

THE 21<sup>ST</sup> COLLOQUIUM ON HIGH RESOLUTION MOLECULAR SPECTROSCOPY



Aug 31 – Sept 4, 2009

“Hotel Dei Congressi” - Castellammare di Stabia, Italy

<http://www.inoa.it/HRMS09/>

[info.hrms09@inoa.it](mailto:info.hrms09@inoa.it)

[info@frcongressi.it](mailto:info@frcongressi.it)

**THIRD CIRCULAR: JULY 2009**

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## SCIENTIFIC PROGRAM

- 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, cultural heritage, metrology and fundamental physics, cold molecules.

## COLLOQUIUM PROGRAM

Time	Aug. 31 Monday	Sept. 1 Tuesday	Sept. 2 Wednesday	Sept. 3 Thursday	Sept. 4 Friday
8:30	<i>Welcome</i>				
9:00	Inv. Speakers A	Inv. Speakers E Young speaker session	Inv. Speakers I Cold molecules mini-symposium	Inv. Speakers J	Inv. Speakers M
10:00					
10:30	<i>Coffee break &amp; Poster Session B</i>	<i>Coffee break &amp; Poster Session F</i>	<i>Amat-Mills Award</i>	<i>Coffee break &amp; Poster Session K</i>	<i>Coffee break &amp; Poster Session N</i>
11:00			<i>Exhibition</i>		
11:30	<i>Lunch</i>	<i>Lunch</i>	<i>Packed Lunch &amp; Excursion</i>	<i>Lunch</i>	<i>Lunch</i>
12:30					
13:00	Inv. Speakers C Exoplanets mini-symposium	Inv. Speakers G	<i>Free Afternoon</i>		Inv. Speakers O
14:00					
15:30	<i>Coffee break &amp; Poster Session D</i>	<i>Coffee break &amp; Poster Session H</i>			
19:00	<i>Reception</i>				
20:30			<i>Banquet</i>	<i>Coffee break &amp; Poster Session L</i>	

## POSTER SESSIONS

Poster sessions will take place in the **ground-floor hall** of the «Hotel dei Congressi». A board (**1.5 m wide and 1 m high**) will be available for each participant wishing to present his/her work.

## PLENARY SESSIONS

Plenary sessions (invited lectures) will be held in **the first-floor hall** of the «Hotel dei Congressi».

## AMAT-MILLS AWARD

The 2009 Amat-Mills Award will be awarded to **a young spectroscopist 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 be given a selection of books. The candidates must present *a regular poster* at the “21<sup>st</sup> Colloquium on High Resolution Molecular Spectroscopy” on their PhD work *and assume the sole responsibility for the presentation during the entire session*. Posters of Amat-Mills applicants will be displayed during **session F**. The prize will be awarded after **session I**.

## INVITED SPEAKERS

### A. Chair: QUACK Martin

#### A1. FLAUD Jean-Marie

Laboratoire Inter Universitaire des  
Systemes Atmospheriques,  
CNRS, Université Paris 12 et Paris 7,  
Creteil, France

Infrared quantitative spectroscopy and atmospheric satellite measurements

#### A2. VANDER AUWERA Jean

Service de Chimie Quantique et  
Photophysique,  
Université Libre de Bruxelles,  
Belgium

Vibration-rotation line intensities for constituents of planetary atmospheres

### G. Chair: UBACHS Wim

#### G1. PUZZARINI Cristina

Dipartimento di Chimica "G. Ciamician",  
Università di Bologna, Italy

Hyperfine structure of rotational spectra: state-of-the-art experimental and theoretical determinations

#### G2. JUNGEN Christian

Laboratoire Aimé Cotton, CNRS,  
Université Paris-Sud 11,  
Orsay, France

The Rydberg equation and its ramifications: a story that began before quantum mechanics and which is still continuing

### J. Chair: HUET Therese

#### J1. BERNATH Peter

Department of Chemistry, University of  
York, UK

High Resolution Spectroscopy from Orbit

#### J2. TANAKA Keiichi

Department of Chemistry, Faculty of  
Science, Kyushu  
University, Fukuoka, Japan

High-resolution spectroscopy of transient species with supersonic jet technique and UV photolysis (**Molecular Physics Lecture**)

### M. Chair: PEDROI-CROSS Adriana

#### M1. PRATT David W.

Department of Chemistry, Chevron Science  
Center, Pittsburgh, PA

Molecular Secrets from High Resolution Spectroscopy in the Gas Phase

#### M2. SIGNORELL Ruth

Department of Chemistry, University of  
British Columbia,  
Vancouver, Canada

Vibrational Excitons in Aerosol Spectroscopy

### O. Chair: DE NATALE Paolo

#### O1. JÄGER Wolfgang

Department of Chemistry, University of  
Alberta, Canada

High Resolution Spectroscopy of Clusters and Doped Helium Droplets

#### O2. ORR-EWING Andrew

School of Chemistry, University of Bristol,  
U.K.

Cavity enhanced spectroscopy with diode lasers

## MINI-SYMPOSIUM: EXOPLANETS

### C. Chair: TENNYSON Jonathan

- |  |   |                     |
|--|---|---------------------|
| <b>C1. SWAIN Mark</b><br><i>Jet Propulsion Laboratory, California Institute of Technology</i>                        | Probing Exoplanet Atmospheres with Infrared Molecular Spectroscopy                      | <b>Long speech</b>  |
| <b>C2. KALTENEGGER Lisa</b><br><i>Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, USA</i>                | Spectral Evolution of a rocky planet – how the right spectral lines can change a planet | <b>Short speech</b> |
| <b>C3. TINETTI Giovanna</b><br><i>Department of Physics and Astronomy, University College London, United Kingdom</i> | Spectral retrieval of exoplanet atmospheres   | <b>Short speech</b> |

## YOUNG SPEAKER SESSION

### E. Chair: MADDALONI Pasquale

- |   |  |                |
|---|--|----------------|
| <b>E1. ALBERT Sieghard</b><br><i>Physical Chemistry, ETH Zurich, Switzerland</i>                | Very high resolution FTIR spectroscopy of chiral, aromatic and other molecules | <b>30 min.</b> |
| <b>E2. EIKEMA Kjeld S.</b><br><i>Laser Centre Vrije Universiteit Amsterdam, The Netherlands</i> | Extreme ultraviolet frequency comb spectroscopy of helium                      | <b>30 min.</b> |
| <b>E3. GAGLIARDI Gianluca</b><br><i>Istituto Nazionale di Ottica Applicata, Naples, Italy</i>   | Metrology by optical fiber sensors   | <b>30 min.</b> |

## MINI-SYMPOSIUM: COLD MOLECULES

### I. Chair: SOFTLEY Tim

- |  |   |                     |
|--|---|---------------------|
| <b>I1. GRIMM Rudi</b><br><i>Institute for Experimental Physics, Innsbruck, Austria</i>                   | Ultracold Feshbach molecules  | <b>Long speech</b>  |
| <b>I2. PILLET Pierre</b><br><i>Laboratoire Aimé Cotton, CNRS, Université Paris-Sud 11, Orsay, France</i> | Molecular vibrational cooling by Optical Pumping with shaped femtosecond pulses | <b>Short speech</b> |
| <b>I3. WILLITSCH Stefan</b><br><i>Departement Chemie, Universität Basel, Switzerland</i>                 | Chemical reactions with translationally cold ions in ion traps                  | <b>Short speech</b> |

## EXHIBITORS

The companies listed below will present their products during the Colloquium. Please, **do not forget to visit them!**

- Bruker Optics
- NKT Photonics

## SOCIAL EVENT: EXCURSION AND BANQUET

After the **Exhibition**, scheduled on wednesday, conference participants and accompanying persons will enjoy a guided visit to **The Archaeological Excavations of Pompei**. In the evening, the social banquet will take place at **Ristorante La Brace**.

## SOCIAL PROGRAM FOR ACCOMPANYING PERSONS

A social program will be organized for accompanying persons. It will consist of various sightseeing activities. **More detail is given on the conference web site.**

## HOW TO REACH THE HOTELS

### Hotel Dei Congressi

Viale delle Puglie 45 / Castellammare di Stabia / 80053 NA / Ph.: +39-0818722277

#### BY TRAIN:

From Naples' main train station take the **Circumvesuviana** (<http://www.vesuviana.it/web/>) towards **Sorrento** and get off at **CASTELLAMMARE DI STABIA** station. Going out from the station, you are in Piazza Unità d'Italia. There, catch the city bus "**12 rosso**", get off at **Terme Nuove**. The Hotel is 300 metres far from the bus stop.

#### BY PLANE:

From **Naples "Capodichino" airport**, bus service **Curreri** company (<http://www.curreriviaggi.it/>), with numerous daily runs, around every 2 hours, takes passengers to **Castellammare di Stabia**. Informing the driver in advance, he will stop in front of the Hotel.

### Grand Hotel La Panoramica

Via Panoramica 119 / Castellammare di Stabia / 80053 NA / Ph.: +39-0818026119

#### BY TRAIN:

From Naples' main train station take the **Circumvesuviana** (<http://www.vesuviana.it/web/>) towards **Sorrento** and get off at **CASTELLAMMARE DI STABIA** station. At the station exit, go on toward Piazza Principe Umberto (Quartuccio) and catch the city bus "**12 rosso**", get off at **Madonna di Pozzano**. The Hotel is a few steps far.

#### BY PLANE:

From **Naples "Capodichino" airport**, bus service **Curreri** company (<http://www.curreriviaggi.it/>), with numerous daily runs, around every 2 hours, takes passengers to **Castellammare di Stabia**. This bus passes by the Hotel.

## Hotel Stabia

C.so Vittorio Emanuele 101 / Castellammare di Stabia / 80053 NA / Ph.: +39-0818722577

### BY TRAIN:

From Naples' main train station take the **Circumvesuviana** (<http://www.vesuviana.it/web/>) towards **Sorrento** and get off at **CASTELLAMMARE DI STABIA** station. From there, a free bus sent by the hotel will be available.

### BY PLANE:

From **Naples "Capodichino" airport**, bus service **Curreri** company (<http://www.curreriviaggi.it/>), with numerous daily runs, around every 2 hours, takes passengers to **Castellammare di Stabia**. Get off in front of "**S. Leonardo**" Hospital; from there, a free bus sent by the hotel will be available.

## Hotel Torre Varano

Via Passeggiata Archeologica / Gragnano / 80054 NA / Ph.: +39-0818718200

### BY TRAIN:

From Naples' main train station take the **Circumvesuviana** (<http://www.vesuviana.it/web/>) towards **Sorrento** and get off at **VIA NOCERA** station.

☛ **FOR TRANSFERS ON REQUEST AT SPECIAL FARES, PLEASE CONTACT DIRECTLY YOUR HOTEL.**

## THE COLLOQUIUM: PRACTICAL INFORMATION

**Location:** Hotel Dei Congressi

- Plenary sessions (invited speakers): first-floor hall
- Poster sessions: ground-floor hall
- Exhibition: ground-floor hall

**Office-registration desk:** reception hall of Hotel dei Congressi; opening hours:

- Sunday: 17:30 to 22:30
- Monday: 7:30 to 18:00
- Tuesday and Wednesday: 8:30 to 18:00
- Thursday: 8:30 to 12:30

☛ **EVERY DAY, DURING THE CONFERENCE, HOTEL DEI CONGRESSI WILL BE CONNECTED TO THE OTHER HOTELS BY A SPECIAL FREE BUS SERVICE.**

☛ **DURING THE CONFERENCE, PARTICIPANTS MAY HAVE DINNER IN THEIR HOTELS AT THE SPECIAL PRICE OF 20 €.**

**Acknowledgements** – We wish to thank the following Institutions and Companies for their contribution to the success of this conference: Comune di Castellammare di Stabia, Dipartimento Materiali e Dispositivi (Consiglio Nazionale Delle Ricerche), Bruker Optics, NKT Photonics, Lockheed Martin Aculight, Dr. Barbara Mez-Starck Foundation, Physik Instrumente (PI) S.r.l., Molecular Physics (Taylor&Francis Group). We are also grateful to Tony Gabard for his precious and incessant assistance in the implementation of the EAS system.