

Atomic Physics Division Fachverband Atomphysik (A)

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Overview of Invited Talks and Sessions

(Lecture halls F107 and F303; Poster Empore Lichthof)

Invited Talks

A 3.1	Mon	11:00–11:30	F303	Time-resolved Kapitza-Dirac effect — •KANG LIN, MAKSIM KUNITSKI, SEBASTIAN ECKART, ALEXANDER HARTUNG, QINYING JI, LOTHAR SCHMIDT, MARKUS SCHÖFFLER, TILL JAHNKE, REINHARD DÖRNER
A 6.1	Mon	17:00–17:30	F107	Nonperturbative dynamics in heavy-ion-atom collisions — •PIERRE-MICHEL HILLENBRAND, SIEGBERT HAGMANN, ALEXANDRE GUMBERIDZE, YURY LITVINOV, THOMAS STÖHLKER
A 7.1	Mon	17:00–17:30	F303	Multi-frequency optical lattice for dynamic lattice-geometry control — MARCEL KOSCH, •LUCA ASTERIA, HENRIK ZAHN, KLAUS SENGSTOCK, CHRISTOF WEITENBERG
A 10.1	Tue	11:00–11:30	F107	Interaction of twisted light with a trapped atom: Interplay of electronic and motional degrees of freedom — •ANTON PESHKOV, YURIY BIDASYUK, RICHARD LANGE, TANJA MEHLSTÄUBLER, NILS HUNTEMANN, EKKEHARD PEIK, ANDREY SURZHYKOV
A 13.1	Wed	11:00–11:30	F107	Stability and Melting Dynamics of Mixed Species Coulomb Crystals with Highly Charged Ions — •LUCA RÜFFERT, ELWIN DIJCK, TANJA MEHLSTÄUBLER, JOSÉ CRESPO
A 14.1	Wed	11:00–11:30	F303	Realization of the Periodic Quantum Rabi Model in the Deep Strong Coupling Regime with Ultracold Rubidium Atoms — •STEFANIE MOLL, GERAM HUNANYAN, JOHANNES KOCH, ENRIQUE RICO, ENRIQUE SOLANO, MARTIN WEITZ
A 17.1	Wed	14:30–15:00	F107	Adiabatic properties of the bicircular attoclock — •PAUL WINTER, MANFRED LEIN
A 22.1	Thu	11:00–11:30	F107	Efficient and accurate simulation of wide-angle single-shot scattering — •PAUL TUEMMLER, BJÖRN KRUSE, CHRISTIAN PELTZ, THOMAS FENNEL
A 23.1	Thu	11:00–11:30	F303	Trapping Ions and Ion Coulomb Crystals in a 1D Optical Lattice — •DANIEL HOENIG, FABIAN THIELEMANN, JOACHIM WELZ, WEI WU, THOMAS WALKER, LEON KARPA, AMIR MOHAMMADI, TOBIAS SCHAEZT
A 24.1	Thu	14:30–15:00	F107	Intra-cavity photoelectron tomography with an intra-cavity velocity-map imaging spectrometer at 100 MHz repetition rate — •JAN-HENDRIK OELMANN, TOBIAS HELDT, LENNART GUTH, JANKO NAUTA, NICK LACKMANN, VALENTIN WÖSSNER, STEPAN KOKH, THOMAS PFEIFER, JOSÉ R. CRESPO LÓPEZ-URRUTIA
A 26.1	Thu	14:30–15:00	F303	Laser spectroscopy of the heaviest elements with the RADRES technique — •TOM KIECK
A 28.1	Fri	11:00–11:30	F107	Coherent multidimensional spectroscopy of an ultracold gas — •FRIEDEMANN LANDMESSER, TOBIAS SIXT, KATRIN DULITZ, LUKAS BRUDER, FRANK STIENKEMEIER
A 29.1	Fri	11:00–11:30	F303	An elementary network of entangled optical atomic clocks — •RAGHAVENDRA SRINIVAS, BETHAN NICHOL, DAVID NADLINGER, PETER DRMOTA, DOUGAL MAIN, GABRIEL ARANEDA, CHRIS BALLANCE, DAVID LUCAS
A 30.1	Fri	14:30–15:00	F107	Investigation of Molecular Ions as Sensitive Probes for Fundamental Physics — •CARSTEN ZUELCH, KONSTANTIN GAUL, ROBERT BERGER

A 31.1 Fri 14:30–15:00 F303 **Observation of vibrational dynamics in an ion-Rydberg molecule by a high-resolution ion microscope** — ●MORITZ BERNGRUBER, VIRAATT ANASURI, YIQUAN ZOU, NICOLAS ZUBER, ÓSCAR ANDREY HERRERA SANCHO, RUBEN CONRAD, FLORIAN MEINERT, ROBERT LÖW, TILMAN PFAU

Invited Talks of the joint Symposium Precision Physics with Highly Charged Ions

See SYHC for the full program of the symposium.

SYHC 1.1 Mon 11:00–11:30 E415 **First experiments at CRYRING@ESR** — ●ESTHER BABETTE MENZ, MICHAEL LESTINSKY, HÅKAN DANARED, CLAUDE KRANTZ, ZORAN ANDELKOVIC, CARSTEN BRANDAU, ANGELA BRÄUNING-DEMIAN, SVETLANA FEDOTOVA, WOLFGANG GEITHNER, FRANK HERFURTH, ANTON KALININ, INGRID KRAUS, UWE SPILLMANN, GLEB VOROBYEV, THOMAS STÖHLKER

SYHC 1.2 Mon 11:30–12:00 E415 **Testing quantum electrodynamics in the simplest and heaviest multi-electronic atoms** — ●MARTINO TRASSINELLI

SYHC 1.3 Mon 12:00–12:30 E415 **Indirect measurements of neutron-induced reaction cross-sections at heavy-ion storage rings** — ●BEATRIZ JURADO

SYHC 1.4 Mon 12:30–13:00 E415 **Laboratory X-ray Astrophysics with Trapped Highly Charged Ions at Synchrotron Light Sources** — ●SONJA BERNITT

SYHC 2.1 Mon 17:00–17:30 E415 **Observation of metastable electronic states in highly charged ions by Penning-trap mass spectrometry** — ●KATHRIN KROMER, MENNO DOOR, PAVEL FILIANIN, ZOLTÁN HARMAN, JOST HERKENHOFF, PAUL INDELICATO, CHRISTOPH H. KEITEL, DANIEL LANGE, CHUNHAI LYU, YURI N. NOVIKOV, CHRISTOPH SCHWEIGER, SERGEY ELISEEV, KLAUS BLAUM

SYHC 2.2 Mon 17:30–18:00 E415 **Towards extreme-ultraviolet optical clocks** — ●JOSÉ R. CRESPO LÓPEZ-URRUTIA

SYHC 2.3 Mon 18:00–18:30 E415 **Coupling atomic and nuclear degrees of freedom in highly charged ions** — ●ADRIANA PÁLFFY

SYHC 2.4 Mon 18:30–19:00 E415 **Laser Spectroscopy at the Storage Rings of GSI/FAIR** — ●WILFRIED NÖRTERSHÄUSER

Invited Talks of the joint Symposium SAMOP Dissertation Prize 2023

See SYAD for the full program of the symposium.

SYAD 1.1 Mon 14:30–15:00 E415 **Quantum gas magnifier for sub-lattice resolved imaging of 3D quantum systems** — ●LUCA ASTERIA

SYAD 1.2 Mon 15:00–15:30 E415 **From femtoseconds to femtometers – controlling quantum dynamics in molecules with ultrafast lasers** — ●PATRICK RUPPRECHT

SYAD 1.3 Mon 15:30–16:00 E415 **Particle Delocalization in Many-Body Localized Phases** — ●MAXIMILIAN KIEFER-EMMANOULIDIS

SYAD 1.4 Mon 16:00–16:30 E415 **Feshbach resonances in a hybrid atom-ion system** — ●PASCAL WECKESSER

Invited Talks of the joint Symposium Machine Learning in Atomic and Molecular Physics

See SYML for the full program of the symposium.

SYML 1.1 Tue 11:00–11:30 E415 **Imaging a complex molecular structure with laser-induced electron diffraction and machine learning** — ●KATHARINA CHIRVI, XINYAO LIU, KASRA AMINI, AURELIEN SANCHEZ, BLANCA BELSA, TOBIAS STEINLE, JENS BIEGERT

SYML 1.2 Tue 11:30–12:00 E415 **Physics-inspired learning algorithms for optimal shaping of atoms with light** — ●MAXIMILIAN PRÜFER

SYML 1.3 Tue 12:00–12:30 E415 **Machine-Learning assisted quantum computing and interferometry** — ●LUDWIG MATHEY, LUKAS BROERS, NICOLAS HEIMANN

SYML 1.4 Tue 12:30–13:00 E415 **Efficient quantum state tomography with convolutional neural networks** — ●MORITZ REH, TOBIAS SCHMALE, MARTIN GÄRTTNER

Prize Talks of the joint Awards Symposium

See SYAS for the full program of the symposium.

SYAS 1.1	Tue	14:35–15:05	E415	The Reaction Microscope: A Bubble Chamber for AMOP — ●JOACHIM ULLRICH
SYAS 1.2	Tue	15:05–15:35	E415	Quantum Computation and Quantum Simulation with Strings of Trapped Ca⁺ Ions — ●RAINER BLATT
SYAS 1.3	Tue	15:35–16:05	E415	Amplitude, Phase and Entanglement in Strong Field Ionization — ●SEBASTIAN ECKART
SYAS 1.4	Tue	16:05–16:35	E415	All-optical Nonlinear Noise Suppression in Mode-locked Lasers and Ultrafast Fiber Amplifiers — ●MARVIN EDELMANN

Invited Talks of the joint Symposium Molecules in Helium Droplets

See SYHD for the full program of the symposium.

SYHD 1.1	Wed	11:00–11:30	E415	Structure and field-induced dynamics of small helium clusters — ●MAKSIM KUNITSKI, JAN KRUSE, QINGZE GUAN, DÖRTE BLUME, REINHARD DÖRNER
SYHD 1.2	Wed	11:30–12:00	E415	Coherent Diffraction Imaging of isolated helium nanodroplets and their ultrafast dynamics — ●DANIELA RUPP
SYHD 1.3	Wed	12:00–12:30	E415	Clustering dynamics in superfluid helium nanodroplets: A theoretical study — ●NADINE HALBERSTADT, ERNESTO GARCÍA ALFONSO, MARTÍ PI, MANUEL BARRANCO
SYHD 1.4	Wed	12:30–13:00	E415	Messenger spectroscopy of molecular ions – Development of a new experimental setup — ●ELISABETH GRUBER

Invited Talks of the joint Symposium From Molecular Spectroscopy to Collision Control at the Quantum Limit

See SYCC for the full program of the symposium.

SYCC 1.1	Thu	11:00–11:30	E415	The unity of physics: the beauty and power of spectroscopy — ●PAUL JULIENNE
SYCC 1.2	Thu	11:30–12:00	E415	Using high-resolution molecular spectroscopy to explore how chemical reactions work — ●JOHANNES HECKER DENSCHLAG
SYCC 1.3	Thu	12:00–12:30	E415	Monitoring ultracold collisions with laser light — ●OLIVIER DULIEU
SYCC 1.4	Thu	12:30–13:00	E415	The birth of a degenerate Fermi gas of molecules — ●JUN YE

Invited Talks of the joint PhD-Symposium – Many-body Physics in Ultracold Quantum Systems

See SYPD for the full program of the symposium.

SYPD 1.1	Thu	14:30–15:00	E415	Entanglement and quantum metrology with microcavities — ●JAKOB REICHEL
SYPD 1.2	Thu	15:00–15:30	E415	Many-body physics in dipolar quantum gases — ●FRANCESCA FERLAINO
SYPD 1.3	Thu	15:30–16:00	E415	Quantum Simulation: from Dipolar Quantum Gases to Frustrated Quantum Magnets — ●MARKUS GREINER
SYPD 1.4	Thu	16:00–16:30	E415	Quantum gas in a box — ●ZORAN HADZIBABIC

Sessions

A 1.1–1.8	Mon	11:00–13:00	A320	Quantum Technologies (joint session Q/A/QI)
A 2.1–2.8	Mon	11:00–13:00	F107	Collisions, Scattering and Correlation Phenomena
A 3.1–3.7	Mon	11:00–13:00	F303	Interaction with Strong or Short Laser Pulses I (joint session A/MO)
A 4.1–4.8	Mon	11:00–13:00	F442	Quantum Effects (QED) (joint session Q/A)
A 5	Mon	13:15–14:00	F303	Members' Assembly
A 6.1–6.6	Mon	17:00–18:45	F107	Precision Spectroscopy of Atoms and Ions I (joint session A/Q)

A 7.1–7.7	Mon	17:00–19:00	F303	Ultra-cold Atoms, Ions and BEC I (joint session A/Q)
A 8.1–8.8	Mon	17:00–19:00	F342	Quantum Technologies: Color Centers (joint session Q/A/QI)
A 9.1–9.7	Tue	11:00–13:00	F102	Ultrafast Dynamics I (joint session MO/A)
A 10.1–10.7	Tue	11:00–13:00	F107	Atomic Systems in External Fields
A 11.1–11.7	Tue	11:00–12:45	F303	Precision Spectroscopy of Atoms and Ions II (joint session A/Q)
A 12.1–12.41	Tue	16:30–19:00	Empore Lichthof	Poster I
A 13.1–13.7	Wed	11:00–13:00	F107	Highly Charged Ions and their Applications I
A 14.1–14.7	Wed	11:00–13:00	F303	Ultra-cold Atoms, Ions and BEC II (joint session A/Q)
A 15.1–15.8	Wed	11:00–13:00	F102	Precision Measurements: Atom Interferometry I (joint session Q/A)
A 16.1–16.7	Wed	14:30–16:30	F102	Molecules in Intense Fields and Quantum Control (joint session MO/A)
A 17.1–17.6	Wed	14:30–16:15	F107	Interaction with Strong or Short Laser Pulses II (joint session A/MO)
A 18.1–18.8	Wed	14:30–16:30	F303	Ultra-cold Plasmas and Rydberg Systems I (joint session A/Q)
A 19.1–19.6	Wed	14:30–16:00	F428	Ultra-cold Atoms, Ions and BEC III (joint session A/Q)
A 20.1–20.32	Wed	16:30–19:00	Empore Lichthof	Poster II
A 21.1–21.8	Thu	11:00–13:00	F102	Ultrafast Dynamics II (joint session MO/A)
A 22.1–22.7	Thu	11:00–13:00	F107	Atomic Clusters (joint session A/MO)
A 23.1–23.7	Thu	11:00–13:00	F303	Ultra-cold Atoms, Ions and BEC IV (joint session A/Q)
A 24.1–24.5	Thu	14:30–16:00	F107	Interaction with Strong or Short Laser Pulses III (joint session A/MO)
A 25.1–25.8	Thu	14:30–16:30	F142	Cluster and Experimental Techniques (joint session MO/A)
A 26.1–26.7	Thu	14:30–16:30	F303	Precision Spectroscopy of Atoms and Ions III (joint session A/Q)
A 27.1–27.40	Thu	16:30–19:00	Empore Lichthof	Poster III
A 28.1–28.6	Fri	11:00–12:45	F107	Ultra-cold Plasmas and Rydberg Systems II (joint session A/Q)
A 29.1–29.6	Fri	11:00–12:45	F303	Precision Spectroscopy of Atoms and Ions IV (joint session A/Q)
A 30.1–30.7	Fri	14:30–16:30	F107	Highly Charged Ions and their Applications II
A 31.1–31.7	Fri	14:30–16:30	F303	Ultra-cold Atoms, Ions and BEC V (joint session A/Q)
A 32.1–32.8	Fri	14:30–16:30	F342	Precision Measurements: Atom Interferometry II (joint session Q/A)
A 33.1–33.6	Fri	14:30–16:00	B302	Precision Spectroscopy of Atoms and Ions V (joint session A/Q)
A 34.1–34.8	Fri	14:30–16:30	F102	Ultrafast Dynamics III (joint session MO/A)

Members' Assembly of the Atomic Physics Division

Monday 13:15–14:00 F303