



3–5 November 2025 – Belgrade, Serbia

3–5. новембар 2025 – Београд, Србија

BOOK OF ABSTRACTS

Књига апстраката

CEQPAS 2025

Centennial of Quantum Theory: Progress in Atomic and Molecular Structure CEQPAS 2025

Book of Abstracts
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3-5 November 2025, Belgrade, Serbia
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<https://www.moless-spectroscopy.org/>

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University of Belgrade - Institute of Chemistry, Technology and Metallurgy
MOlecular Excited State spectroscopy (MOLESS) Consortium

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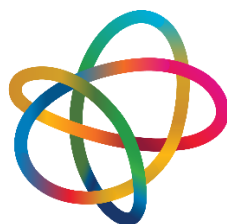
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INTERNATIONAL YEAR OF
Quantum Science
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MOLESs
MOLEcular Excited State spectroscopy

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AtMolCol

A welcome to CEQPAS 2025

This year we celebrate a hundred years of the Nobel Prize in Physics awarded to James Franck and Gustav Hertz for their ingenious experimental finding that in collisions of electrons with atoms, the energy is absorbed in a quantized manner and proving the Niels Bohr model of the atom. It is also a year when we honour eighty years of Wolfgang Pauli's acceptance of the Nobel Prize for the discovery of the exclusion principle, named after him, the "Pauli principle", which underpins our understanding of the structure of matter. These two groundbreaking discoveries formed part of the emergence of quantum mechanics as the basis for unravelling the nature of the atomic and molecular world. Accordingly, 2025 was declared by the United Nations as the "International Year of Quantum Science and Technology (IYQ)", recognising 100 years since the initial development of quantum mechanics. Hence, we are organising the conference "Centennial of Quantum Theory: Progress in Atomic and Molecular Structure (CEQPAS)" to present the advancements of quantum physics in diverse fields such as:

- Atomic and molecular spectroscopy and its applications to atmospheric sciences and astronomy;
- Collisions and their applications in plasma physics;
- Studies in Chemical physics & physical chemistry;
- The application of quantum science to our wider understanding of phenomena, including radiation sciences;
- The use of Artificial Intelligence (AI) and Machine Learning (ML) for atomic and molecular data analysis and generation.

We are delighted to organise this conference in Belgrade, the capital of the Republic of Serbia, at two institutes of national importance: the Institute of Physics Belgrade and the Institute of Chemistry, Technology and Metallurgy. During the conference, more than 25 speakers will present the state of the art across the different topics represented in the conference; summaries of these talks are presented in this Book of Abstracts. Immediately after the CEQPAS conference, we will hold the inaugural meeting of the MOLEcular Excited State spectroscopy (MOLESs) Consortium. This consortium has been established to review the status of our knowledge of the electronic spectroscopy of molecules, revising and extending the classic series of Melvin Robin's three-volume books on "Higher Excited States of Polyatomic Molecules". A series of reviews of the electronic state spectroscopy of different molecular series in different phases —

gaseous, liquid and solid — will be presented together with reviews of different experimental and theoretical methods used to collect this data and a discussion of relevance to important applications.

We hope all participants enjoy the scientific content of the conference, allowing new collaborations to be formed. We also hope participants will take the opportunity to explore Belgrade.

Finally, we wish to thank all who have contributed to the success of the CEQPAS and MOLEs meeting and who will help to celebrate the IYQ.

On behalf of the Scientific Committee,

Nigel J. Mason & Bratislav P. Marinković

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