalović *et al.* 2024), and desflurane (Vukalović *et al.* 2026), which are widely used in clinical practice and represent structurally complex halogenated molecules. Besides their medical relevance, these compounds are also potent greenhouse gases with high global warming potentials (GWPs), motivating studies of their electron-induced processes and collision dynamics in the context of atmospheric chemistry and environmental modelling.

Elastic electron scattering is studied using a crossed electron–molecular beam apparatus operating under single-collision conditions. Differential cross sections are determined by the relative flow method over a broad range of incident electron energies and scattering angles. The experimental measurements are complemented by theoretical calculations based on the Independent Atom Model with the Screening Corrected Additivity Rule and interference corrections (IAM-SCAR+I), providing a comprehensive description of electron scattering from these polyatomic molecular targets.

The measured and calculated differential cross sections show overall good agreement, demonstrating the reliability of the combined experimental and theoretical approach for describing electron collisions with fluorinated inhalation anaesthetics. The new cross-section data contribute to the limited database available for these medically and environmentally important molecules, supporting the modelling of low-energy electron transport and collision-induced processes in complex molecular systems.

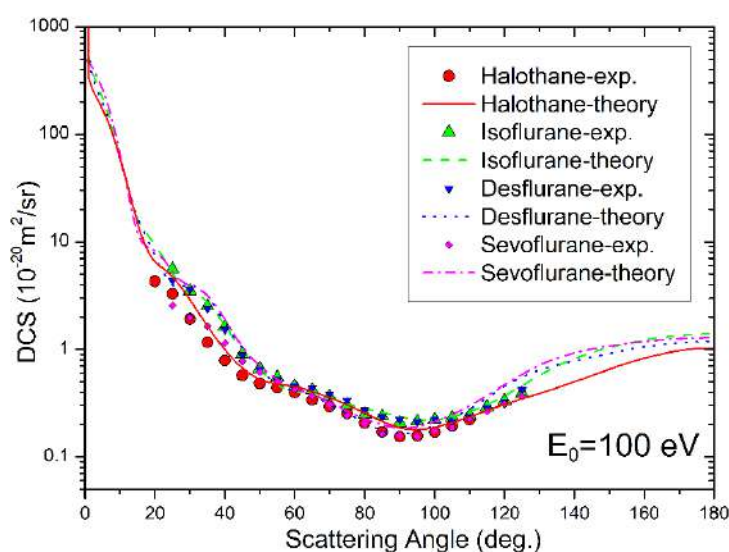


Figure 1: Experimental and IAM-SCAR+I differential cross sections (DCSs) for elastic scattering of 100 eV electrons by gas-phase inhalation anaesthetics.

References

- Maljković, J.B. *et al.* (2023) *Eur. Phys. J. Plus*, **138**, 349
Vukalović J. *et al.* (2022) *Int. J. Mol. Sci.* **23**, 21
Vukalović J. *et al.* (2024) *Phys. Chem. Chem. Phys.* **26**, 985
Vukalović J. *et al.* (2026) *Phys. Chem. Chem. Phys.* **28**, 13496.

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