Book of Abstracts

1st annual meeting of the MD-GAS COST Action

organized in the framework of the
COST Action CA18212 "Molecular Dynamics in the GAS phase"

18th - 21st February 2020
Caen, France

About MD-GAS

Emerging highly advanced ion-beam traps and storage rings combined with synchrotrons, X-ray facilities, and high performance computers offer completely new ways to study Molecular Dynamics in the GAS phase (MD-GAS). Cryogenic traps and rings will allow studies of decay and reaction processes involving molecular ions in well-defined conformations and in single or narrow ranges of quantum states.

The MD-GAS COST Action aims to further develop and fully exploit the exceptional potential of the above range of tools to unravel the connection between the initial energy transfer in interactions between isolated molecules or clusters and photons, electrons, or heavy particles (ions, atoms, molecules) and the related molecular dynamics in unexplored time domains ranging from sub-femtoseconds to minutes and hours.

Furthermore, the Action aims to identify reaction mechanisms and routes that lead to the growth of new molecular species, clusters and aerosols. The new knowledge will be important for fundamental atomic and molecular physics, chemical physics, and for applications in radiation therapy and -damage on the nanoscale, astrochemistry, astrobiology, atmospheric science, and climate research.

The MD-GAS COST Action is organized in three Working groups:

- New high-performance instrumentation and experimental methods to study gas phase molecular dynamics at ion-beam storage rings and traps, at synchrotrons and X-ray facilities;
- Survival and destruction of molecules following their processing by heavy particles, electrons, or photons;
- Charge-, energy flow, and molecular growth processes in intermolecular and intra-cluster reactions.

Organisation

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Alicja Domaracka

Scientific committee

Paola Bolognesi	Italy
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Alicja Domaracka	France
Marta Łabuda	Poland
Thomas Schlathölter	Netherlands
Sanja Tosić	Serbia
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Local organising committee

Suvasthika Indrajith
Chiara Nicolafrancesco
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Abstracts of presentations

ELASTIC ELECTRON SCATTERING ON MOLECULES IN THE GAS PHASE AT MEDIUM ENERGY RANGE

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We have investigated elastic electron scattering in the medium energy range from molecules in the gas phase. The measurements of the elastic differential cross sections (DCS) are performed with a cross electron-target beam apparatus UGRA [1], settled in the Institute of physics in Belgrade. Relative DCSs were normalized to the absolute scale according to points obtained using a relative flow technique. For this procedure Ar was used as a reference gas [2]. We have performed measurements for elastic electron scattering on different molecules, including anaesthetics [3], and absolute DCS for elastic electron scattering on sevoflurane at 300 eV is presented in Figure 1.

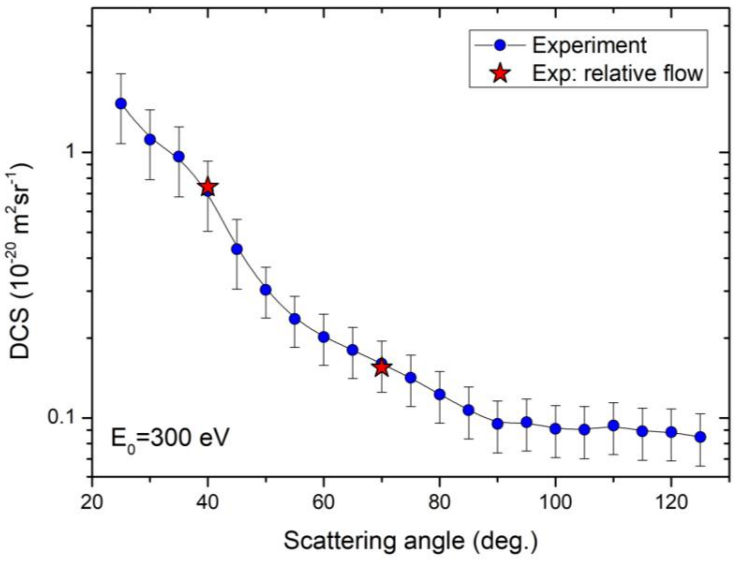

Figure 1: Angular dependence of the DCSs for elastic electron scattering from sevoflurane at 300 eV. Circles represent absolute experimental differential cross sections; stars represent absolute values obtained by relative flow method.

References

[1] A. R. Milosavljević, S. Mandžukov, D. Šević, I. Čadež, and B. P. Marinković, *J. Phys. B*, **39**, 609, (2006)

[2] M. Lj. Ranković, J. B. Maljković, K. Tökési and B. P. Marinković, *Eur. Phys. J. D* **72**, 30, (2018).

[3] J. B. Maljković, A. R. Milosavljević, Z. Pešić, F. Blanco, G. García, D. Šević and B. P. Marinković, Publ. Astron. Obs., 89, 33, (2010).

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Presentation

The 1st annual meeting of the COST Action CA18212 "Molecular Dynamics in the GAS phase" – MD-GAS – will be held in Caen (France) from Tuesday February the 18th 2020 to Friday February the 21st 2020.

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Important dates

Registration deadline:
31/01/2020

Abstract submission deadline:
31/01/2020

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Program

Timetable

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Itinerary to Café Mancel

Train schedule

Online user: **1**

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