

# ECAMP13

13<sup>TH</sup> EUROPEAN CONFERENCE ON ATOMS,  
MOLECULES AND PHOTONS

FLORENCE, ITALY

**APRIL 8-12**  
**2019**



**PROGRAM**

UNDER THE PATRONAGE OF



Società Italiana  
di Fisica



National Research Council of Italy



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DEGLI STUDI  
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## WELCOME

We are pleased to welcoming to the 13<sup>th</sup> European Conference on Atoms Molecules and Photons (ECAMP13) in Florence!

The triennial ECAMP conference series, launched in 1981, is the major conference of the Atomic, Molecular and Optical Physics Division (AMOPD) of the European Physical Society (EPS).

The Scientific Programme covers the most recent developments in the broader field of AMO physics.

We extend our sincere appreciation and gratitude to the Chairs and all Speakers whose contributions help to make this event possible.

We are very much looking forward to this outstanding event and its unique approach to exchanging knowledge.

The Local Organizing Committee

# ECAMP13

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## GENERAL INFORMATION

### Organizing Committee

#### EPS AMOPD

The Atomic, Molecular and Optical Physics Division (AMOPD) of the European Physical Society (EPS)



### Organizing Secretariat



Viale Matteotti, 7 - 50121 Florence, Italy  
Tel. ++39 055 50351 - Fax ++39 055 5001912  
ecamp2019@oic.it - www.ecamp13.org

The Organizing Secretariat desk is open for registration and information according to the following time schedule:

Sunday, April 7	16.00-18.00
Monday, April 8	08.00-20.00
Tuesday, April 9	08.30-19.00
Wednesday, April 10	08.30-13.00
Thursday, April 11	08.30-19.00
Friday, April 12	08.30-17.30

### Congress Venue

Fortezza da Basso - Cavaniglia Pavilion  
Viale Strozzi 1 - 50129 Florence, Italy

### App ECAMP13

A dedicated APP for ECAMP13 has been realized!  
Download the app “miTalent” from App Store or Android. Insert the code: **ecamp13** and then start to use it!

### Registration Fees

Registration fees (VAT included)	On site
Delegates	600,00 € (491,80 € + VAT)
Students*	320,00 € (262,30 € + VAT)

\*Copy of valid Student Card must be handed at the Registration Desk

Registration is mandatory for all oral and posters presenters.

### Welcome Reception & Social Dinner for Accompanying Person

The price is 70,00 € (VAT included) and includes:

- Welcome reception on April 8 at the Congress Venue
- Social dinner on April 10 2019 at Palazzo Borghese



## GENERAL INFORMATION

Congress registration fee includes:

- Admission to all sessions
- Conference kit and personal badge
- Final programme and abstract book online
- Certificate of attendance
- Coffee breaks from April 8 to April 12
- Welcome Reception on April 8
- Admission to the technical exhibition

### Cancellation and Refunds

We kindly remind you that cancellation of the registration, social event and hotel reservation were accepted **until March 11**. We regret to inform that no refunds will be processed for cancellations received **after March 11**. All refunds shall be dealt with after the Congress.

### Badge and Certificate of Attendance

Each participant receives a name badge upon check-in at the registration desk. Regularly registered participants receive a certificate of attendance included in the registration kit.

The badge is the official Congress pass and must be worn at all times.

Badges are colour-coded as follows:

- Red** ⇒ Faculty Member (Chairs, Plenary and Invited Speakers)
- Transparent ⇒ Participant
- Yellow** ⇒ Industry Member

### Language

The official language of the Congress is English and no simultaneous translation is foreseen during the scientific sessions.

### Catering Facilities

Coffee breaks are offered to all registered participation, in the catering area, at the time scheduled in the programme. Many restaurants, snack bars are located close to the Congress Venue for lunch break.

### Internet Connections

WiFi is available in the Congress Venue.

Network: **ECAMP\_13** - Password: **ECAMP\_13**

### Commercial Exhibition

An exhibition of the latest technical products, devices and scientific publications will be organized at the Congress Venue. The exhibition area is open according to the scheduled scientific sessions.

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## GENERAL INFORMATION

### Insurance

The organizers are not responsible for individual medical, travel or personal insurance. Participants and guests should arrange their own coverage.

### Cloakroom and Luggage Deposit

A cloakroom and luggage deposit will be available during the Congress official opening hours. The Congress Venue and the organizers are not responsible for any items lost or left behind.

### Congress Card

Florence Convention Bureau gives ECAMP Congress participants the chance to visit and taste the city! It provides special offers and discounted fees at museums, historical sites, shops, restaurants, wellness centers, golf clubs, bike rental stands, car rental agencies, sightseeing tours, taxis, and airport transfer with private driver. The Congress Card is not nominal and can be used by the participants as well as by anyone accompanying them. It is also valid a few days prior to and after the congress date, as a further bonus. Activating the Card is very easy: the congress participant needs only to connect to the following link:

<http://www.conventionbureau.it/tmpcardpage/en/congress-strong-card-strong-shtml>.

Select the event, download the pdf file with the card and the list of included services after a very quick registration and print it. The discount will be simply granted by showing the Card!

### Taxis

Getting around the city by taxi is not difficult, but in Italy taxis cannot be flagged down as they pass along the street, taxis are instead "stationed" at special taxi parking stands in most of the major squares in any city and at the airport and they can be requested by phone. The telephone numbers to dial for calling a taxi are: 0039 055 4242 - 0039 055 4390 - 0039 055 4798 - 0039 055 4499

## SOCIAL PROGRAM

### Welcome Reception

*Included in the registration fee.*

A Welcome cocktail will be offered to all registered participants after the scientific sessions on Monday April 8 at hrs 19.00 at the Congress Venue.

### Social Dinner

*Admission by ticket - price: € 60,00 (VAT included).*

The social dinner will take place on Wednesday April 10 at hrs 19.30 at the Palazzo Borghese located in via Ghibellina, 110. Palazzo Borghese opens its doors to welcome the ECAMP social dinner. This represents an exclusive opportunity to dine in one of the most beautiful palace in Florence, located in the heart of the city just a few steps away from Piazza Duomo. Its monumental rooms and refined furnishings will bring you back into the past for an unforgettable evening.

***Dress code: Business casual (NOT TO WEAR: short pants and shirts).***





## SCIENTIFIC INFORMATION

### Session Schedule

Speakers are recommended to strictly respect the allotted time given for their presentations to contribute to the smooth running of all scheduled Sessions.

### Poster Sessions

Posters are displayed in the Poster Area. The attaching material will be provided by the Organizing Secretariat.

The poster boards numbers are indicated in the programme in the section “Posters”. Authors are requested to be present at their poster board during their discussion time. The Poster Sessions are scheduled as follows:

Poster Session 1 ( <b>P1.1 &gt; P1.108</b> )	Monday, April 8	17.15-19.00
Poster Session 2 ( <b>P2.1 &gt; P2.96</b> )	Tuesday, April 9	17.15-19.00
Poster Session 3 ( <b>P3.1 &gt; P3.96</b> )	Thursday, April 11	17.15-19.00

### ECAMP Assemblies

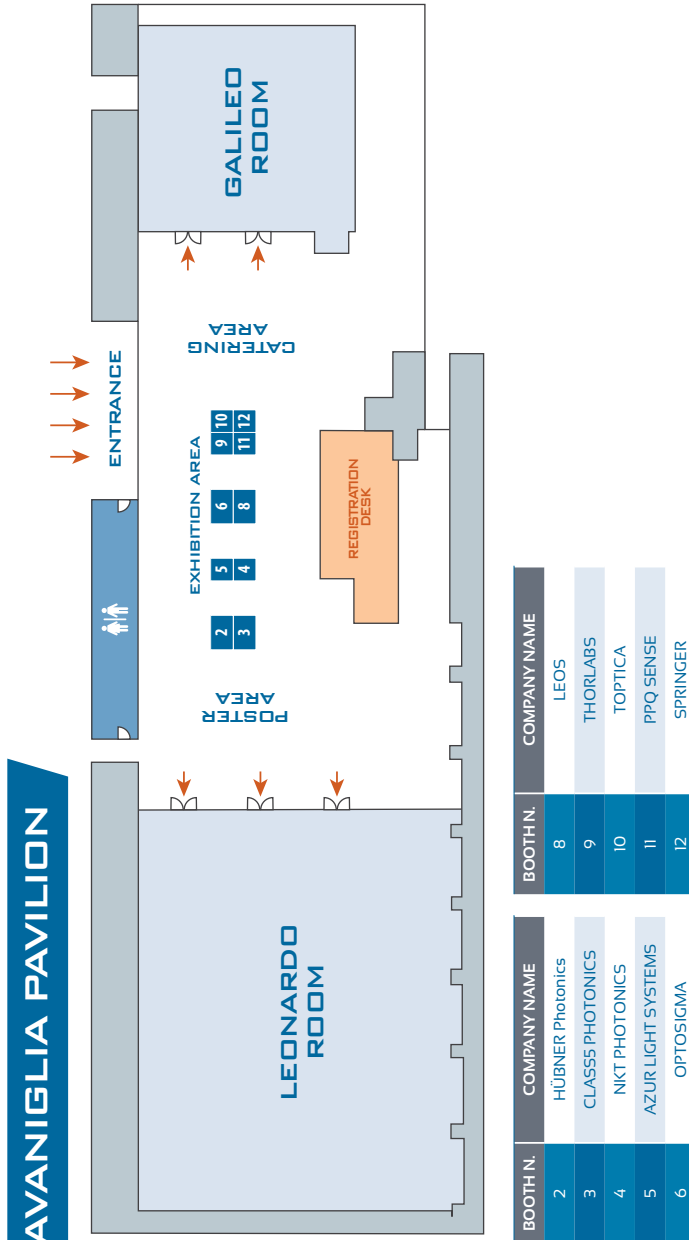
**AMOPD** General Assembly is scheduled on Wednesday April 10 at hrs 11.50 in the Leonardo Room.

**EGAS** General Assembly is scheduled on Wednesday, April 10 at hrs 12.20 in the Leonardo Room.

### Abstracts

Abstracts are available on-line on the Congress website [www.ecamp13.org](http://www.ecamp13.org)

## CONGRESS VENUE & EXHIBITION AREA



CAVANIGLIA PAVILION



## ACKNOWLEDGEMENTS

The Atomic, Molecular and Optical Physics Division (AMOPD) of the European Physical Society (EPS) would like to thank the following partners for their support

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### SPONSORS



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## MONDAY 8

**Opening** - Leonardo Room (9:00-9:15)  
**Plenary Lecture 1**  
 Leonardo Room (9:15-10:00)  
 Chair: J. Burgdöfer  
 T.W. Hänsch

**Coffee Break** (10:00-10:30)

**Parallel session A1**  
 Leonardo Room (10:30-12:15)  
 Chair: S. Healy

**Invited Speakers:**  
 M. Aspöckl  
 P. Babet  
 S. Eriksson

**Hot Topics:**  
 T. Leopold

**Parallel session A2**  
 Galileo Room (10:30-12:15)  
 Chair: A. Vibok

**Invited Speakers:**  
 L. Arino  
 K. Saha  
 M. Kueger

**Hot Topics:**  
 W. Rosenfeld

**Lunch Break** (12:15-14:00)

**Plenary Lecture 2**  
 Leonardo Room (14:00-14:45)  
 Chair: R. Dörner  
 N. Dudovíkh

**Coffee Break** (14:45-15:15)

**Parallel session B1**  
 Leonardo Room (15:15-17:15)  
 Chair: M. Drescher

**Invited Speakers:**  
 E. Goulikakis  
 F. Luchner  
 A. Pakobis

**Hot Topics:**  
 M. Köller  
 H. Sers  
 R. Sers

**Parallel session B2**  
 Galileo Room (15:15-17:15)  
 Chair: H. Perrin

**Invited Speakers:**  
 F. Schreck  
 A. Kolovsky  
 A. Sivara

**Hot Topics:**  
 H. Ott  
 K.-H.

**Poster Session 1** (17:15-19:00)

**Welcome Cocktail** (19:00-20:00)

**Social Dinner** (19:30-23:00)  
 Palazzo Borghese

## TUESDAY 9

**Plenary Lecture 3**  
 Leonardo Room (9:00-9:45)  
 Chair: G.M. Tino  
 E.A. Cornell

**Coffee break** (9:45-10:15)

**Parallel session C1**  
 Leonardo Room (10:15-12:15)  
 Chair: G. Janszus

**Invited Speakers:**  
 S. Jodim  
 E. Narevicius  
 I. Casarato

**Hot Topics:**  
 M. Albano  
 N.C. Jackson

**Parallel session C2**  
 Galileo Room (10:15-12:15)  
 Chair: A. Müller

**Invited Speakers:**  
 L. Anderson  
 S. Rajaj  
 L. Martinez-Fernandez

**Hot Topics:**  
 M. Kunishi  
 C. Dindrea

**Lunch Break** (12:15-14:00)

**Plenary Lecture 4**  
 Leonardo Room (14:00-14:45)  
 Chair: R. Gonzalez-Ferez  
 A. Brovaysky

**Coffee Break** (14:45-15:15)

**Parallel session D1**  
 Leonardo Room (15:15-17:15)  
 Chair: M.L. Chialò

**Invited Speakers:**  
 K. Pabucki  
 N. Kolotnevsky  
 E. Perfetto

**Hot Topics:**  
 V.G. Lucreno

**Parallel session D2**  
 Galileo Room (15:15-17:15)  
 Chair: N. Poli

**Invited Speakers:**  
 M. Bellini  
 F. Scarmio  
 D. Bauer

**Hot Topics:**  
 D. Clement  
 G. Mejer

**Poster Session 2** (17:15-19:00)

## WEDNESDAY 10

**Plenary Lecture 5 & Andrew Prize**  
 Leonardo Room (9:00-9:55)  
 Chair: L. Borjesson  
 R. Krausz

**Coffee break** (9:55-10:25)

**Plenary Lecture 6**  
 Leonardo Room (10:25-11:10)  
 Chair: F.S. Cataliotti  
 P. Zoller

**Young Scientist Prize Lecture**  
 Leonardo Room (11:10-11:50)  
 Chair: J. Burgdöfer  
 P. Haslinger

**AMOPD General Assembly**  
 Leonardo Room (11:50-12:20)

**EGS General Assembly**  
 Leonardo Room (12:20-13:00)

## THURSDAY 11

**Plenary Lecture 7**  
 Leonardo Room (09:00-9:45)  
 Chair: E. Sorrentino  
 M. Brambati

**Coffee break** (9:45-10:15)

**Parallel session E1**  
 Leonardo Room (10:15-12:30)  
 Chair: S. Fritzsche

**Invited Speakers:**  
 E. Roueff  
 Y. Litvin  
 W. Noehrenhauser

**Hot Topics:**  
 L. Abbondio  
 N. Deb  
 W. von Klitzing

**Parallel session E2**  
 Galileo Room (10:15-12:30)  
 Chair: N. Kabochnik

**Invited Speakers:**  
 R. De Walle  
 S. Bionta  
 M. Godebrecht

**Hot Topics:**  
 J.M. Dahlstrom  
 S. Hernandez-Gomez  
 S.A. Karakas

**Lunch Break** (12:30-14:00)

**Plenary Lecture 8**  
 Leonardo Room (14:00-14:45)  
 Chair: L. Ryabov  
 J. Widomowicz

**Coffee Break** (14:45-15:15)

**Parallel session F1**  
 Leonardo Room (15:15-17:15)  
 Chair: L. Gianfrani

**Invited Speakers:**  
 J. Bauer  
 V. G. Pavlenko  
 M. N. Pevsnel  
 R. Sessoli

**Parallel session F2**  
 Galileo Room (15:15-17:15)  
 Chair: A. Grum-Grzhinialo

**Invited Speakers:**  
 E. Lindom  
 J. Pons  
 D. Pines  
 V. Blambert

**Poster Session 3** (17:15-19:00)

## FRIDAY 12

**Plenary Lecture 9**  
 Leonardo Room (9:00-9:45)  
 Chair: S. Diaz-Landero  
 F. Aulmyr

**Coffee break** (9:45-10:15)

**Parallel session G1**  
 Leonardo Room (10:15-12:15)  
 Chair: T. Ban

**Invited Speakers:**  
 F. Ferianno  
 B. Sauer  
 E. Roesel  
 M. Koch

**Invited Speakers:**  
 C. Tonelli  
 M. Akomi  
 J. Kuehler  
 T. Jahnke

**Lunch Break** (12:15-13:30)

**ERC Funding opportunities**  
 Leonardo Room (13:30-14:00) V. Fritet

**Plenary Lecture 10**  
 Leonardo Room (14:00-14:45)  
 Chair: BD  
 R. Moshammer

**Coffee Break** (14:45-15:15)

**Parallel session H1**  
 Leonardo Room (15:15-16:15)  
 Chair: L. Falani

**Invited Speakers:**  
 M. Sanz  
 V. Baykin

**Parallel session H2**  
 Galileo Room (15:15-16:15)  
 Chair: F.S. Cataliotti

**Invited Speakers:**  
 H. Schmitt  
 R. Blöchl

**Closing**



## LEONARDO ROOM

09:00-09:15

### Opening

**Guglielmo M. Tino** - *University of Florence and ECAMP13 Local Chair*  
**Joachim Burgdörfer** - *University of Vienna and AMOPD Chair*  
**Massimo Inguscio** - *University of Florence and President of National Research Council*

**Francesco S. Pavone** - *University of Florence and Director of LENS*  
Representative of the "Regione Toscana"  
Representative of the "Comune di Firenze"

09:15-10:00

### Plenary Lecture 1

Chairman: **Joachim Burgdörfer** (Austria)

Towards a solution of the proton radius puzzle  
**Theodor W. Hänsch** (Germany)

10:00-10:30

*Coffee break*

## LEONARDO ROOM

### Parallel Session A1

Chairman: **Szymon Pustelny** (Poland)

10:30-11:00

Magnetometry and fundamental physics  
**Dmitry Budker** (Germany)

11:00-11:30

Towards optical manipulation of Ytterbium Rydberg atoms: a study of auto-ionization  
**Patrick Cheinet** (France)

11:30-12:00

Spectroscopy of antihydrogen  
**Stefan Eriksson** (United Kingdom)

12:00-12:15

Quantum logic spectroscopy of a highly charged ion  
**Tobias Leopold**, **Steven A. King**, **Peter Micke**, **José R. Crespo López-Urrutia**, **Piet O. Schmidt** (Germany)

## LEONARDO ROOM

14:00-14:45

### Plenary Lecture 2

Chairman: **Reinhard Dörner** (Germany)

Attosecond interferometry  
**Nirit Dudovich** (Israel)

14:45-15:15

*Coffee break*

## GALILEO ROOM

MONDAY  
APRIL 8

## Parallel Session A2

Chairman: **Ágnes Vibók** (Hungary)

- 10:30-11:00      Attosecond photoionization dynamics in molecules  
**Laura Cattaneo** (Switzerland)
- 11:00-11:30      Time crystals  
**Krzysztof Sacha** (Poland)
- 11:30-12:00      Strong-field physics at nanotips  
**Michael Krueger** (Israel)
- 12:00-12:15      From loophole-free **bell** tests to device-independent certification  
**Wenjamin Rosenfeld, Kai Redeker, Robert Garthoff,**  
**Tim van Leent, Wei Zhang, Jean-Daniel Bancal, Pavel Sekatski,**  
**Nicolas Sangouard, Harald Weinfurter** (Germany)

12:15-14:00      *Lunch break*

## LEONARDO ROOM

## Parallel Session B1

Chairman: **Markus Drescher** (Germany)

- 15:15-15:45      Can visible light 'see' electrons?  
**Eletherios Goulielmakis** (Germany)
- 15:45-16:15      Two-particle reduced density matrices  
**Fabian Lackner** (Austria)
- 16:15-16:45      Attosecond coupled electron and nuclear dynamics in molecular  
hydrogen photoionization  
**Alicia Palacios** (Spain)
- 16:45-17:00      Observation of cold dipolar collisions and electrostatic trapping of  
centrifuge decelerated molecules  
**Manuel Koller, Thomas Gantner, Florian Jung, Isabel Rabey,**  
**Martin Zeppenfeld, Gerhard Rempe** (Germany)
- 17:00-17:15      Velocity map imaging of emitted electrons from atoms/molecules  
upon ion collisions  
**Nicolas Sens, Michal Ryszka, Alain Mery, Jean Christophe Pouilly,**  
**Jean-Yves Chesnel, Violaine Vizcaïno** (France)



## GALILEO ROOM

MONDAY  
APRIL 8

### Parallel Session B2

Chairman: **Hélène Perrin** (France)

15:15-15:45

Towards a continuous atom laser and ultracold RbSr: steady-state ultracold Sr with unity phase-space density & Rb-Sr magnetic Feshbach resonances  
**Florian Schreck** (Netherlands)

15:45-16:15

Synthetic fields and conductivity with cold Fermi and Bose atoms  
**Andrey Kolovsky** (Russia)

16:15-16:45

Spin squeezing of bosonic atoms in an optical lattice  
**Alice Sinatra** (France)

16:45-17:00

An optical feshbach resonance using Rydberg molecules  
**Herwig Ott, Oliver Thomas, Carsten Lippe, Tanita Eichert** (Germany)

17:00-17:15

Observation of superabsorption via time-reversal of superradiance  
**Kyungwon An** (South Korea)

## POSTER AREA

17:15-19:00

### POSTER SESSION 1

(see page 24).

19:00-20:00

Welcome Cocktail

## LEONARDO ROOM

09:00-09:45

### Plenary Lecture 3

Chairman: **Guglielmo M. Tino** (Italy)

Fundamental physics from electron electric dipole moments  
**Eric A. Cornell** (USA)

09:45-10:15

*Coffee break*

## LEONARDO ROOM

### Parallel Session C1

Chairman: **Gediminas Juzeliūnas** (Lithuania)

10:15-10:45

Correlations and entanglement in strongly interacting systems  
**Selim Jochim** (Germany)

10:45-11:15

Quantum state controlled ultracold chemistry  
**Edvardas Narevicius** (Israel)

11:15-11:45

Quantum fluids of light  
**Iacopo Carusotto** (Italy)

11:45-12:00

Interleaved atom interferometry for high sensitivity inertial measurements  
**M. Altorio, D. Savoie, B. Fang, L. A. Sidorenkov, R. Geiger, A. Landragin** (France)

12:00-12:15

Strontium atoms in an optical tweezer  
**Niamh C. Jackson, Matthew Hill, Ryan K. Hanley, Charles S. Adams, Matthew P.A. Jones** (United Kingdom)





## GALILEO ROOM

### Parallel Session C2

Chairman: **Alfred Müller** (Germany)

- 10:15-10:45** Photophysics of bio-chromophores  
**Lars Andersen** (Denmark)
- 10:45-11:15** Excited-state processes and quantum effects in biological systems  
**Shirin Faraji** (Netherlands)
- 11:15-11:45** Molecular mechanism of UV-induced processes in DNA  
**Lara Martínez-Fernandez** (Spain)
- 12:00-12:15** Rotating rotationless: nonadiabatic alignment of the helium dimer and trimer  
**M. Kunitski, Q. Guan\***, H. Maschkiwitz, J. Hahnenbruch, S. Eckart, S. Zeller, A. Kalinin, L.Ph. H. Schmidt, M. Schöffler, T. Jahnke, D. Blume\* R. Dörner (Germany, \*USA)
- 12:15-12:30** Tip enhanced Raman spectroscopy study of amyloid superstructures  
**Cristiano D'Andrea, Antonino Foti, Martina Banchelli, Claudia Capitini, Marella De Angelis, Roberto Pini, Fabrizio Chiti, Pietro G. Gucciardi, Paolo Matteini** (Italy)
- 12:15-14:00** *Lunch break*

## LEONARDO ROOM

- 14:00-14:45** **Plenary Lecture 4**  
Chairman: **Rosario González-Férez** (Spain)  
  
Many-body physics with arrays of individual Rydberg atoms  
**Antoine Browaeys** (France)
- 14:45-15:15** *Coffee break*

## LEONARDO ROOM

### Parallel Session D1

Chairman: **Maria Luisa Chiofalo** (Italy)

- 15:15-15:45 Quantum electrodynamics of light atoms and molecules  
**Krzysztof Pachucki** (Poland)
- 15:45-16:15 Inner-shell clock transition in atomic thulium with small BBR shift  
**Nicolai Kolachevsky** (Russia)
- 16:15-16:45 First-principles nonequilibrium Green's function approach to real-time simulations of correlated electrons in molecular systems  
**Enrico Perfetto** (Italy)
- 16:45-17:00 Sensitivity bounds for multiparameter quantum metrology: role of multimode entanglement and squeezing  
**Luca Pezzè, Manuel Gessner, Augusto Smerzi** (Italy)
- 17:00-17:15 A femtotesla quantum-noise-limited pulsed gradiometer at finite fields  
**V.G. Lucivero, W. Lee, M. E. Limes, E.L. Foley, T.W. Kornack, M.V. Romalis** (USA)

## GALILEO ROOM

### Parallel Session D2

Chairman: **Nicola Poli** (Italy)

- 15:15-15:45 Entanglement by delocalized single photon addition  
**Marco Bellini** (Italy)
- 15:45-16:15 Quantum simulations with bosons  
**Fabio Sciarino** (Italy)
- 16:15-16:45 Strong-field laser physics in topological condensed matter  
**Dieter Bauer** (Germany)
- 16:45-17:00 Tunnelling and quantum reflection resonances in cold elastic collisions  
**Perna Paliwal, Nabanita Deb, Julia Narevicius, Edvardas Narevicius** (Israel)
- 17:00-17:15 Spectroscopic characterization of aluminium monofluoride with relevance to laser cooling and trapping  
**Stefan Truppe, Silvio Marx, Sebastian Kray, Maximilian Doppelbauer, Simon Hofsäss, H. Christian Schewe, Boris G. Sartakov\*, Gerard Meijer** (Germany, \*Russia)

## POSTER AREA

### POSTER SESSION 2

(see page 34)



## LEONARDO ROOM

09:00-09:55

### Plenary Lecture 5 & Lethokov Prize

Chairman: **Luc Bergé** (France)

Plenary Talk as winner of Letokhov Award

Attosecond science: “from basic research to cancer detection”

**Ferenc Krausz** (Germany)

09:55-10:25

*Coffee break*

10:25-11:10

### Plenary Lecture 6

Chairman: **Francesco Saverio Cataliotti** (Italy)

Programmable Quantum simulators with atoms

**Peter Zoller** (Austria)

11:10-11:50

### Young Scientist Prize Lecture

Chairman: **Joachim Burgdörfer** (Austria)

Probing the forces of gravity, blackbody radiation and dark energy with matter waves

**Philipp Haslinger** (Austria)

11:50-12:20

### AMOPD General Assembly

12:20-13:00

### EGAS General Assembly

WEDNESDAY  
APRIL 10

## LEONARDO ROOM

09:00-09:45 **Plenary Lecture 7**  
Chairman: **Fiodor Sorrentino** (Italy)  
  
From Gravitational-Waves to the Heavy Elements Production in the Universe  
**Marica Branchesi** (Italy)

09:45-10:15 *Coffee break*

## LEONARDO ROOM

### Parallel Session E1

Chairman: **Stephan Fritzsche** (Germany)

10:15-10:45 Astrophysics in the laboratory  
**Evelyne Roueff** (France)

10:45-11:15 Combining atomic and nuclear physics in ion storage rings  
**Yuri Litvinov** (Germany)

11:15-11:45 Laser spectroscopy of H-like and Li-like Bismuth 209Bi80+,82+ and the hyperfine puzzle of strong-field QED  
**Wilfried Nörtershäuser** (Germany)

11:45-12:00 Observation of two-electron one-photon X-ray transitions in collisions of slow Xe26+ ions with beryllium surface  
**Ł. Jabłoński, D. Banaś, P. Jagodziński, A. Kubala-Kukuś, D. Sobota, I. Stabrawa, K. Szary, M. Pajek** (Poland)

12:00-12:15 Spectral weight and two-particle momentum correlations in an atomic Mott insulator  
**C. Carcy, H. Cayla, A. Tenart, A. Aspect, M. Mancini, D. Clément** (France)

12:15-12:30 Hypersonic transport of Bose-Einstein condensates in a neutral-atom accelerator ring  
**Saurabh Pandey, Hector Mas, Giannis Drougakis, Premjith Thekkepatt, Vasiliki Bolpasi, Georgios Vasilakis, Konstantinos Poulious, Wolf von Klitzing** (Greece)



## GALILEO ROOM

### Parallel Session E2

Chairman: **Nikolay Kabachnik** (Russia)

- 10:15-10:45** Laser control of molecular processes  
**Rebeca De Nalda** (Spain)
- 10:45-11:15** Observing the time domain build-up and spectral phase of Fano resonances  
**Stefan Donsa** (Austria)
- 11:15-11:45** Time-frequency representation of autoionization wave-packets  
**Mathieu Gisselbrecht** (Sweden)
- 11:45-12:00** Fano's propensity rule in angle-resolved attosecond pump-probe photoionization  
**David Busto, Jimmy Vinbladh, Shiyang Zhong, Marcus Isinger, Saikat Nandi, Mathieu Gisselbrecht, Anne L'Huillier, Eva Lindroth, Jan Marcus Dahlström** (Sweden)
- 12:00-12:15** Experimental Verification of the Quantum Jarzynski Equality with an NV Center  
**Santiago Hernández-Gómez, Stefano Gherardini, Francesco Poggiali, Andrea Trombettoni, Paola Cappellaro, Francesco S. Cataliotti, Nicole Fabbri** (Italy)
- 12:15-12:30** Chirp effect on molecular dissociation  
**S.A. Karakas, P. Rosenberger\*, M.F. Ciappina\*<sup>o</sup>, M.F. Kling\*, I. Yavuz** (Turkey, \*Germany, <sup>o</sup>Czech Republic)

**12:30-14:00** *Lunch break*

## LEONARDO ROOM

### 14:00-14:45 Plenary Lecture 8

Chairman: **Igor Ryabtsev** (Russia)

Connecting quantum systems through optimizing photonics  
**Jelena Vuckovic** (USA)

**14:45-15:15** *Coffee break*

## LEONARDO ROOM

### Parallel Session F1

Chairman: **Livio Gianfrani** (Italy)

- 15:15-15:45 3<sup>rd</sup> and 5<sup>th</sup> order electronic two-dimensional spectroscopy of excitonic systems  
**Jürgen Hauer** (Germany)
- 15:45-16:15 Precision spectroscopy of ultracold Rydberg atoms  
**Vitaly D. Ovsianikov** (Russia)
- 16:15-16:45 Hard X-ray photoelectron spectroscopy and dynamics of atoms and molecules  
**Maria Novella Piancastelli** (Sweden)
- 16:45-17:15 Magnetic molecules for quantum information  
**Roberta Sessoli** (Italy)

## GALILEO ROOM

### Parallel Session F2

Chairman: **Alexei Grum-Grzhimailo** (Russia)

- 15:15-15:45 Attosecond delays in photoemission  
**Eva Lindroth** (Sweden)
- 15:45-16:15 Insights in the fragmentation of glycine by PEPICO and ultrafast pump-probe experiments  
**Lorenzo Avaldi** (Roma)
- 16:15-16:45 Molecular frame photoemission: from synchrotron radiation to attosecond pulses  
**Danielle Dowek** (France)
- 16:45-17:15 Temporal aspect of chirality: a photoionisation study from the femtosecond to the attosecond scale  
**Valerie Blanchet** (France)

## POSTER AREA

- 17:15-19:00 **POSTER SESSION 3**  
(see page 44)



## LEONARDO ROOM

09:00-09:45

### Plenary Lecture 9

Chairman: **Sergio Diaz-Tendero** (Spain)

Highly charged ion interactions with graphene and other 2D materials  
**Fritz Aumayr** (Austria)

09:45-10:15

*Coffee break*

## LEONARDO ROOM

### Parallel Session G1

Chairman: **Ticijana Ban** (Croatia)

10:15-10:45

The quantum phases of ultracold dipolar gases near a Roton excitation  
**Francesca Ferlaino** (Austria)

10:45-11:15

Laser cooling molecules and the electron EDM  
**Ben Sauer** (United Kingdom)

11:15-11:45

Atom-chip fountain gravimeter  
**Ernst Rasel** (Germany)

11:45-12:15

Higgs mode in a strongly interacting fermionic superfluid  
**Michael Koehl** (Germany)

## GALILEO ROOM

### Parallel Session G2

Chairman: **Gabriele Rosi** (Italy)

10:15-10:45

Integrated single photon sources  
**Costanza Toninelli** (Italy)

10:45-11:15

Theory of charged and functionalized fullerenes  
**Manuel Alcamí** (Spain)

11:15-11:45

Photophysics of molecular aggregates  
**Juergen Koehler** (Germany)

11:45-12:15

Molecular movies made with synchrotrons  
**Till Jahnke** (Germany)

12:15-13:30

*Lunch break*

## LEONARDO ROOM

13:30-14:00 **ERC Funding opportunities**  
Funding opportunities from the European Research Council  
**Vanessa Fivet** (Belgium)

14:00-14:45 **Plenary Lecture 10**  
Chairman: **Marek Pajek** (Poland)

AMO experiments with the reaction microscope at FLASH  
**Robert Moshhammer** (Germany)

14:45-15:15 *Coffee break*

## LEONARDO ROOM

**Parallel Session H1**  
Chairman: **Leonardo Fallani** (Spain)

15:15-15:45 Conformations and interactions of biomolecules and their complexes by broadband rotational spectroscopy  
**Maria Sanz** (United Kingdom)

15:45-16:15 Plasmonic nanolaser and applications  
**Victor Balykin** (Russia)

## GALILEO ROOM

**Parallel Session H2**  
**Francesco Saverio Cataliotti** (Italy)

15:15-15:45 Negative ion storage-ring experiments at DESIREE: relaxation, lifetimes and reactions  
**Henning Schmidt** (Sweden)

15:45-16:15 Electron waves carrying orbital angular momentum  
**Konstantin Bliokh** (Australia)

16:15-16:30 Closing





# POSTER SESSIONS

## POSTER SESSION 1

### Atom interferometry and atomic clocks

- P1.1 Exploring gravity with the MIGA large scale Atom Interferometer  
**B. Canuel, for the MIGA consortium** (France)
- P1.2 Long-baseline universal matter-wave interferometer (LUMI)  
**P. Geyer, Y. Fein, L. Mairhofer, S. Gerlich, M. Arndt** (Austria)
- P1.3 Systematic effects in Sr optical lattice clocks  
**Y. Foucault** (France)
- P1.4 Application of optical single sideband generation in raman atom interferometry  
**C. Rammeloo<sup>1</sup>, L. Zhu<sup>1,2</sup>, Y.-H. Lien<sup>1</sup>, C. Macrae<sup>1</sup>, K. Bongs<sup>1</sup>, M. Holynski<sup>1</sup>**  
(<sup>1</sup>United Kingdom, <sup>2</sup>China)
- P1.5 Prospects of large momentum transfer with twin lattices for phase sensitive atom interferometry  
**J.-N. Siemß, S. Abend, E.M. Rasel, K. Hammerer, N. Gaaloul** (Germany)
- P1.6 Exploring gravity with ultra-cold cadmium and strontium optical clocks and Bragg linterferometers  
**J.N. Tinsley, N. Poli** (Italy)
- P1.7 Cavity-mediated squeezing on momentum-state pseudospins for improved atom interferometry  
**A. Shankar<sup>1</sup>, L. Salvi<sup>2</sup>, M.L. Chiofalo<sup>2</sup>, N. Poli<sup>2</sup>, M.J. Holland<sup>1</sup>** (<sup>1</sup>USA, <sup>2</sup>Italy)
- P1.8 Optimal pulses for enhanced atom interferometers  
**J. Saywell, M. Carey, I. Kuprov, T. Freegarde** (United Kingdom)
- P1.9 Atom interferometry with ultra-cold strontium atoms  
**N. Poli, L. Salvi, E. Wang, G.M. Tino** (Italy)
- P1.10 Universal atom interferometry simulator for precision sensing  
**F. Fitzek, H. Ahlers, E.M. Rasel, K. Hammerer, N. Gaaloul** (Germany)
- P1.11 Progress on atom interferometry in a marginally stable cavity  
**D.O. Sabulsky for the MIGA Consortium** (France)
- P1.12 Twin-lattice interferometry for infrasound gravitational wave detection with atoms  
**S. Abend, M. Gebbe, M. Gersemann, J.-N. Siemß, S. Herrmann, C. Schubert, D. Schlippert, N. Gaaloul, C. Lämmerzahl, W. Ertmer, E.M. Rasel** (Germany)



## POSTER SESSION 1

- P1.13** Atom interferometry with optimally designed excitation using quantum control  
**V.S. Malinovsky, M.H. Goerz, M.A. Kasevich** (USA)
- P1.14** Atom Interferometry beyond the standard quantum limit with strontium atoms  
**L. Salvi<sup>1</sup>, N. Poli<sup>1</sup>, V. Vuletić<sup>2</sup>, E. Wang<sup>1</sup>, G.M. Tino<sup>1</sup>** (<sup>1</sup>Italy, <sup>2</sup>USA)
- P1.15** Development of a high power infra-red laser system for condensation of Rb atoms  
**M. Jain<sup>1</sup>, G. Rosi<sup>1</sup>, L. Cacciapuoti<sup>2</sup>, G. D'Amico<sup>1</sup>, G. Tino<sup>1</sup>** (<sup>1</sup>Italy, <sup>2</sup>The Netherlands)
- P1.16** Improvement in stability of atomic gravimeter based on atom interferometry  
**S.-B. Lee, T.Y. Kwon, S.E. Park, M.-S. Heo, H.-G. Hong** (South Korea)
- P1.17** An experimental setup for squeezing in atom interferometry  
**E. Wang, G. Gangale, L. Salvi, N. Poli, G.M. Tino** (Italy)
- P1.18** Sideband-enhanced cold atomic source for atomic clocks  
**M.G. Tarallo, M. Barbiero, D. Calonico, F. Levi** (Italy)
- P1.19** Direct vertical-gravity-gradient measurement using a single-proof mass double-loop atom interferometer  
**I. Perrin, Y. Bidel, C. Blanchard, M. Cadoret, N. Zahzam, A. Bresson** (France)
- P1.20** Measuring geometric phases with a dynamical quantum zeno effect in a system of cold atoms  
**H.-V. Do, M. Gessner, A. Smerzi, F.S. Cataliotti** (Italy)
- P1.21** Yb optical clock improvements at KRISS  
**D.-H. Yu, H. Kim, M.-S. He, C.Y. Park, W.-K. Lee** (South Korea)
- P1.22** Spin-squeezed atomic crystal  
**D. Kajtoch<sup>1,2</sup>, E. Witkowska<sup>1</sup>, A. Sinatra<sup>2</sup>** (<sup>1</sup>Poland, <sup>2</sup>France)
- P1.23** Quantum-Enhanced Multiparameter Metrology  
**M. Gessner<sup>1,2</sup>, L. Pezzè<sup>2</sup>, A. Smerzi<sup>2</sup>** (<sup>1</sup>France, <sup>2</sup>Italy)

## POSTER SESSION 1

### Cold ions, atoms and molecules

- P1.24** Preparation of H<sup>3+</sup> Ions in a Specific Quantum State  
**D. Shapko, P. Dohnal, Á. Kálosi, Š. Roučka, R. Plašil, J. Glosík** (Czech Republic)
- P1.25** Observing Fano-Feshbach resonances in cold polarized cloud of thulium atoms at low magnetic fields  
**V.A. Khlebnikov<sup>1</sup>, D.A. Pershin<sup>1</sup>, V.V. Tsyganok<sup>1</sup>, E.T. Davletov<sup>1</sup>, I.S. Cojocaru<sup>1,2</sup>, E.S. Fedorova<sup>1</sup>, A.A. Buchachenko<sup>1</sup>, A.V. Akimov<sup>1,2</sup>** (<sup>1</sup>Russia, <sup>2</sup>USA)
- P1.26** Collective scattering of light by a cold atomic gas  
**R. Ayllon<sup>1</sup>, A. Tarramera<sup>2</sup>, J.T. Mendonca<sup>1</sup>, N. Piovella<sup>2</sup>, G.R.M. Robb<sup>3</sup>** (<sup>1</sup>Portugal, <sup>2</sup>Italy, <sup>3</sup>United Kingdom)
- P1.27** Towards an Yb<sup>+</sup> transportable optical clock  
**A.S. Borisenko, I.V. Zalivako, I.A. Semerikov, I.A. Dribas, K.Yu. Khabarova, N.N. Kolachevsky** (Russia)
- P1.28** Adiabatic preparation of magnetically ordered and entangled states with cold atoms in optical lattices  
**A. Venegas-Gomez<sup>1</sup>, W. Ketterle<sup>1,2</sup>, A.J. Daley<sup>1</sup>** (<sup>1</sup>United Kingdom, <sup>2</sup>USA)
- P1.29** Theoretical description of photodissociation in the quantum and quasiclassical regime  
**I. Majewska, R. Moszynski** (Poland)
- P1.30** Compact laser system for experiments with isotopic mixtures of ultracold potassium  
**M. Bocheński, M. Semczuk** (Poland)
- P1.31** Interactions of benzene, naphthalene, and azulene with alkali-metal and alkaline-earth-metal atoms for ultracold studies  
**P. Wójcik, T. Korona, M. Tomza** (Poland)
- P1.32** Quantum magnetism with two ultracold molecules  
**A. Dawid, M. Tomza** (Poland)
- P1.33** Trapping and transporting atoms with near optical resonant trap  
**T. Mashimo, M. Abe, S. Tojo** (Japan)
- P1.34** Continuous loading of ultracold ground state molecules in a dipole trap using a single light beam  
**N. Bouloufa-Maafa<sup>1</sup>, H.F. Passagem<sup>2</sup>, O. Dulieu<sup>1</sup>, L.G. Marcassa<sup>2</sup>** (<sup>1</sup>France, <sup>2</sup>Brazil)



## POSTER SESSION 1

- P1.35** Probing three-body collisions induced by a charge impurity in an ultracold gas  
**H. da Silva Jr<sup>1</sup>, A. Mohammadi<sup>2</sup>, M. Raoult<sup>1</sup>, J. Hecker Denschlag<sup>2</sup>, O. Dulieu<sup>1</sup>**  
(<sup>1</sup>France, <sup>2</sup>Germany)
- P1.36** Laser-assisted self-induced feshbach resonance for ultracold polar molecule formation  
**A. Devolder, E. Luc-Koenig, O. Atabek, M. Desouter-Lecomte, O. Dulieu**  
(France)
- P1.37** Frequency-comb-induced optomechanics in cold atomic cloud  
**N. Šantić, D. Buhin, D. Kovačić, I. Krešić, D. Aumiler, T. Ban** (Croatia)
- P1.38** Towards hybrid quantum systems of atoms and ions  
**L. Duca, E. Perego, A. Detti, F. Berto, C. Sias, M. Inguscio** (Italy)
- P1.39** Deflection of a CaF molecular beam using the bichromatic force  
**S. Galica, L. Aldridge, D. McCarron, E. Eyler, P. Gould** (USA)
- P1.40** State selective detection of cold formaldehyde based on laser induced fluorescence  
**M. Löw, M. Ibrügger, M. Zeppenfeld, G. Rempe** (Germany)
- P1.41** Atom localization by femtosecond laser radiation  
**A.E. Afanasiev, A.A. Meysterson, A.M. Mashko, P.N. Melentiev, V.I. Balykin**  
(Russia)
- P1.42** Collisions between cold molecules in a superconducting trap  
**Y. Segev, M. Pitzer, M. Karpov, N. Akerman, J. Narevicius, E. Narevicius** (Israel)
- P1.43** Vortex-induced dissipation across a Josephson junction  
**K. Xhan<sup>1,2</sup>, E. Neri<sup>2</sup>, M. Zaccanti<sup>2</sup>, K.L. Lee<sup>1</sup>, L. Galantucci<sup>1</sup>, A. Trombettoni<sup>2</sup>, F. Scazza<sup>2</sup>, A. Burchianti<sup>2</sup>, G. Roati<sup>2</sup>, N. Proukakis<sup>1</sup>** (<sup>1</sup>United Kingdom, <sup>2</sup>Italy)
- P1.44** Towards laser cooling of aluminium monofluoride  
**M. Doppelbauer<sup>1</sup>, S. Truppe<sup>1</sup>, S. Marx<sup>1</sup>, S. Kray<sup>1</sup>, S. Hofsäss<sup>1</sup>, H.C. Schewe<sup>1</sup>, B.G. Sartakov<sup>2</sup>, G. Meijer<sup>1</sup>** (<sup>1</sup>Germany, <sup>2</sup>Russia)
- P1.45** Compact RF drive for precise control of ion traps in a quantum mixture of Barium ions and ultracold Lithium gases  
**A. Detti, F. Berto, E. Perego, L. Duca, M. Inguscio, C. Sias** (Italy)
- P1.46** Formation of ultracold molecules: modelling the molecular spin-orbit interaction  
**R. Vexiau, G. Breuil, N. Bouloufa-Mafaa, O. Dulieu** (France)

## POSTER SESSION 1

- P1.47 Optical shielding of ultracold 39K-Cs binary collision  
**T. Xie**<sup>1</sup>, **A. Orbán**<sup>2</sup>, **O. Dulieu**<sup>1</sup>, **N. Bouloufa-Maafa**<sup>1</sup> (<sup>1</sup>France, <sup>2</sup>Hungary)
- P1.48 Bose Einstein condensates in a 1D time-dependent periodic potential  
**M. Arnal**, **G. Chatelain**, **V. Brunaud**, **É. Michon**, **C. Cabrera-Gutiérrez**, **J. Billy**, **D. Guéry-Odelin** (France)
- P1.49 Confinement-induced resonances in two-centre problem  
**V. Melezhik**, **S. Shadmehri** (Russia)
- P1.50 Optical shielding of ultracold ground state K - Cs collisions  
**A. Orbán**<sup>1</sup>, **T. Xie**<sup>2</sup>, **O. Dulieu**<sup>2</sup>, **N. Bouloufa-Maafa**<sup>2</sup> (<sup>1</sup>Hungary, <sup>2</sup>France)
- P1.51 Influence of electrostatic field on light transport in the dense and cold atomic ensembles  
**S.E. Skipetrov**<sup>1</sup>, **I.M. Sokolov**<sup>2</sup> (<sup>1</sup>France, <sup>2</sup>Russia)
- P1.52 Emergence of dark soliton signatures in a one-dimensional unpolarized attractive Fermi gas on a ring  
**A. Syrwid**<sup>1</sup>, **D. Delande**<sup>2</sup>, **K. Sacha**<sup>1</sup> (<sup>1</sup>France, <sup>2</sup>Poland)
- P1.53 Ultracold rare-earth magnetic atoms with an electric dipole moment  
**M. Lepers**<sup>1</sup>, **H. Li**<sup>2</sup>, **G. Quémener**<sup>1</sup>, **J.-F. Wyart**<sup>1</sup>, **O. Dulieu**<sup>1</sup> (<sup>1</sup>France, <sup>2</sup>USA)
- P1.54 Controlling symmetry and localization with artificial gauge fields in disordered quantum systems  
**C. Hainaut**, **I. Manai**, **J.-F. Clément**, **J.C. Garreau**, **P. Szriftgiser**, **G. Lemarié**, **N. Cherroret**, **D. Delande**, **R. Chicireanu** (France)
- P1.55 Self-bound three-dimensional quantum states of bosons and fermions  
**S.K. Adhikari** (Brazil)

### Degenerate quantum gases

- P1.56 Observation of an excited supersolid in a dipolar quantum gas  
**L. Tanzi**<sup>1</sup>, **E. Lucioni**<sup>1</sup>, **F. Famà**<sup>1</sup>, **J. Catani**<sup>1</sup>, **A. Fioretti**<sup>1</sup>, **C. Gabbanini**<sup>1</sup>, **R.N. Bisset**<sup>2</sup>, **L. Santos**<sup>4</sup>, **G. Modugno**<sup>1</sup> (<sup>1</sup>Italy, <sup>2</sup>Germany)
- P1.57 Towards single chamber cesium BEC  
**P. Arciszewski**, **M. Semczuk** (Poland)
- P1.58 Holographically-generated optical traps for ultracold atoms  
**P. Ireland**, **D. Bowman**, **G.D. Bruce**, **D. Cassetari** (United Kingdom)



## POSTER SESSION 1

MONDAY  
APRIL 8

- P1.59** An experiment for the study of small Hubbard models with rapid repetition rate  
**A. Mozdzen, P. Wieburg, M. Schlederer, T. Lompe, H. Moritz** (Germany)
- P1.60** Time-resolved observation of competing short-range correlations in a repulsive atomic Fermi gas  
**F. Scazza<sup>1</sup>, A. Amico<sup>1</sup>, G. Valtolina<sup>1</sup>, P.E.S. Tavares<sup>1</sup>, W. Ketterle<sup>2</sup>, M. Inguscio<sup>1</sup>, G. Roati<sup>1</sup>, M. Zaccanti<sup>1</sup>** (<sup>1</sup>Italy, <sup>2</sup>USA)
- P1.61** Breathing mode of a BEC repulsively interacting with a fermionic reservoir  
**B. Huang<sup>1</sup>, I. Fritsche<sup>1</sup>, R.S. Lous<sup>1</sup>, C. Baroni<sup>1</sup>, J.T.M. Walraven<sup>1,2</sup>, E. Kirilov<sup>1</sup>, R. Grimm<sup>1</sup>** (<sup>1</sup>Austria, <sup>2</sup>The Netherlands)
- P1.62** Many-body localization in the presence of cavity mediated long-range interactions  
**P. Sierant<sup>1</sup>, K. Biedrón<sup>1</sup>, G. Morigi<sup>2</sup>, J. Zakrzewski<sup>1</sup>** (<sup>1</sup>Poland, <sup>2</sup>Germany)
- P1.63** Degenerate Fermi mixtures of dysprosium and potassium atoms  
**V. Corre, C. Ravensbergen, E. Soave, M. Kreyer, E. Kirilov, R. Grimm** (Austria)
- P1.64** Dissipative cooling of spin chains by a bath of dipolar particles  
**M. Robert-de-Saint-Vincent, P. Pedri, B. Laburthe-Tolra** (France)
- P1.65** Collisions of self-bound quantum droplets  
**G. Ferioli, G. Semeghini, L. Masi, G. Giusti, G. Modugno, M. Inguscio, A. Gallemí, A. Recati, M. Fattori** (Italy)
- P1.66** Manipulating fermionic superfluids with arbitrary optical potentials  
**G. Del Pace, W. Kwon, R. Panza, M. Inguscio, F. Scazza, G. Roati** (Italy)
- P1.67** Superfluid dynamics in Bose gases  
**Y. Guo, M. de Gøer de Herve, A. Kumar, R. Dubessy, T. Badr, A. Perrin, L. Longchambon, H. Perrin** (France)
- P1.68** Spectral properties of two-dimensional dipolar Fermi liquid  
**B. Tanatar<sup>1</sup>, I. Seydi<sup>2</sup>, S.H. Abedinpour<sup>2</sup>, R. Asgari<sup>3</sup>** (<sup>1</sup>Turkey, <sup>2</sup>Iran)
- P1.69** Expansion of an interacting Bose-Einstein condensate in disorder: faith of Anderson localization and the condensate state  
**R. Wanzenböck<sup>1</sup>, S. Donsa<sup>1</sup>, H. Hofstätter<sup>1</sup>, O. Koch<sup>1</sup>, J. Burgdörfer<sup>1</sup>, P. Schlagheck<sup>2</sup>, I. Březinová<sup>1</sup>** (<sup>1</sup>Austria, <sup>2</sup>Belgium)
- P1.70** Trapped magnon modes and quantum thermalization in dipolar quantum gases  
**S. Lepoutre<sup>1</sup>, J. Schachenmayer<sup>1</sup>, L. Gabardos<sup>1</sup>, B. Zhu<sup>2</sup>, P. Pedri<sup>1</sup>, K. Kechadi<sup>1</sup>, E. Maréchal<sup>1</sup>, O. Gorceix<sup>1</sup>, A.M. Rey<sup>2</sup>, B. Laburthe-Tolra<sup>1</sup>, L. Vernac<sup>1</sup>** (<sup>1</sup>France, <sup>2</sup>USA)

## POSTER SESSION 1

P1.71 Tunable dual-species Bose-Einstein condensates of 41K and 87Rb in a hybrid trap  
**A. Burchianti<sup>1</sup>, C. D'Errico<sup>1</sup>, S. Rosi<sup>1</sup>, A. Simoni<sup>2</sup>, M. Modugno<sup>3</sup>, C. Fort<sup>1</sup>, F. Minardi<sup>1</sup>** (<sup>1</sup>Italy, <sup>2</sup>France, <sup>3</sup>Spain)

P1.72 Quantum phases of short-range interacting ultracold fermi atomic gases: a metrological usability study  
**L. Lucchesi, M.L. Chiofalo** (Italy)

### Fundamental physics, precision measurements and metrology

P1.73 Toward precision studies Of SBEC quantum dynamics using non-destructive measurement  
**C. Mazzinghi, P. Gomez, M.W. Mitchell** (Spain)

P1.74 Spatial entanglement patterns and Einstein-Podolsky-Rosen steering in a Bose-Einstein condensate  
**M. Fadel, T. Zibold, B. Decamps, Y. Li, P. Colciaghi, P. Treutlein** (Switzerland)

P1.75 Witnessing entanglement with nonlocal operation  
**W. Li** (China)

P1.76 Spectroscopy of the molecular ion HD<sup>+</sup> in the Lamb-Dicke regime: towards determination of fundamental constants at the 10-10 level  
**S. Alighanbari<sup>1</sup>, F.L. Constantini<sup>1,2</sup>, G.S. Giri<sup>1</sup>, V. Korobov<sup>3</sup>, S. Schiller<sup>1</sup>** (<sup>1</sup>Germany, <sup>2</sup>France, <sup>3</sup>Russia)

P1.77 Molecular dipole electrostatic localization  
**I. Vasiliev, O. Kuschenko, S. Rudyi, Y. Rozhddestvensky** (Russia)

P1.78 Critical-point behaviour of a measurement-based quantum heat engine  
**S. Chand, A. Biswas** (India)

P1.79 ALPHA-g: an instrument to measure the gravitational acceleration of antihydrogen  
**M. Sameed** (United Kingdom)

P1.80 Ultra-narrow lasers for optical clock and frequency and time transfer  
**D. Kryuchkov, K. Kudeyarov, N. Zhadnov, I. Semerikov, K. Khabarova, N. Kolachevsky** (Russia)

P1.81 On the sensitivity of the a3X1+ Cameron system of the CO molecule to a possible variation of the fine structure constant  
**A. Kudrin, A. Zaitsevskii, A. Stolyarov** (Russia)





## POSTER SESSION 1

MONDAY  
APRIL 8

- P1.82** Testing the parity symmetry in cold chiral molecules using precise vibrational spectroscopy  
**A. Cournoil<sup>1</sup>, M. Manceau<sup>1</sup>, M. Pierens<sup>1</sup>, L. Lecordier<sup>1</sup>, D.B.A. Tran<sup>1</sup>, R. Santagata<sup>1</sup>, B. Argence<sup>1</sup>, A. Goncharov<sup>1</sup>, O. Lopez<sup>1</sup>, M. Abgrall<sup>1</sup>, Y. Le Coq<sup>1</sup>, R. Le Targat<sup>1</sup>, H. Álvarez Martínez<sup>1</sup>, W.K. Lee<sup>1</sup>, D. Xu<sup>1</sup>, P.-E. Pottie<sup>1</sup>, R.J. Hendricks<sup>2</sup>, T.E. Wall<sup>2</sup>, J.M. Bieniewska<sup>2</sup>, B.E. Sauer<sup>2</sup>, M.R. Tarbutt<sup>2</sup>, A. Amy-Klein<sup>1</sup>, S.K. Tokunaga<sup>1</sup>, B. Darquié<sup>1</sup>** (<sup>1</sup>France, <sup>2</sup>United Kingdom)
- P1.83** The <sup>40</sup>Ar<sup>13+</sup> g-factor and fine structure splitting measurements of the ALPHATRAP experiment  
**T. Sailer<sup>1</sup>, I. Arapoglou<sup>1</sup>, J.R.C. López-Urrutia<sup>1</sup>, A. Egl<sup>1</sup>, M. Höcker<sup>1</sup>, B. Tu<sup>1</sup>, A. Weigel<sup>1</sup>, R. Wolf<sup>2</sup>, S. Sturm<sup>1</sup>, K. Blaum<sup>1</sup>** (<sup>1</sup>Germany, <sup>2</sup>Australia)
- P1.84** Ultracold YbF molecules for measuring the electron's electric dipole moment  
**S.C. Swarbrick, J. Lim, M.A. Trigatzis, J.A. Devlin, N.J. Fitch, B.E. Sauer, M.R. Tarbutt, E.A. Hinds** (United Kingdom)
- P1.85** A novel optical lattice for interferometry with trapped atoms  
**L. Masi, T. Petrucciani, G. Ferioli, G. Semeghini, G. Modugno, M. Inguscio, M. Fattori** (Italy)
- P1.86** Optomechanical quantum thermometry  
**P. Vezio<sup>1</sup>, A. Chowdhury<sup>1</sup>, M. Bonaldi<sup>1</sup>, A. Borrielli<sup>1</sup>, F. Marino<sup>1</sup>, B. Morana<sup>1,2</sup>, G. Pandraud<sup>2</sup>, A. Pontin<sup>3</sup>, G.A. Prodi<sup>1</sup>, P.M. Sarro<sup>1</sup>, E. Serra<sup>1,2</sup>, F. Marin<sup>1</sup>** (<sup>1</sup>Italy, <sup>2</sup>The Netherlands, <sup>3</sup>United Kingdom)
- P1.87** Hunting for temporal variations of the proton-to-electron mass ratio with molecular optical lattice clocks  
**M. Borkowski, M. Bylicki, P. Tecmer** (Poland)
- P1.88** Optical frequency comb as a multi-color synthesizer for precision atomic and molecular physics  
**M. Giunta, B. Sprenger, D. Schmidt, R. Holzwarth, B. Hacker, D. Niemietz, G. Rempe** (Germany)
- P1.89** A different approach for splitting light with different wavelengths  
**E. Dimova** (Bulgaria)
- P1.90** Towards optical lattice clock based on inner-shell transition in Tm  
**E.S. Fedorova<sup>1</sup>, A.A. Golovizin<sup>1</sup>, D.O. Tregubov<sup>1</sup>, D.D. Sukachev<sup>1,3</sup>, V.N. Sorokin<sup>1</sup>, K.U. Khabarova<sup>1</sup>, N.N. Kolachevsky<sup>1</sup>** (<sup>1</sup>Russia, <sup>2</sup>USA)
- P1.91** NV-centers in HPHT diamonds for applying as magnetic field sensors  
**O.R. Rubinas<sup>1</sup>, V.V. Soshenko<sup>1</sup>, S.V. Bolshedvorskii<sup>1</sup>, B.A. Kudlatsky<sup>1</sup>, V.V. Vorobyov<sup>2</sup>, V.N. Sorokin<sup>1</sup>, A.N. Smolyaninov<sup>1</sup>, V.G. Vins<sup>1</sup>, A.V. Akimov<sup>3</sup>** (<sup>1</sup>Russia, <sup>2</sup>Germany, <sup>3</sup>USA)

## POSTER SESSION 1

- P1.92 Does a quantum state of an electron influence its electromagnetic field?  
**D. Karlovets** (Russia)
- P1.93 Gravimetry and fundamental physics with atoms on very long baselines  
**D. Tell, É. Wodey, C. Meiners, R.J. Rengelink, C. Schubert, D. Schlippert, W. Ertmer, E.M. Rasel** (Germany)
- P1.94 Effective rotation potential of the diatomic molecular ion in the RF trap  
**I. Vasiliev, O. Kuschenko, S. Rudiy, Y. Rozhdestvensky** (Russia)
- P1.95 MEGANTE: towards a new precision measurement of the gravitational constant with atom interferometry  
**G. Rosi** (Italy)
- P1.96 Robustifying twist-and-turn entanglement with interaction-based readout  
**S.S. Mirkhalaf** (Poland)
- P1.97 Optimal control of single spins in diamond for quantum sensing  
**F. Poggiali<sup>1</sup>, P. Cappellaro<sup>1,2</sup>, N. Fabbri<sup>1</sup>** (<sup>1</sup>Italy, <sup>2</sup>USA)
- P1.98 Calculation of the characteristics of many-electron atoms and ions on the basis of analytic effective charge model  
**A. Leonau<sup>1</sup>, O. Skoromnik<sup>2</sup>, I. Feranchuk<sup>1</sup>, C. Keitel<sup>2</sup>** (<sup>1</sup>Belarus, <sup>2</sup>Germany)
- P1.99 IR to UV ultra-stable optical oscillator transfer for primary thermometry  
**A. Sorgi, R. Eramo, P.C. Pastor** (Italy)
- P1.100 Composite polarization rotator with Fresnel's rhomb  
**E. Dimova, S. Ognianski, H. Hristova** (Bulgaria)
- P1.101 Method for determining the size of single charged particles in a viscous medium in a radio frequency trap of Paul  
**R.S. Siriy, S.S. Rudiy, A.V. Ivanov, Y.V. Rozhdestvensky** (Russia)
- P1.102 Observation of zero crossing orbits of charged particles in the radiofrequency trap  
**I.A. Kosternoy, S.S. Rudiy, A.V. Ivanov, Y.V. Rozhdestvensky** (Russia)
- P1.103 Probing nuclear size effects in He using precision spectroscopy on quantum degenerate gases  
**Y. van der Werf, R. Jannin, W. Vassen** (Netherlands)
- P1.104 Quantum enhancements in multiparameter rotation measurements  
**A.Z. Goldberg, D.F.V. James** (Canada)
- P1.105 An unique probability function definition for quantum and classical phenomena  
**M. Trassinelli** (France)



## POSTER SESSION 1

- P1.106** High-resolution wavelength-dispersive spectroscopy of K-shell transitions in hydrogen-like gold  
**M. Trassinelli<sup>1</sup>**, T. Gassner<sup>2</sup>, R. Heß<sup>2</sup>, A. Gumberidze<sup>2</sup>, U. Spillmann<sup>2</sup>, D. Banaš<sup>3</sup>, K.-H. Blumenhagen<sup>2</sup>, F. Bosch<sup>2</sup>, C. Brandau<sup>2</sup>, W. Chen<sup>2</sup>, C. Dimopoulou<sup>2</sup>, E. Förster<sup>2</sup>, R.E. Grisenti<sup>2</sup>, S. Hagmann<sup>2</sup>, P.-M. Hillenbrand<sup>2</sup>, P. Indelicato<sup>1</sup>, P. Jagodzinski<sup>3</sup>, T. Kämpfer<sup>2</sup>, C. Kozhuharov<sup>2</sup>, M. Lestinsky<sup>2</sup>, D. Liesen<sup>2</sup>, Y.A. Litvinov<sup>2</sup>, R. Loetzsch<sup>2</sup>, B. Manil<sup>1</sup>, R. Martin<sup>2</sup>, F. Nolden<sup>2</sup>, N. Petridis<sup>2</sup>, M.S. Sanjari<sup>2</sup>, K.S. Schulze<sup>2</sup>, M. Schwemlein<sup>2</sup>, A. Simionovici<sup>1</sup>, M. Steck<sup>2</sup>, T. Stöhlker<sup>2</sup>, C.I. Szabo<sup>1,4</sup>, S. Trotsenko<sup>2</sup>, I. Uschmann<sup>2</sup>, G. Weber<sup>2</sup>, O. Wehrhan<sup>2</sup>, N. Winckler<sup>2</sup>, D.F.A. Winters<sup>2</sup>, N. Winters<sup>2</sup>, E. Ziegler<sup>1</sup>, H.F. Beyer<sup>2</sup> (<sup>1</sup>France, <sup>2</sup>Germany, <sup>3</sup>Poland, <sup>4</sup>USA)
- P1.107** A 2D optical lattice based method for detection of atomic parity violation and of nuclear anapole moments, designed for heavy neutral alkali atoms  
**A. Kastberg<sup>1</sup>**, T. Aoki<sup>2</sup>, B.K. Sahoo<sup>3</sup>, Y. Sakemi<sup>2</sup>, B.P. Das<sup>2</sup> (<sup>1</sup>France, <sup>2</sup>Japan, <sup>3</sup>India)

## Rydberg atoms and ultra-cold plasmas

- P1.108** Individual and ensemble lifetimes of high-lying Rb Rydberg states  
**M. Archimi<sup>1</sup>**, C. Simonelli<sup>1</sup>, L. Di Virgilio<sup>1</sup>, A. Greco<sup>1</sup>, M. Ceccanti<sup>1</sup>, D. Ciampini<sup>1</sup>, I. Beterov<sup>2</sup>, I. Ryabtsev<sup>2</sup>, O. Morsch<sup>1</sup> (<sup>1</sup>Italy, <sup>2</sup>Russia)

## POSTER SESSION 2

### Atomic and molecular astrophysics

- P2.1 Prompt and delayed fragmentation of hydantoin in collision with minority ions of solar wind: He<sup>2+</sup> and O<sup>6+</sup>  
**J. Renoud, S. Indrajith, J.-P. Champeaux, A. Domaracka, P. Rousseau, B. Huber, P. Moretto-Capelle, M. Sence, P. Cafarelli** (France)
- P2.2 Photodetachment studies of the astrochemical anions CN<sup>-</sup> and C<sub>3</sub>N<sup>-</sup>  
**M. Simpson<sup>1</sup>, M. Nötzold<sup>1</sup>, A. Schmidt-May<sup>1</sup>, R. Wild<sup>1</sup>, F.A. Gianturco<sup>1</sup>, V. Kokkoulina<sup>2</sup>, R. Wester<sup>1</sup>** (<sup>1</sup>Austria, <sup>2</sup>USA)
- P2.3 Quantum mechanical study of the high-temperature H<sup>++</sup>HDD<sup>++</sup>H<sub>2</sub> reaction for the primordial universe chemistry  
**M. Lepers, G. Guillon, P. Honvault** (France)
- P2.4 Plasma screening effect on the atomic occurrence scattering time advance in astrophysical turbulent plasmas  
**M.-J. Lee, Y.-D. Jung** (South Korea)

### Atomic spectroscopy

- P2.5 Coherent excitation of the optical fine structure transition in Ar<sup>13+</sup>  
**T. Leopold, S.A. King, P. Micke, J.R.C. López-Urrutia, P.O. Schmidt** (Germany)
- P2.6 Doubly-excited  $3pd$  Rydberg series of the magnesium atom: theory and experiment  
**M. Génévriez, D. Wehrli, F. Merkt** (Switzerland)
- P2.7 Atomic clock based on electromagnetically induced absorption resonances in a rubidium vapor cell  
**D. Brazhnikov, S. Ignatovich, I. Mesenzova, N. Kvashnin, M. Skvortsov** (Russia)
- P2.8 PFI-ZEKE photoelectron spectroscopy of positively charged ions  
**M. Génévriez, D. Wehrli, J.A. Agner, F. Merkt** (Switzerland)
- P2.9 Towards non-destructive heterodyne atom number measurement in an ultracold cesium and potassium mixture  
**J. Dobosz, M. Semczuk** (Poland)
- P2.10 Thermal surface modes probed through the casimir-polder atom-surface interaction  
**J.C. de Aquino Carvalho, A. Laliotis, I. Maurin, M. Ducloy, D. Bloch, D. de Sousa Meneses, P. Echegut** (France)



## POSTER SESSION 2

- P2.11** Photodetachment Studies of Ir- Ions: thresholds and lifetimes  
**M.K. Kristiansson, J. Sundberg, D. Hanstorp, G. Eklund, H. Cederquist, H. Zettergren, H.T. Schmidt** (Sweden)
- P2.12** The electron affinity of Pb  
**C. Blondel, D. Bresteau, C. Drag** (France)
- P2.13** Spectroscopic probing of retardation effects in the thermal Casimir-Polder interaction: a theoretical study  
**J.C. de Aquino Carvalho, P. Pedri, M. Ducloy, A. Laliotis** (France)
- P2.14** Shape effects in nuclei far from stability characterized by in-source laser resonance ionization spectroscopy  
**V. Fedosseev** (Switzerland)
- P2.15** Linearity and energy resolution of a metallic magnetic microcalorimeter for precision X-ray spectroscopy  
**P. Pfäfflein, M.O. Herdrich, D. Hengstler, A. Fleischmann, G. Weber, C. Enss, T. Stöhlker** (Germany)
- P2.16** Non-destructive defect imaging with a semi-vector radio-frequency atomic magnetometer  
**P. Bevington, R. Gartman, W. Chalupczak** (United Kingdom)
- P2.17** Deep-UV Light generation for mercury spectroscopy and temperature metrology  
**S. Gravina, H. Dinesan, A. Castrillo, C. Clivati, G.A. Costanzo, F. Levi, A. Sorgi, P. Cancio Pastor, L. Gianfrani** (Italy)
- P2.18** The extraction of the nuclear parameters from the spectra of muonic atoms  
**N.S. Oreshkina on behalf of MuX Collaboration** (Germany)
- P2.19** 1S-2S transition spectroscopy in positronium with a 486nm CW Laser  
**A. Golovizin<sup>1,2</sup>, M.W. Heiss<sup>1</sup>, P. Crivelli<sup>1</sup>** (<sup>1</sup>Switzerland, <sup>2</sup>Russia)
- P2.20** Electron-photon coincidence experiments in the UV/VIS spectral range using single photon detection and a time-of-flight electron spectrometer  
**L. Marder, C. Ozga, G. Hartmann, P. Schmidt, C. Richter, U. Hergenhahn, A. Ehresmann, A. Knie, A. Hans** (Germany)
- P2.21** Auger decays of 3d inner shell holes in Rubidium atoms  
**P. Lablanquie<sup>1</sup>, M. Khalal<sup>1</sup>, J. Palaudoux<sup>1</sup>, K. Jänkälä<sup>2</sup>, J. Keskinen<sup>2</sup>, M. Huttula<sup>2</sup>, J.-M. Bizau<sup>1</sup>, D. Cubaynes<sup>1</sup>, S. Guilbaud<sup>1</sup>, M. Žitnik<sup>3</sup>, K. Bučar<sup>3</sup>, Y. Hikosaka<sup>4</sup>, K. Ito<sup>1</sup>, L. Andric<sup>1</sup>, F. Penent<sup>1</sup>** (<sup>1</sup>France, <sup>2</sup>Finland, <sup>3</sup>Slovenia, <sup>4</sup>Japan)

## POSTER SESSION 2

- P2.22** Observation of the  $5^2P_{3/2} - 6^2P_{3/2}$  forbidden transition in laser-cooled rubidium atoms with 911 nm external cavity diode laser  
**M. Fukui, M. Abe, S. Tojo** (Japan)
- P2.23** Computational atomic structure developments with GRASP towards heavy atoms and ions of astrophysical interest  
**J. Bierón<sup>1</sup>, T. Brage<sup>2</sup>, C.Y. Chen<sup>3</sup>, G. Del Zanna<sup>4</sup>, J. Ekman<sup>2</sup>, C.F. Fischer<sup>5</sup>, G. Gaigalas<sup>6</sup>, H. Hartman<sup>2</sup>, S. Gamrath<sup>7</sup>, J. Li<sup>3</sup>, M. Godefroid<sup>7</sup>, P. Jönsson<sup>2</sup>, P. Palmeri<sup>7</sup>, A. Papoulia<sup>2</sup>, P. Quinet<sup>7</sup>, P. Rynkun<sup>6</sup>, S. Schiffmann<sup>2,7</sup>, R. Si<sup>2,3</sup>, K. Wang<sup>3,7</sup>, C.Y. Zhang<sup>3</sup>** (<sup>1</sup>Poland, <sup>2</sup>Sweden, <sup>3</sup>China, <sup>4</sup>United Kingdom, <sup>5</sup>Canada, <sup>6</sup>Lithuania, <sup>7</sup>Belgium)
- P2.24** Emergence of absorption in Autler-Townes window in a  $\Lambda$ -system in cold 87Rb atoms  
**C. Mishra, A. Chakraborty, S.P. Ram, S. Singh, V.B. Tiwari, S.R. Mishra** (India)
- P2.25** Features of the hyper-ramsey spectroscopy in an optically dense atomic medium  
**K. Barantsev, A. Litvinov** (Russia)
- P2.26** Precision calculations of the helium spectra and tests of fundamental physics  
**V. Patkóš<sup>1</sup>, K. Pachucki<sup>2</sup>, V.A. Yerokhin<sup>3</sup>** (<sup>1</sup>Czech Republic, <sup>2</sup>Poland, <sup>3</sup>Russia)
- P2.27** Coherence resonances of spatially confined atomic vapors  
**S. Villalba<sup>1</sup>, L. Lenci<sup>1</sup>, A. Laliotis<sup>2</sup>, A. Lezama<sup>1</sup>, H. Failache<sup>1</sup>** (<sup>1</sup>Uruguay, <sup>2</sup>France)
- P2.28** Probing confined atoms to geometrically characterize porous media  
**H. Failache, L. Amy, S. Villalba, A. Lezama** (Uruguay)
- P2.29** Investigations for a miniature optical frequency reference based on high-contrast sub-Doppler resonance in a MEMS cesium vapor cell  
**D. Brazhnikov<sup>1</sup>, M. Petersen<sup>2</sup>, G. Coget<sup>2</sup>, N. Passilly<sup>2</sup>, V. Maurice<sup>2,3</sup>, C. Goreck<sup>2</sup>, R. Boudot<sup>2,3</sup>** (<sup>1</sup>Russia, <sup>2</sup>France, <sup>3</sup>USA)
- P2.30** A fresh computational approach to atomic structures, processes and cascades for (atomic) spectroscopy  
**S. Fritzsche** (Germany)
- P2.31** Atomic vapour confined in a nanoscale geometry : from mesoscopic to collective effects  
**T. Peyrot<sup>1</sup>, J. Keaveney<sup>2</sup>, Y.R.P. Sortais<sup>1</sup>, A. Sargsyan<sup>3</sup>, I.G. Hughes<sup>2</sup>, J.J. Greffet<sup>1</sup>, C.S. Adams<sup>2</sup>, A. Browaeys<sup>1</sup>** (<sup>1</sup>France, <sup>2</sup>United Kingdom, <sup>3</sup>Armenia)



## POSTER SESSION 2

- P2.32** Double vacancy production and spectra of the shake-off electrons in electron K-capture  
**M.D. Kiselev<sup>1</sup>, O.I. Zatsarinny<sup>2</sup>, M. Bilal<sup>3</sup>, S. Fritzsche<sup>3</sup>, E.V. Gryzlova<sup>1</sup>, A.N. Grum-Grzhimailo<sup>1</sup>** (<sup>1</sup>Russia, <sup>2</sup>USA, <sup>3</sup>Germany)
- P2.33** Quantum optics (and STROLLing) in the hyperfine Paschen-Back regime  
**R.S. Mathew, J. Keaveney, D. Whiting, F. Ponciano-Ojeda, I.G. Hughes** (United Kingdom)
- P2.34** Quantitative optical spectroscopy of alkali-metal vapour in DC magnetic fields up to 0.4 T  
**F.S. Ponciano-Ojeda, J. Keaveney, S.M. Rieche, M.J. Raine, D.P. Hampshire, I.G. Hughes** (United Kingdom)
- P2.35** Precise generation of 7 F state in rubidium atom  
**M. Abe, R. Yasuda, S. Tojo** (Japan)
- P2.36** Four-wave mixing in cold rubidium atoms using a single cw Laser  
**A.A.C. de Almeida, N.R. de Melo, S.S. Vianna** (Brazil)
- P2.37** Giant gain and self-oscillation in parametric four-wave mixing via recoil induced resonance  
**J.P. Lopez, A.M.G. de Melo, D. Felinto, J.W.R. Tabosa** (Brazil)
- P2.38** Experimental measurements of radiative lifetimes and semi-empirical calculations of decay rates for highly excited levels in Ba I  
**S. Gamrath<sup>1</sup>, P. Palmeri<sup>1</sup>, P. Quinet<sup>1</sup>, Q. Wang<sup>2</sup>, Q. Yu<sup>2</sup>, M. Zhang<sup>2</sup>, Z. Dai<sup>2</sup>** (<sup>1</sup>Belgium, <sup>2</sup>China)
- P2.39** Calculation of hyperfine anomaly in heavy atoms  
**E.A. Konovalova, Y.A. Demidov, M.G. Kozlov** (Russia)
- P2.40** Large-scale atomic structure and radiative parameter calculations in neutral lanthanum  
**S. Gamrath, P. Palmeri, P. Quinet** (Belgium)
- P2.41** Velocity-selective spectroscopy of Rb vapor with a cw and a femtosecond laser  
**N.R. de Melo, A.C. García-Wong, A.A.C. de Almeida, S.S. Vianna** (Brazil)
- P2.42** Low and high Z asymptotics along atomic isoelectronic sequences: configurations with  $npn'p$  open shells  
**J. Katriel** (Israel)

## POSTER SESSION 2

### Biomolecules

- P2.43** State-dependent fragmentation of protonated uracil and uridine  
**M. Pitzer**<sup>1,2</sup>, **C. Ozga**<sup>2</sup>, **C. Küstner-Wetekam**<sup>2</sup>, **P. Reiß**<sup>2</sup>, **A. Knie**<sup>2</sup>,  
**A. Ehresmann**<sup>2</sup>, **T. Jahnke**<sup>2</sup>, **A. Giuliani**<sup>3</sup>, **L. Nahon**<sup>3</sup> (<sup>1</sup>Israel, <sup>2</sup>Germany, <sup>3</sup>France)
- P2.44** A synchrotron radiation study of nitroimidazoles and their derivatives  
**P. Bolognesi**, **A. Cartoni**, **A. Casavola**, **J. Chiarinelli**, **M.C. Castrovilli**, **L. Avaldi**  
(Italy)
- P2.45** Low-energy electron interactions with nitroimidazole-based radiosensitisers under isolated and hydrated conditions  
**R. Meißner**<sup>1,2</sup>, **C. Lochmann**<sup>1</sup>, **L. Feketeová**<sup>3</sup>, **J. Kočišek**<sup>4</sup>, **J. Fedor**<sup>4</sup>, **M. Fárník**<sup>4</sup>,  
**P. Limão-Vieira**<sup>2</sup>, **S. Denifl**<sup>1</sup> (<sup>1</sup>Austria, <sup>2</sup>Portugal, <sup>3</sup>France, <sup>4</sup>Czech Republic)
- P2.46** Pheophorbide - phenazine conjugate as a fluorescent light-up probe for G-quadruplex structure  
**O. Ryazanova**, **V. Zozulya**, **I. Voloshin**, **L. Dubey**, **I. Dubey**, **V. Karachevtsev**  
(Ukraine)

### Fundamental physics, precision measurements and metrology

- P2.47** Constraining a time variation of the proton-electron mass ratio with a molecular iodine clock  
**F.L. Constantin** (France)
- P2.48** Towards THz-infrared precision spectroscopy of cold trapped HD<sup>+</sup> ions  
**F.L. Constantin** (France)

### Molecular spectroscopy

- P2.49** Coherent manipulation of orbital feshbach molecules of two-electron atoms  
**D. Tusi**, **G. Cappellini**, **L.F. Livi**, **Franchi**, **D.B. Orenes**, **M. Inguscio**, **J. Catani**,  
**L. Fallani** (Italy)
- P2.50** Quantum-assisted molecule metrology  
**P. Rieser**, **A. Shayeghi**, **M. Arndt** (Austria)
- P2.51** Room-temperature 1 to 7.5 THz metrological grade terahertz spectrometer  
**M. De Regis**, **L. Consolino**, **S. Bartalini**, **P. De Natale** (Italy)





## POSTER SESSION 2

- P2.52** Towards the experimental accuracy of relativistic coupled cluster calculations on excited states of alkali diatomics  
**A. Oleynichenko<sup>1</sup>, A. Zaitsevskii<sup>1</sup>, E. Eliav<sup>2</sup>, A. Stolyarov<sup>1</sup>** (<sup>1</sup>Russia, <sup>2</sup>Israel)
- P2.53** Integrated organic molecules in hybrid chips for quantum technologies  
**M. Colautti<sup>1</sup>, P. Lombardi<sup>1</sup>, S. Pazzagli<sup>1</sup>, A.P. Ovvyan<sup>2</sup>, D. Martella<sup>1</sup>, N. Gruhler<sup>2</sup>, O. Neitzke<sup>2</sup>, G. Kewes<sup>2</sup>, B. Tiribilli<sup>1</sup>, O. Benson<sup>2</sup>, F.S. Cataliotti<sup>1</sup>, W.H.P. Pernice<sup>2</sup>, C. Toninelli<sup>1</sup>** (<sup>1</sup>Italy, <sup>2</sup>Germany)
- P2.54** Cavity-enhanced direct optical frequency comb spectroscopy with tooth-width limited resolution  
**G. Kowzan, D. Charczun, A. Nishiyama, P. Staniszewski, A. Cygan, R.S. Trawiński, D. Lisak, P. Maślowski** (Poland)
- P2.55** Color centers optical and spin properties in ultra small nanodiamonds  
**S. Bolshedvorskii<sup>1</sup>, A. Zeleneev<sup>1</sup>, L. Zhulikov<sup>1</sup>, V. Vorobyov<sup>1</sup>, V. Soshenko<sup>1</sup>, O. Rubinas<sup>1</sup>, V. Sorokin<sup>1</sup>, A. Smolyaninov<sup>1</sup>, A. Akimov<sup>1,2</sup>** (<sup>1</sup>Russia, <sup>2</sup>USA)
- P2.56** Nonrelativistic energy levels of D2  
**K. Pachucki, J. Komasa** (Poland)
- P2.57** Studying the influence of halogen substitution on toluene's dynamics in the vacuum-ultraviolet (VUV) region  
**C.C. Papadopoulou<sup>1,2</sup>, S. Kaziannis<sup>1</sup>, C. Kosmidis<sup>1</sup>** (<sup>1</sup>Greece, <sup>2</sup>Germany)
- P2.58** Primary gas thermometry by means of comb-calibrated acetylene spectroscopy  
**A. Castrillo, H. Dinesan, S. Gravina, E. Fasci, L. Moretti, L. Gianfrani** (Italy)
- P2.59** An ab initio investigation of intramolecular coupling in Li containing heterodiatom alkali molecules: long-range behavior  
**E. Bormotova, S. Kozlov, E. Pazyuk, A. Stolyarov** (Russia)
- P2.60** Observation and analysis of laser-induced fluorescence ( $A1\Sigma^+ - b3\Pi$ )  $\rightarrow$   $a3\Sigma^+$  spectra in the RbCs molecule  
**V. Krumins<sup>1</sup>, A. Kruzins<sup>1</sup>, M. Tamanis<sup>1</sup>, R. Ferber<sup>1</sup>, A. Pashov<sup>2</sup>, A. Oleynichenko<sup>3</sup>, A. Zaitsevskii<sup>3</sup>, E.A. Pazyuk<sup>3</sup>, A.V. Stolyarov<sup>3</sup>** (<sup>1</sup>Latvia, <sup>2</sup>Bulgaria, <sup>3</sup>Russia)
- P2.61** Probing molecules next to surfaces  
**J. Lukusa Mudiayi<sup>1</sup>, T. Mashimo<sup>1,2</sup>, I. Maurin<sup>1</sup>, B. Darquié<sup>1</sup>, D. Bloch<sup>1</sup>, A. Laliotis<sup>1</sup>** (<sup>1</sup>France, <sup>2</sup>Japan)
- P2.62** Fano like profile on the field-dressed rovibronic spectra of Na2  
**G.J. Halász, A. Csehi, T. Szidarovszky, Á. Vibók** (Hungary)

## POSTER SESSION 2

- P2.63** Spectroscopy of molecular Rydberg states using OODR: lif excitation and emission spectra of ZnAr based on experimental and ab-initio calculated potentials  
**J. Dudek, T. Urbańczyk, M. Krośnicki, A. Kędziorski, J. Koperski** (Poland)
- P2.64** Corrections to raman scattering cross sections due to molecular non rigidity for roto-vibrational bands of N<sub>2</sub> and O<sub>2</sub>: computations and experiment  
**J. Borysov<sup>1,2</sup>, T. Capek<sup>1,2</sup>, C. Mazzoleni<sup>1,2</sup>, M. Moraldi<sup>1,2</sup>** (<sup>1</sup>USA, <sup>2</sup>Italy)

### Photon induced processes

- P2.65** Task-parallelized numerical linear algebra methods to solve the few body Coulomb problem  
**L. Biedma, F.D. Colavecchia, J.M. Randa** (Argentina)
- P2.66** The role of water in the photophysics of building blocks of life  
**S. Trippel, T. Kierspel, J. Onvlee, J. Wiese, M. Johnny, T.G. Mullins, J.-F. Olivieri, A. Trabattoni, J. Küpper** (Germany)
- P2.67** Quantum gyroscope based on nitrogen-vacancy centers in diamond  
**V.S. Malinovsky<sup>1</sup>, A. Jarmola<sup>1</sup>, S. Hawasli<sup>1</sup>, A.G. Birdwell<sup>1</sup>, T. Ivanov<sup>1</sup>, D. Budker<sup>2</sup>** (<sup>1</sup>USA, <sup>2</sup>Germany)
- P2.68** Fully differential measurements of low energy Compton scattering in the gas phase  
**M. Kircher<sup>1</sup>, M.S. Schöffler<sup>1</sup>, S. Grundmann<sup>1</sup>, I. Vela-Pérez<sup>1</sup>, J. Rist<sup>1</sup>, F. Trinter<sup>2</sup>, M.N. Piancastelli<sup>2,3</sup>, K. Bagschik<sup>1</sup>, T. Jahnke<sup>1</sup>, R. Dörner<sup>1</sup>** (<sup>1</sup>Germany, <sup>2</sup>France, <sup>3</sup>Sweden)
- P2.69** Probing the coupling between the ground and first excited H<sub>3</sub><sup>+</sup> potentials by photodissociation  
**J. Loreau, T. Launoy, A. Dochain, R. Marion, X. Urbain** (Belgium)
- P2.70** A dynamic double slit experiment in a single atom  
**J. Pursehouse<sup>1</sup>, A.J. Murray<sup>1</sup>, J. Wätzel<sup>2</sup>, J. Berakdar<sup>2</sup>** (<sup>1</sup>United Kingdom, <sup>2</sup>Germany)
- P2.71** Beyond the dipole-approximation in photoelectron angular distributions  
**L. Ábrók<sup>1</sup>, T. Buhr<sup>2</sup>, D. Nagy<sup>1</sup>, I. Márton<sup>1</sup>, Á. Kövér<sup>1</sup>, B. Beckhoff<sup>4</sup>, S. Ricz<sup>1</sup>** (<sup>1</sup>Hungary, <sup>2</sup>Germany)



## POSTER SESSION 2

- P2.72** Enhanced non-dipole effects in atomic ionization by twisted light  
**A. Surzhykov, S. Schulz, Y. Duan, R. Müller** (Germany)
- P2.73** Time-resolved dynamics of slow photoelectrons in the rescattering regime  
**M. Ranke, S. Walther, A. Dimitriou, M.J. Prandolini, T. Gebert, M. Wieland, M. Drescher, U. Fröling** (Germany)
- P2.74** Decay of inner-shell vacancies in van-der-Waals clusters investigated by electron-electron and electron-photon coincidence techniques  
**C.S. Küstner-Wetekam, P. Schmidt, C. Ozga, H. Otto, A. Ehresmann, U. Hergenhahn, A. Knie, A. Hans** (Germany)
- P2.75** The spectroscopic properties and dynamics of the RgI<sub>2</sub> van der Waals complexes, Rg = He, Ne, Ar, Kr  
**V.V. Batur, R. Kevorkyants, S.S. Lukashov, S.A. Poretsky, A.M. Pravilov** (Russia)
- P2.76** Angular distribution and energy spectra of photoelectrons from tetrahydrofuran illuminated by VUV photon source  
**D. Nagy, I. Márton, L. Ábrók, L. Gulyás, S.T.S. Kovács, P. Herczku, Á. Kövér, S. Ricz** (Hungary)
- P2.77** Partial sum rules as informants of the integral role of intershell correlations in heavy atoms and endohedrals  
**M. Amusia<sup>1,2</sup>, L.V. Chernyshevi<sup>2</sup>** (<sup>1</sup>Israel, <sup>2</sup>Russia)
- P2.78** Black swans vs. dragon kings: statistical outliers in random lasers emission  
**F. Tommasi, L. Fini, E. Ignesti, S. Lepri, F. Martelli, S. Cavalieri** (Sesto Fiorentino)
- P2.79** Photoionization and photofragmentation of singly charged positive and negative sc<sub>3</sub>n@c<sub>80</sub> endohedral fullerene ions  
**A. Müller<sup>1</sup>, M. Martins<sup>1</sup>, A.L. David Kilcoyne<sup>2</sup>, R.A. Phaneuf<sup>2</sup>, J. Hellhund<sup>1</sup>, A. Borovik Jr<sup>1</sup>, K. Holste<sup>1</sup>, S. Bari<sup>1</sup>, T. Buhr<sup>1</sup>, S. Klumpp<sup>1</sup>, A. Perry-Sassmannshausen<sup>1</sup>, S. Reinwardt<sup>1</sup>, S. Ricz<sup>3</sup>, K. Schubert<sup>1</sup>, S. Schippers<sup>1</sup>** (<sup>1</sup>Germany, <sup>2</sup>USA, <sup>3</sup>Hungary)
- P2.80** Ultrafast molecular photoresponse of chromophore ions studied in an ion-storage ring  
**E. Gruber, J.L. Knudsen, H.B. Pedersen, L.H. Andersen** (Denmark)
- P2.81** On impact of polarization of a CN cage on photoionization of A@CN: from “dwarf” C<sub>20</sub> to giant C<sub>240</sub>  
**V.K. Dolmatov** (USA)

## POSTER SESSION 2

- P2.82** Fluorescence polarization as a precise tool for understanding nonlinear photoionization  
**J. Hofbrucker, A. Volotka, S. Fritzsche** (Germany)
- P2.83** Determination of the electron affinity of astatine  
**J. Sundberg, D. Leimbach, D. Hanstorp, S. Rothe for the IS615 Collaboration at ISOLDE at CERN** (Switzerland)
- P2.84** Time-resolved action-spectroscopy of chromophore ions studied in an ion-storage ring  
**E. Gruber, J.L. Knudsen, L.H. Andersen** (Denmark)

### Quantum information and cavity QED

- P2.85** Planar optical antennas as efficient single-photon sources for free-space and fiber-based operation in quantum optics and metrology  
**P. Lombardi<sup>1</sup>, H. Schaufert<sup>2</sup>, M. Colautti<sup>1</sup>, S. Pazzagli<sup>1</sup>, M. Agio<sup>3</sup>, C. Toninelli<sup>1</sup>** (Italy, <sup>2</sup>Austria, <sup>3</sup>Germany)
- P2.86** High-fidelity quantum control and quantum information processing with composite pulses  
**B.T. Torosov<sup>1</sup>, S.S. Ivanov<sup>1</sup>, G.T. Genov<sup>2</sup>, D. Schraft<sup>2</sup>, A. Bruns<sup>2</sup>, M. Hain<sup>2</sup>, T. Halfmann<sup>2</sup>, N.V. Vitanov<sup>1</sup>** (Bulgaria, <sup>2</sup>Germany)
- P2.87** Uncovering light induced crossings in molecules immersed in QED cavities using pump-probe lasers  
**J.L. Sanz-Vicario, J.F. Triana** (Colombia)
- P2.88** Arbitrary linear transformations of bosonic modes with simple optical elements  
**N. Tischler<sup>1</sup>, C. Rockstuhl<sup>2</sup>, K. Słowik<sup>1,3</sup>** (<sup>1</sup>Australia, <sup>2</sup>Germany)
- P2.89** Certifying quantum correlations in fermionic systems through the Slater number  
**E. Bene, S. Demes, T. Vértesi** (Hungary)
- P2.90** Manipulating emission properties and interactions of atomic systems when electric dipole approximation does not hold  
**K. Słowik, M. Kosik** (Poland)
- P2.91** Electronic and nuclear entanglement measures in atoms and molecules  
**C.E.G. Gaviria, B.S. Rodríguez<sup>1</sup>, J.F. Pérez-Torres, J.L. Sanz-Vicario** (Colombia)



## POSTER SESSION 2

- P2.92** Quantum teleportation between multiple senders and receivers  
**S.M. Lee, S.-W. Lee, H. Jeong, H.S. Park** (South Korea)
- P2.93** Quantum entity authentication without a third party  
**M.-S. Kang, Y.-S. Kim, S.-W. Han, S. Moon** (South Korea)
- P2.94** Generation of non-classical states of photons from metal-dielectric interface: a novel architecture for quantum information processing  
**Karun Mehta, Shubhrangshu Dasgupta** (India)
- P2.95** Dynamics around conical intersection induced by quantum light  
**A. Cseh<sup>1</sup>, M. Kowalewski<sup>2</sup>, G.J. Halász<sup>1</sup>, Á. Vibók<sup>1</sup>** (<sup>1</sup>Hungary, <sup>2</sup>Sweden)

### Rydberg atoms and ultra-cold plasmas

- P2.96** Simulating open quantum system dynamics with Rydberg aggregates  
**A. Eisfeld** (Germany)

## POSTER SESSION 3

### Atomic and molecular collisions

- P3.1** Superexchange blockade by Fano-ADC-Stieltjes method  
**P. Votavová<sup>1</sup>, R. Bennett<sup>2</sup>, S.Y. Buhmann<sup>2</sup>, T. Miteva<sup>3</sup>, N. Sisourat<sup>3</sup>, P. Kolorenc<sup>1</sup>** (<sup>1</sup>Czech Republic, <sup>2</sup>Germany, <sup>3</sup>France)
- P3.2** An experiment to study collisions between ultracold CaF molecules and Rb atoms  
**S. Jurgilas, K.N. Jarvis, J. Rodewald, L. Caldwell, H.J. Williams, E.A. Hinds, B.E. Sauer, M.R. Tarbutt** (United Kingdom)
- P3.3** Rotational excitation of CO by H<sub>2</sub>O collisions  
**J. Loreau<sup>1</sup>, A. Faure<sup>2</sup>, F. Lique<sup>2</sup>** (<sup>1</sup>Belgium, <sup>2</sup>France)
- P3.4** Kinetic energy release measurement of HeH<sup>+</sup> at the COLTRIMS at the Frankfurt Low Energy Storage Ring  
**J.C. Müller, R. Dörner, M. Schöffler, L.Ph. Schmidt, K.E. Stiebing** (Germany)
- P3.5** Energetic processing of hydrocarbons molecular species by ionizing radiation towards the formation of cyclic species  
**S. Indrajith<sup>1</sup>, J. Kočíšek<sup>2</sup>, A. Domaracka<sup>1</sup>, P. Rousseau<sup>1</sup>, B.A. Huber<sup>1</sup>** (<sup>1</sup>France, <sup>2</sup>Czech Republic)
- P3.6** Mutual neutralization of O<sup>-</sup>/S<sup>-</sup> and Na<sup>+</sup>/Ne<sup>+</sup> at low collision energy  
**A. Dochain<sup>1</sup>, T. Launoy<sup>1</sup>, N. de Ruelle<sup>2</sup>, R.D. Thomas<sup>2</sup>, X. Urbain<sup>1</sup>** (<sup>1</sup>Belgium, <sup>2</sup>Sweden)
- P3.7** Fragmentation of the ethane molecule induced by 1 and 2 MeV proton impact  
**S.T.S. Kovács, S. Demes, P. Herczku, Z. Juhász, B. Sulik** (Hungary)
- P3.8** Extension of the HYP3D quantum reactive scattering code and direct computation of time delays  
**E. Privat, G. Guillon, P. Honvault** (France)
- P3.09** Tunnelling and quantum reflection resonances in cold elastic collisions  
**P. Paliwal, N. Deb, J. Narevicius, E. Narevicius** (Israel)
- P3.10** Interactions of ultra-cold alkaline-earth-like and alkali atoms with Light  
**M. Witkowski, M. Bober, S. Bilicki, R. Munoz-Rodriguez, V. Singh, M.A. Butt, A. Tonoyan, D. Dziczek, R. Ciuryło, M. Zawada** (Poland)
- P3.11** Theory for penning ionization reactions at low temperatures: application to excited helium colliding with molecular hydrogen  
**M. Pawlak<sup>1</sup>, E. Narevicius<sup>2</sup>, N. Moiseyev<sup>2</sup>** (<sup>1</sup>Poland, <sup>2</sup>Israel)



### POSTER SESSION 3

- P3.12** Adamantane dication fragmentation dynamics following ion collisions  
**C. Nicolafrancesco<sup>1,2</sup>, S. Indrajith<sup>1</sup>, P. Rousseau<sup>1</sup>, A. Domaracka<sup>1</sup>, S. Diaz-Tendero<sup>2</sup>, S. Maclot<sup>3</sup>** (<sup>1</sup>France, <sup>2</sup>Spain, <sup>3</sup>Sweden)
- P3.13** Ion irradiation for tailoring giant magnetocaloric materials properties  
**M. Trassinelli<sup>1</sup>, S. Cervera<sup>1</sup>, A. Bartok<sup>1</sup>, C. Carrétéro<sup>1</sup>, M. Eddrief<sup>1</sup>, V.H. Etgens<sup>1</sup>, V. Garcia<sup>1</sup>, E. Jacquet<sup>1</sup>, E. Lamour<sup>1</sup>, M. LoBue<sup>1</sup>, A. Lévy<sup>1</sup>, F. Mazaleyrat<sup>1</sup>, S. Macé<sup>1</sup>, A. Pasko<sup>1</sup>, C. Prigent<sup>1</sup>, S. Steydli<sup>1</sup>, M. Marangolo<sup>1</sup>, D. Vernhet<sup>1</sup>** (France)
- P3.14** Low-energy two-dimensional scattering of bosonic dipoles: differential cross section angular distributions  
**E.A. Koval<sup>1</sup>, O.A. Koval<sup>1</sup>** (Russia)
- P3.15** The low energy beamline of the FISIC experiment: purification and charge state analysis  
**D. Schury<sup>1</sup>, A. Kumar<sup>1</sup>, A. Méry<sup>1</sup>, J.M. Ramillon<sup>1</sup>, L. Adoui<sup>1</sup>, J.-Y. Chesnel<sup>1</sup>, A. Lévy<sup>1</sup>, S. Macé<sup>1</sup>, C. Prigent<sup>1</sup>, J. Rangama<sup>1</sup>, P. Rousseau<sup>1</sup>, S. Steydli<sup>1</sup>, M. Trassinelli<sup>1</sup>, D. Vernhet<sup>1</sup>, A. Gumberidze<sup>1</sup>, Th. Stöhlker<sup>2</sup>, A. Bräuning-Demian<sup>2</sup>, C. Hahn<sup>2</sup>, U. Spillmann<sup>2</sup>, E. Lamour<sup>1</sup>** (<sup>1</sup>France, <sup>2</sup>Germany)
- P3.16** Quantum-state-controlled reactive collisions between lithium atoms and metastable helium atoms  
**J. Grzesiak<sup>1</sup>, J. Guan<sup>1</sup>, T. Muthu-Arachchige<sup>1</sup>, V. Behrendt<sup>1</sup>, S. Hofsäss<sup>1</sup>, F. Stienkemeier<sup>1</sup>, M. Mudrich<sup>3</sup>, K. Dulitz<sup>1</sup>** (<sup>1</sup>Germany, <sup>3</sup>Denmark)
- P3.17** Open shell ions mobility in cooled helium gas at 4.3K: shallow minimum appearance  
**L. Aissaoui<sup>1</sup>, P.J. Knowles<sup>2</sup>, M. Bouledroua<sup>1</sup>** (<sup>1</sup>Algeria, <sup>2</sup>United Kingdom)

#### Clusters and nanoparticles

- P3.18** Aggregation in nano- and femtosecond laser ablation plasmas of metals monitored by their nonlinear optical response  
**M. Oujja<sup>1</sup>, M. Sanz<sup>1</sup>, A. Martínez-Hernández<sup>1</sup>, I. López-Quintás<sup>1</sup>, J.G. Izquierdo<sup>1</sup>, L. Bañares<sup>1</sup>, M. Castillejo<sup>1</sup>, R. de Nalda<sup>1</sup>** (Spain)
- P3.19** Dissociation of a molecule evaporated from an excited protonated methanol nanodroplet  
**T. Salbaing<sup>1</sup>, L. Feketeová<sup>1</sup>, F. Calvo<sup>1</sup>, B. Farizon<sup>1</sup>, M. Farizon<sup>1</sup>, T.D. Märk<sup>2</sup>** (<sup>1</sup>France, <sup>2</sup>Austria)
- P3.20** Elimination of a water molecule by a protonated methanol cluster  
**T. Salbaing<sup>1</sup>, L. Feketeová<sup>1</sup>, F. Calvo<sup>1</sup>, B. Farizon<sup>1</sup>, M. Farizon<sup>1</sup>, T.D. Märk<sup>2</sup>** (<sup>1</sup>France, <sup>2</sup>Austria)

## POSTER SESSION 3

- P3.21** Electron detachment and fragmentation of hot Ag-2 and Cu-2 in DESIREE  
**E.K. Anderson<sup>1</sup>, A.F. Schmidt-May<sup>2</sup>, N. Punnakayathil<sup>1</sup>, G. Eklund<sup>1</sup>,  
K.C. Chartkunchand<sup>3</sup>, S. Rosén<sup>1</sup>, K. Hansen<sup>4</sup>, H. Cederquist<sup>1</sup>, H. Zettergren<sup>1</sup>,  
H.T. Schmidt<sup>1</sup>** (<sup>1</sup>Sweden, <sup>2</sup>Austria, <sup>3</sup>Japan, <sup>4</sup>China)
- P3.22** Thermalization in a protonated nanodroplet: methanol versus water  
**T. Salbaing<sup>1</sup>, L. Feketeová<sup>1</sup>, F. Calvo<sup>1</sup>, B. Farizon<sup>1</sup>, M. Farizon<sup>1</sup>, T.D. Märk<sup>2</sup>**  
(<sup>1</sup>France, <sup>2</sup>Austria)
- P3.23** Wills-Harrison pair interactions in different states of transition metals  
**N.E. Dubinin** (Russia)
- P3.24** Mass spectrometric investigation of Corannulene-Hen cationic complexes  
and their absorption spectroscopy  
**M. Gatchell<sup>1,2</sup>, P. Martini<sup>1</sup>, F. Laimer<sup>1</sup>, M. Goulart<sup>1</sup>, F. Calvo<sup>3</sup>, P. Scheier<sup>1</sup>**  
(<sup>1</sup>Austria, <sup>2</sup>Sweden, <sup>3</sup>France)
- P3.25** Mass spectrometric study of cationic and anionic gold clusters obtained via  
electron impact of doped helium droplets.  
**F. Zappa<sup>1,4</sup>, P. Martini<sup>1</sup>, L. Kranabetter<sup>1</sup>, M. Goulart<sup>1</sup>, M. Kuhn<sup>1</sup>, M. Gatchell<sup>1,2</sup>,  
D.K. Bohme<sup>3</sup>, P. Scheier<sup>1</sup>** (<sup>1</sup>Austria, <sup>2</sup>Sweden, <sup>3</sup>Canada, <sup>4</sup>Brazil)

### Coherent control

- P3.26** Stochastic heating and self-induced cooling in optically bound pairs of atoms  
**A.T. Gisbert**
- P3.27** Transfer of optical vortices in coherently prepared media  
**H.R. Hamed<sup>1</sup>, J. Ruseckas<sup>1</sup>, E. Paspalakis<sup>2</sup>, G. Juzeliūnas<sup>1</sup>** (<sup>1</sup>Lithuania, <sup>2</sup>Greece)
- P3.28** Polarization rotation in a coherent atomic medium  
**A. Das, B.C. Das, D. Bhattacharyya, S. De** (India)
- P3.29** Chirped pulse adiabatic passage control method in fourwave mixing for  
enhanced CARS  
**S.A. Malinovskaya, N. Pandya, G. Liu** (USA)
- P3.30** Rotational dynamics of weakly bound molecular aggregates  
**L.V. Thesing<sup>1</sup>, A. Yachmenev<sup>1</sup>, R. González-Férez<sup>2</sup>, J. Küpper<sup>1</sup>** (<sup>1</sup>Germany, <sup>2</sup>Spain)
- P3.31** Nuclear-quadrupole coupling effects in the laser-induced alignment of  
asymmetric top molecules  
**L.V. Thesing<sup>1</sup>, A. Yachmenev<sup>1</sup>, A. Duchko<sup>1</sup>, R. González-Férez<sup>2</sup>, J. Küpper<sup>1</sup>**  
(<sup>1</sup>Germany, <sup>2</sup>Spain)





### POSTER SESSION 3

- P3.32** Symmetry breaking atomic ionization by coherent circularly polarized bichromatic radiation  
**E.V. Gryzlova<sup>1</sup>, A.N. Grum-Grzhimailo<sup>1</sup>, M.M. Popova<sup>1</sup>, E.I. Staroselskaya<sup>1</sup>, N. Douquet<sup>2</sup>, K. Bartschat<sup>2</sup>** (<sup>1</sup>Russia, <sup>2</sup>USA)
- P3.33** Inspecting the hydrogen migration in water using asymmetric fs laser  
**E. Kechaoglou, S. Kaziannis, C. Kosmidis** (Greece)
- P3.34** Coherent blue light generated by four-wave mixing: interference effect and autler-townes splitting  
**M.P. Moreno, A.A.C. de Almeida, S.S. Vianna** (Brazil)
- P3.35** Coherent population oscillations-based light storage  
**P. Neveu, C. Banerjee, F. Bretenaker, E. Brion, F. Goldfarb** (France)
- P3.36** Phase sensitive amplification enabled by coherent population trapping  
**P. Neveu<sup>1</sup>, C. Banerjee<sup>1</sup>, J. Lugani<sup>1,2</sup>, F. Bretenaker<sup>1</sup>, E. Brion<sup>1</sup>, F. Goldfarb<sup>1</sup>** (<sup>1</sup>France, <sup>2</sup>United Kingdom)
- P3.37** Elastic electron scattering from methane molecule in the energy range from 50-300eV  
**J.B. Maljković<sup>1</sup>, J. Vuković<sup>2</sup>, K. Tökési<sup>3</sup>, B. Predojević<sup>2</sup>, B.P. Marinković<sup>1</sup>** (<sup>1</sup>Serbia, <sup>2</sup>Bosnia and Herzegovina, <sup>3</sup>Hungary)
- P3.38** Calculation of elastic resonant electron scattering on one-electron ions  
**K.N. Lyashchenko<sup>1</sup>, D.M. Vasileva<sup>1</sup>, O.Yu. Andreev<sup>1</sup>, A.B. Voitki<sup>2</sup>** (<sup>1</sup>Russia, <sup>2</sup>Germany)
- P3.39** Laser-assisted (e,2e) ionization in a quasi-Sturmian-Floquet approach  
**S.A. Zaytsev<sup>1</sup>, L.U. Ancarani<sup>2</sup>, K.A. Kouzakov<sup>1</sup>** (<sup>1</sup>Russia, <sup>2</sup>France)

#### Highly charged ions

- P3.40** Towards background free studies of capture reactions in a heavyion storage ring  
**L. Varga<sup>1</sup>, K. Blaum<sup>1</sup>, T. Davinson<sup>2</sup>, J. Glorius<sup>1</sup>, B. Jurado<sup>3</sup>, C. Langer<sup>1</sup>, C. Lederer Woods<sup>2</sup>, Yu.A. Litvinov<sup>1</sup>, R. Reifarth<sup>1</sup>, Z. Slavkovská<sup>1</sup>, T. Stöhlker<sup>1</sup>, P.J. Woods<sup>1</sup>, Y.M. Xing<sup>1</sup>** (<sup>1</sup>Germany, <sup>2</sup>United Kingdom, <sup>3</sup>France)
- P3.41** Evidence of trielectronic recombination for Ar Ions in an EBIT  
**D.S. La Mantia<sup>1,2</sup>, W. Biela<sup>1</sup>, J.A. Tanis<sup>2</sup>, A. Warczak<sup>1</sup>** (<sup>1</sup>Poland, <sup>2</sup>USA)

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- P3.42** Internal dielectronic excitation in relaxation of hollow atoms formed in collisions of slow highly charged Xe ions with metals  
**Ł. Jabłoński, D. Banaś, P. Jagodziński, A. Kubala-Kukuś, D. Sobota, I. Stabrawa, K. Szary, M. Pajek** (Poland)
- P3.43** A new approach for the simulation of ion guiding through insulator capillaries  
**P. Herczku, S.T.S. Kovács, Z. Juhász, B. Sulik** (Hungary)
- P3.44** Capture of atomic electron into low-energy continuum states of highly charged ion in relativistic collisions  
**D.M. Vasileva, O.Yu. Andreev** (Russia)
- P3.45** High precision calibration of interstellar oxygen absorption using highly charged ions  
**R. Steinbrügge<sup>1</sup>, S. Bernitt<sup>1</sup>, S. Kühn<sup>1</sup>, J.R.C. López-Urrutia<sup>1</sup>, M. Leutenegger<sup>2</sup>** (<sup>1</sup>Germany, <sup>2</sup>USA)
- P3.46** A magnetic spectrometer for electron-positron pair spectroscopy in storage rings  
**S. Hagmann<sup>1</sup>, P.M. Hillenbrand<sup>1,2</sup>, Yu.A. Litvinov<sup>1</sup>, U. Spillmann<sup>1</sup>, Th. Stöhlker<sup>1</sup>** (<sup>1</sup>Germany, <sup>2</sup>USA)
- P3.47** Radiative double electron capture for 2.21 MeV/u F9+,8++N2,Ne  
**D.S. La Mantia, P.N.S. Kumara, S.L. Buglione, C.P. McCoy, C.J. Taylor, J.S. White, A. Kayani, J.A. Tanis** (USA)
- P3.48** Unraveling energy loss processes of ions in 2D materials - the role of Interatomic Coulombic Decay, the charge state, and charge exchange in nuclear and electronic stopping  
**R.A. Wilhelm<sup>1,2</sup>, P.L. Grande<sup>3</sup>, S. Creutzburg<sup>2</sup>, J. Schwestka<sup>1</sup>, A. Niggas<sup>1</sup>, F. Aumayr<sup>1</sup>** (<sup>1</sup>Austria, <sup>2</sup>Germany, <sup>3</sup>Brazil)
- P3.49** High-precision reference-free measurements of transition energies in core-excited lithiumlike sulfur and argon ions  
**J. Machado<sup>1,2</sup>, G. Bian<sup>2,3</sup>, C.I. Szabo<sup>3,4</sup>, J.P. Santos<sup>1</sup>, P. Amaro<sup>1</sup>, M. Guerra<sup>1</sup>, A. Gumberidze<sup>4</sup>, J.M. Isac<sup>2</sup>, P. Indelicato<sup>2</sup>** (<sup>1</sup>Portugal, <sup>2</sup>France, <sup>3</sup>China, <sup>4</sup>USA)
- P3.50** Energy deposition of heavy ions in freestanding 2D materials  
**S. Creutzburg<sup>1</sup>, J. Schwestka<sup>2</sup>, H. Inani<sup>2</sup>, M.K. Tripathi<sup>2</sup>, R. Heller<sup>1</sup>, N. Klingner<sup>1</sup>, A. Niggas<sup>2</sup>, T. Lehnert<sup>1</sup>, R. Leiter<sup>1</sup>, R. Kozubek<sup>1</sup>, S. Facsko<sup>1</sup>, U. Kaiser<sup>1</sup>, J. Kotakoski<sup>2</sup>, M. Schleberger<sup>1</sup>, F. Aumayr<sup>2</sup>, R.A. Wilhelm<sup>1,2</sup>** (<sup>1</sup>Germany, <sup>2</sup>Austria)



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- P3.51** K-shell photoionization of highly-charged iron ions under high-density astrophysical plasma conditions  
**J. Deprince<sup>1</sup>, M. Bautista<sup>2</sup>, S. Fritzsche<sup>3</sup>, J. Garcia<sup>2</sup>, T. Kallman<sup>2</sup>, C. Mendoza<sup>2</sup>, P. Palmeri<sup>1</sup>, P.L. Quinet<sup>1</sup>** (<sup>1</sup>Belgium, <sup>2</sup>USA, <sup>3</sup>Germany)
- P3.52** Relativistic Hartree-Fock and Dirac-Hartree-Fock atomic structure and radiative rate calculations in Xe X and Xe XI  
**E.B. Motoumba<sup>1</sup>, S.E. Yoca<sup>1,2</sup>, P. Palmeri<sup>3</sup>, P. Quinet<sup>3</sup>** (<sup>1</sup>Congo, <sup>2</sup>Burkina Faso, <sup>3</sup>Belgium)

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- P3.53** Multistate photodynamics of carbon dioxide in the energy region that involves Rydberg states  
**J.F. Triana<sup>1</sup>, M. Hochlaf<sup>2</sup>, D. Peláez<sup>2</sup>, J.L. Sanz-Vicario<sup>1</sup>** (<sup>1</sup>Colombia, <sup>2</sup>France)
- P3.54** A molecular movie of interatomic coulombic decay in neon-krypton dimers  
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- P3.55** Molecular dynamics in the spontelectric state  
**D. Field** (Denmark)
- P3.56** Electron impact ionization and fragmentation of bio-relevant molecules: hydration dependence  
**X. Ren, E. Wang, A. Dorn** (Germany)

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- P3.58** Spatial confinement and geometric effects in the electronic structure of a Rydberg atom embedded in a neutral medium  
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**I.I. Ryabtsev<sup>1</sup>, I.I. Beterov<sup>1</sup>, D.B. Tretyakov<sup>1</sup>, E.A. Yakshina<sup>1</sup>, V.M. Entin<sup>1</sup>, M. Saffman<sup>2</sup>, P. Cheinet<sup>3</sup>, P. Pillet<sup>3</sup>** (<sup>1</sup>Russia, <sup>2</sup>USA, <sup>3</sup>France)

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**L. Varvarezos<sup>1</sup>, A. Achner<sup>2</sup>, R. Wagner<sup>2</sup>, D.E. Rivas<sup>2</sup>, J.T. Costello<sup>1</sup>, M. Meyer<sup>2</sup>, P. Grychtol<sup>2</sup>** (<sup>1</sup>Ireland, <sup>2</sup>Germany)
- P3.61** A bright source of sub-cycle terahertz pulses from gas cells irradiated by intense circularly polarized two-color laser radiation  
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**D.K. Efimov<sup>1</sup>, J.S. Prauzner-Bechcicki<sup>1</sup>, J.H. Thiede<sup>2</sup>, B. Eckhardt<sup>2</sup>, J. Zakrzewski<sup>1</sup>** (<sup>1</sup>Poland, <sup>2</sup>Germany)
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**D.K. Efimov<sup>1</sup>, M. Mandrysz<sup>1</sup>, J.S. Prauzner-Bechcicki<sup>1</sup>, M. Lewenstein<sup>2</sup>, J. Zakrzewski<sup>1</sup>** (<sup>1</sup>Poland, <sup>2</sup>Spain)
- P3.64** Semirelativistic Schrödinger equation for relativistic Laser-matter interactions  
**T.K. Lindblom<sup>1</sup>, M. Førre<sup>1</sup>, E. Lindroth<sup>2</sup>, S. Selstø<sup>1</sup>** (<sup>1</sup>Norway, <sup>2</sup>Sweden)
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**V. Usachenko, P. Pyak** (Uzbekistan)
- P3.67** Broadening the scope of the semiclassical two-step model: multielectron polarization effects and ionization of molecules  
**N. Shvetsov-Shilovski<sup>1</sup>, M. Lein<sup>1</sup>, L. Madsen<sup>2</sup>, K. Tőkési<sup>3</sup>** (<sup>1</sup>Germany, <sup>2</sup>Denmark, <sup>3</sup>Hungary)
- P3.68** Probing electronic structure through molecular-frame photoelectron imaging  
**J. Wiese, S. Trippel, J. Küpper** (Germany)
- P3.69** Strong field approximation and its modifications as evolution equations  
**I. Ivanov<sup>1,2</sup>, C.H. Nam<sup>1</sup>, K.T. Kim<sup>1</sup>** (<sup>1</sup>South Korea, <sup>2</sup>Germany)



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**R. Barzaga**<sup>1,2</sup>, **F. Aguilar-Galindo**<sup>2</sup>, **M.P. Hernández**<sup>1</sup>, **S. Díaz-Tendero**<sup>2</sup> (Cuba, <sup>2</sup>Spain)
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**F. Aguilar-Galindo**<sup>1</sup>, **A. G. Borisov**<sup>2</sup>, **S. Díaz-Tendero**<sup>1</sup> (<sup>1</sup>Spain, <sup>2</sup>France)

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**H. Agueny**<sup>1</sup>, **Y. Adnani**<sup>2</sup>, **A. Taoutioui**<sup>2</sup>, **A. Makhoute**<sup>2</sup> (<sup>1</sup>Norway, <sup>2</sup>Morocco)
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**J. Franz**, **R. Bennett**, **S.Y. Buhmann** (Germany)
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**B. Thaler, P. Heim, L. Treiber, M. Meyer, W.E. Ernst, M. Koch** (Austria)
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**J. Joseph<sup>1</sup>, F. Holzmeier<sup>1</sup>, J.-C. Houver<sup>1</sup>, T. Ruchon<sup>1</sup>, D. Bresteau<sup>1</sup>, C. Spezzani<sup>1,2</sup>, B. Carré<sup>1</sup>, D. Doweck<sup>1</sup>** (<sup>1</sup>France, <sup>2</sup>Italy)
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**A.K. Kazansky<sup>1</sup>, I.P. Sazhina<sup>2</sup>, N.M. Kabachnik<sup>2,3</sup>** (<sup>1</sup>Spain, <sup>2</sup>Russia, <sup>3</sup>Germany)
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**G.S.J. Armstrong, D.D.A. Clarke, A.C. Brown, H.W. van der Hart** (Northern Ireland)
- P3.88** Ultrafast laser-assisted stabilization of ionized adenine  
**E.P. Månsson<sup>1,2</sup>, M. Galli<sup>2</sup>, V. Wanie<sup>1,2,3</sup>, S. Latini<sup>2</sup>, F. Covito<sup>2</sup>, E. Perfetto<sup>2</sup>, G. Stefanucci<sup>2</sup>, H. Hübener<sup>1</sup>, U. De Giovannini<sup>2</sup>, M.C. Castrovilli<sup>2</sup>, A. Trabattoni<sup>1</sup>, F. Frassetto<sup>2</sup>, L. Poletto<sup>2</sup>, J. Greenwood<sup>4</sup>, F. Légaré<sup>3</sup>, M. Nisoli<sup>2</sup>, A. Rubio<sup>1,5</sup>, F. Calegari<sup>1,2,5</sup>** (<sup>1</sup>Germany, <sup>2</sup>Italy, <sup>3</sup>Canada, <sup>4</sup>United Kingdom, <sup>5</sup>USA)
- P3.89** Ultrafast structural dynamics probed by photoelectron spectroscopy  
**M. de Anda Villa<sup>1</sup>, R. Bouillaud<sup>1</sup>, D. Descamps<sup>1</sup>, B. Dorado<sup>1</sup>, N. Fedorov<sup>1</sup>, J. Gaudin<sup>1</sup>, R. Grisenti<sup>2</sup>, M. Hatifi<sup>1</sup>, H. Jouin<sup>1</sup>, E. Lamour<sup>1</sup>, A. Lévy<sup>1</sup>, S. Macé<sup>1</sup>, P. Martin<sup>1</sup>, S. Petit<sup>1</sup>, C. Prigent<sup>1</sup>, J.P. Rozet<sup>1</sup>, R. Sobierajski<sup>2</sup>, S. Steydli<sup>1</sup>, M. Trassinelli<sup>1</sup>, D. Vernhet<sup>1</sup>** (<sup>1</sup>France, <sup>2</sup>Germany)
- P3.90** Dissociative frustrated double ionization of CO<sub>2</sub> in strong laser fields  
**H. Hu<sup>1</sup>, S. Larimian<sup>1</sup>, S. Erattupuzha<sup>1</sup>, J. Wen<sup>2</sup>, A. Baltuška<sup>1</sup>, M. Kitzler<sup>1</sup>, X. Xie<sup>1</sup>** (<sup>1</sup>Austria, <sup>2</sup>Czech Republic)



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**S. Donsa<sup>1</sup>, H. Ni<sup>1</sup>, J. Burgdörfer<sup>1</sup>, J. Feist<sup>2</sup>, I. Březinová<sup>1</sup>** (<sup>1</sup>Austria, <sup>2</sup>Spain)
- P3.92** Charge migration in propiolic acid and its dephasing by the coupling to the nuclear motion  
**Victor Despré, Nikolay V. Golubev, Alexander I. Kuleff** (Germany)
- P3.93** Photoelectron circular dichroism for chiral enantiomer identification  
**C.M.M. Bond, J.B. Greenwood** (United Kingdom)
- P3.94** R-matrix with time dependence theory for atomic processes in arbitrary light fields  
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- P3.96** Time-dependent solution of the generalized fano model  
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- P3.97** XUV-pump/XUV-probe spectroscopy of N 2  
**V.J. Borràs, J. González-Vázquez, M. Klinker, F. Martín** (Spain)

## COMPANY PROFILE



TOPTICA has been developing and manufacturing high-end laser systems for scientific and industrial applications for 20 years. Our portfolio includes diode lasers, ultrafast fiber lasers, terahertz systems and frequency combs. The systems are used for demanding applications in biophotonics, industrial metrology and quantum technology. TOPTICA is renowned for providing the widest wavelength coverage of diode lasers on the market, providing high-power lasers even at exotic wavelengths. TOPTICA develops and manufactures high-end laser systems for scientific and industrial applications. The portfolio includes diode lasers, ultrafast fiber lasers, terahertz systems and frequency combs. OEM customers, scientists, and over a dozen Nobel laureates all acknowledge the world-class exceptional specifications of TOPTICA's lasers, as well as their reliability and longevity.

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TOPTICA's 300 employees take pride in developing customized systems. In close collaboration with several universities and institutes, latest scientific discoveries are frequently incorporated into commercial products. With a global distribution network, TOPTICA provides exceptional service worldwide.

### Short profile TOPTICA Photonics AG

Founded: 1998

Employees: 300 (January 2019)

Revenues: 60 Mio. € (68 Mio \$)

Legal form: Aktiengesellschaft (AG), private ownership

Presidents: Dr. Wilhelm Kaenders, Dr. Thomas Renner, Dr. Thomas Weber

Chairman: Dr. Dieter Schenk

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**Schäfter+Kirchhoff** GmbH  
OPTICS, METROLOGY, AND PHOTONICS

The company Schäfter+Kirchhoff GmbH is based in Hamburg, Germany and was founded over 60 years ago. From here we manufacture high quality optical products that are delivered to customers all around the world.

Our current product lines are polarization-maintaining fiber optics, lasers for machine vision and line scan cameras. A special focus is set on the winning combination of high optical and high mechanical precision, which is the basis for the high quality, stability and durability of our products.

One example of successful opto-mechanics is the 60SMS laser beam coupler, which is used to couple into polarization-maintaining fibers. This demanding task requires very high precision and quality in order to reach long-term stable and high coupling efficiencies. Further fiber optics components are available for the wavelength range 360-2100nm.

Another field of opto-mechanics is Machine Vision that uses laser line or spot generators as well as line scan

cameras. Ruggedized solutions for industrial purposes are only possible by using high-quality optics, mechanics and electronics. This is true for defined and thin laser line geometries or especially small laser spots as well as complete line scan camera based scanner systems. The Corrosion Inspector, e.g., is an automated and objective analysis tool for corrosion phenomena that offers a fast and precise evaluation according to international norms. The line scan cameras used are also supplied as OEM components and offered with different interfaces.

Our extensive know-how and highly qualified, strongly committed employees are the driving force behind the company. To have sales, research and development, as well as manufacturing so closely knit together, ensures a quick and efficient response to customer needs.

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