



COLOGNE 2021

29 August – 3 September, 2021

<https://hrms21.scg.ch>



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THERESE HUET
Laboratoire PhLAM
Université de Lille
CNRS UMR 8523
France

FREDERIC MERKT
Lab. für Physikalische
Chemie,
ETH Zürich,
Switzerland

PAOLO DE NATALE
Istituto Nazionale di Ottica-
CNR
Firenze,
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Second Circular: March 2021

The 27th Colloquium on High-Resolution Molecular Spectroscopy, HRMS 2021, will be held in the period August 29 – September 3, 2021 as a VIRTUAL CONFERENCE due to the pandemic situation.

The scientific program is unchanged and we are pleased to announce that all invited speakers have confirmed their participation in the online conference. For details of the program and the actual format of the online event

please visit the [HRMS 2021 webpage](https://hrms21.scg.ch)

Covid-19 Information:

Due to the Covid-19 pandemic, **the symposium will be held as a virtual conference** in the period August 29 – September 3, 2021. Access to registration, abstract submission and to the actual symposium is provided through the [HRMS 2021 webpage](https://hrms21.scg.ch)

Scientific Program:

There will be **11 invited lectures** and **3 mini-symposia (precision-, atmospheric-, and astrophysical spectroscopy)**. Parallel sessions will feature **54 contributed lectures given by PhD students and postdocs**. **Four poster sessions** are planned. All talks will be broadcasted live and poster presentations will take place in special virtual meeting rooms. All sessions are organized to accommodate participation from different time zones. For details of the conference schedule please visit the [webpage](https://hrms21.scg.ch).

As in previous years the scientific fields covered are:

- High resolution rotational, vibrational, and electronic spectroscopy of molecules (radicals, ions, complexes, clusters, ...)
- Molecular dynamics
- Theory assisting the prediction, simulation, and interpretation of spectra
- New techniques for high-resolution spectroscopy
- Applications to atmospheric sciences, astrophysics, planetology, combustion, gas-phase biomolecules, metrology and fundamental physics, cold molecules, etc.

Registration and Abstract Submission:

Registration to the colloquium opens April 1, 2021.

Registration and abstract submission is provided through the [HRMS 2021 webpage](#).

After registration you will be able to submit abstracts via the tools supplied through the website. You can also register without submitting an abstract or submit several abstracts. Please note that, for practical reasons, the first author is always listed as the presenter.

Fees:

Early bird registration fees are 25 € for students and 75 € for senior scientists. These fees will increase to the regular rates after May 15th that are 45 € and 95 €, respectively. After June 15th the late registration fees will be 65 € and 115 €, respectively. This information is also provided on the [webpage](#).

Conference Organization:

The colloquium is organized by the Chair of HRMS2021, Stephan Schlemmer, I. Physikalisches Institut, Universität zu Köln. The conference website, the online infrastructure and services during the colloquium are provided by the Swiss Chemical Society, which is our professional partner for this online conference. For details, please visit our [webpage](#).

Important Dates:

- Deadline for early-bird registration: **May 15th 2021**
- Deadline for regular registration and submission of abstracts: **June 15th 2021**
- 3rd circular with meeting information: **July 2021**

Amat-Mills Awards:

As in previous colloquia, two prizes will be awarded to the best student talk and the best student poster. Applicants should be either working for a PhD or having completed it within the last 12 months (at the time of the meeting). The award will consist of a diploma and the recipient will receive a selection of books. The candidates must present either a regular poster or a contributed talk at the “27th Colloquium on High Resolution Molecular Spectroscopy” on their PhD work and assume the sole responsibility for the presentation during the entire session. Applications are limited to one per research group and must be nominated by the PhD research supervisor who has to briefly explain the reasons for the nomination (1/2 page). This information, together with the start and expected end dates of the PhD, and a printed copy of the abstract of the poster or talk to be selected for the competition, should be sent to the local organizer before June 15th, 2021 (hrms2021@ph1.uni-koeln.de). The abstract itself must also be submitted, as indicated above, before June 15th, 2021.

Special Issue “Molecular Physics”:

As in previous years, a special issue of the **Molecular Physics** journal will be dedicated to the HRMS 2021 Colloquium. This issue will also celebrate the 75th birthday of Dr. **Jean-Marie Flaud**. All participants of the conference are invited to contribute with a paper to this special issue. Details are given on the [webpage](#).

Sponsors and Exhibition Hall:

The Colloquium is sponsored by several leading companies commercializing high-resolution spectroscopy equipment. Check out the exhibition hall for their offers and to get in [contact](#) with their representatives.

WWW Home Page:

Up-to-date information can be found on the conference home page: [HRMS 2021 webpage](#)

You may also contact the local organizing committee via E-Mail : hrms2021@ph1.uni-koeln.de

Invited Speakers

Pascale Ehrenfreund (German Aerospace Center (DLR), Germany):

Space Exploration: Tracing Organics and Habitability in our Solar System and beyond

Clara Sousa-Silva (Harvard University, Cambridge, MA, USA)

Creating a Spectroscopic Toolkit for the Characterization of Exoplanets

Anne Amy-Klein (Université Sorbonne Paris Nord, Villetaneuse, France)

High-Precision Molecular Spectroscopy Referenced to Frequency Standards at the 10^{-14} Level

Isabelle Kleiner (CNRS and Université Paris-Est, Créteil, France)

Spectroscopy of Large Amplitude Motions: From Interstellar Chemistry to Molecular Structures

Thomas R. Rizzo (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

Cryogenic Vibrational Spectroscopy of Conformationally Selected Biomolecules

Ann Carine Vandaele (Royal Belgian Institute for Space Aeronomy, Brussels, Belgium)

Spectroscopic Exploration of the Martian System

Joseph T. Hodges (NIST, Gaithersburg, USA)

Cavity-based Spectroscopy – Towards One-Dimensional Spectra Traceable to the Cs Clock

Edit Mátyus (Eötvös Loránd University, Budapest, Hungary)

Recent Developments and Future Challenges in Molecular Quantum Theory

Henrik Kjaergaard (University of Copenhagen, Denmark)

Accurate Gibbs Energies of Complex Formation

Ad van der Avoird (Radboud Universiteit, Nijmegen, Netherlands)

Para-Ortho Hydrogen Conversion: Solving a 90-Year Old Mystery

Martin Suhm (University of Göttingen, Germany)

A Doorway to Vibrational Resonance and other Benchmarkable Quantities in Hydrate Clusters

Minisymposium 1: Laboratory Astrophysics and Spectroscopy

- **Oskar Asvany (University of Cologne, Germany):**

Rotational Action Spectroscopy in Ion Traps

- **Brett McGuire (MIT, Cambridge, MA, USA):**

Big Game Hunting: Tools and Techniques for Identifying Large Molecules in Space

- **Christine Joblin (IRAP, Toulouse, France):** *Deciphering the Infrared Emission of Astro-PAHs: The Interplay between Laboratory Experiments, Quantum Chemistry and Modelling*

- **Peter Schilke (University of Cologne, Germany):**

High Excitation Molecular Lines in Various Astrophysical Environments

Minisymposium 2: Environmental and Atmospheric Spectroscopy

- **Agnès Perrin (CNRS, Ecole Polytechnique, France):**

Molecules of Tropospheric or Stratospheric Interest: From Laboratory Spectroscopy to Satellite Applications

- **Didier Mondelain (CNRS and Université Grenoble Alpes, France):**

Molecular Spectroscopy by Laser Techniques for the Study of Planetary Atmospheres

- **Georg Wagner (German Aerospace Center (DLR), Germany):**

FT Spectroscopy in Support of Atmospheric Spectroscopic Databases: Recent Advances at DLR

- **Lilian Joly (CNRS and Université de Reims Champagne-Ardenne, France):**

Atmospheric Measurements with an Ultra Light SpEctrometer: Greenhouse Gas Measurements under Tethered Balloons, Weather Balloons and Drones

Minisymposium 3: Precision Spectroscopy

- **Shuiming Hu (University of Science and Technology of China, Hefei, China):**

Cavity-Enhanced Precision Spectroscopy of Molecules: Methods and Applications

- **Stephan Schiller (University of Düsseldorf, Germany):**

High-Resolution Spectroscopy of the Simplest Molecule: From Novel Techniques for Molecular Ion Spectroscopy to Fundamental Physics

- **Luigi Consolino (Istituto Nazionale di Ottica, Firenze, Italy):**

THz High Precision Spectroscopy

- **Takeshi Yasui (University of Tokushima, Japan):**

THz Dual-Comb Spectroscopy