

Deutsche Physikalische Gesellschaft



DPG

**83<sup>rd</sup> Annual Meeting of the DPG  
and DPG-Frühjahrstagung  
(Spring Meeting)**

**of the Section on Atomic, Molecular, and  
Plasma Physics and Quantum Optics  
(SAMOP)**

**with the Divisions**

**Atomic Physics, Mass Spectrometry,**

**(in conjunction with the Deutsche Gesell-  
schaft für Massenspektrometrie (DGMS))**

**Molecular Physics, Quantum Optics and Pho-  
tonics,**

**and the Working Groups**

**Energy, Industry and Business, Information,  
Physics and Disarmament, Young DPG**

**Short Programme**

**Universität Rostock**

**10 – 15 March 2019**



Impressum:

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www.dpg-physik.de  
Gerichtsstand: Königswinter

Eingetragen in das Vereinsregister (VR 90474) des Amtsgerichtes Siegburg. Die DPG fördert wissenschaftliche Zwecke. Sie ist nach § 5 Abs. 1 Nr. 9 KStG von der Körperschaftsteuer befreit, weil sie ausschließlich und unmittelbar steuerbegünstigten gemeinnützigen Zwecken i. S. der §§ 51 ff. AO dient.

Verantwortlich für den Inhalt:  
Dr. Bernhard Nunner (Hauptgeschäftsführer)  
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Dr. Wilhelm Kaenders, Founder

# Control your quantum states

- ▶ Tunable Diode Lasers
- ▶ Frequency Combs
- ▶ Rack Integration



**All Wavelengths.**  
190 nm - 0.1 THz

A horizontal bar composed of many small, vertical rectangular segments in various colors (purple, blue, green, yellow, orange, red, brown), representing a wide range of wavelengths. The bar is positioned above the text "All Wavelengths." and "190 nm - 0.1 THz".

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# HIGH PERFORMANCE EVENT TIMER

**Multi channels.**

**Multi capabilities.**

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[picoquant.com/MultiHarp150](http://picoquant.com/MultiHarp150)  
[quantum-symposium.org](http://quantum-symposium.org)



PICOQUANT

# Greeting

Dear guests,

Welcome to the 83<sup>rd</sup> Annual Meeting of the DPG and the DPG Spring Meeting of the Atomic, Molecular, Plasma Physics and Quantum Optics Section (SAMOP) at the Universität Rostock. I wish all of us the intensive scientific and personal exchange we all are looking for and enjoy at conferences. It is to my particular delight to welcome all the young physicists, many of them attending a DPG Meeting for the first time. The DPG Spring Meetings offer an excellent place for a direct exchange to everyone – from bachelor students to established physics prize winners.

Our conferences are furthermore an ideal place to share information about developments in the scientific community and to help shape a joint opinion. Two topics from the DPG are very important to us these times, and we have to take a close look at them while approving the social goals: The role of “Open Access” and the role of open research databases which should contribute to the OSPP (Open Science Policy Platform) concept at the European level. These two topics request a binding response.

For many years, the DPG has also been committed to the principles of Open Access in order to promote scientific exchange. This is why, together with the Institute of Physics (IOP), we founded the electronic journal “New Journal of Physics” (NJP) 20 years ago, one of the first Open Access journals, and demonstrated that Open Access can work. The topic of Open Access is more relevant today than ever before: It is closely related to the great dynamics of the Open Science Policy which is linked to the aspects of “Open Data” (i. e. “research data management”) and Open Access:

“**Plan S**”, supported and demanded by the funding agencies of “**coalition S**”, stipulates that scientific publications benefiting from publicly funded research must be published strictly in **Open Access** journals or platforms (so-called “gold standard”) from 2020!

In **research data management**, new binding infrastructures for the digital supply of information to science must be introduced in order to sustainably secure them and make them available for public use. To this purpose the “Joint Science Conference” in Germany (“Gemeinsame Wissenschaftskonferenz – GWK”) passed a federal-state agreement on the establishment and funding of a National Research Data Infrastructure (NFDI) at the end of last year – a call for proposals from the German Research Foundation (DFG) is expected.

We want to assume responsibility for our science by developing our own **DPG statement on Open Science**. The consequences of the developments towards Open Science are not yet precisely foreseeable for the field of physics, but we may be sure they will be serious. That is why we urgently call on all DPG members, conference guests and colleagues: Gain expert knowledge on this topic and share your expertise! On this basis we would then like to enter into the necessary dialogue with the political decision-makers in order to work towards the consideration of the specific needs of physics and its adjacent sciences.

Such a conference can only be realized with the enormous commitment of many persons, especially of volunteers. I want to sincerely thank all of them here. Let me express my further thanks to the Universität Rostock for its hospitality and support. I thank the Wilhelm and Else Heraeus-Foundation for their generous support of all our DPG Spring Meetings. It is my pleasure to thank the members of the respective sections, divisions and working groups for organizing the outstanding scientific programme. My special thanks go to the Local Organising Committee, Professor Dieter Bauer and Professor Stefan Lochbrunner, Universität Rostock, Institut für Physik, and their team. Last but not least I thank the DPG office for their support and supervision at all DPG Spring Meetings.



Prof. Dr. Dieter Meschede  
President of the  
Deutsche Physikalische Gesellschaft e.V.

# Organisation

## Organiser

Deutsche Physikalische Gesellschaft e. V.  
Hauptstraße 5, 53604 Bad Honnef  
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Email [dpg@dpg-physik.de](mailto:dpg@dpg-physik.de)  
Homepage [www.dpg-physik.de](http://www.dpg-physik.de)

## Local Organisers

Prof. Dr. Stefan Lochbrunner  
Universität Rostock, Institut für Physik  
Albert-Einstein-Straße 23, 18059 Rostock  
Phone +49 (0) 381-498 6960  
Fax +49 (0) 381-498 6802  
Email [stefan.lochbrunner@uni-rostock.de](mailto:stefan.lochbrunner@uni-rostock.de)

Prof. Dr. Dieter Bauer  
Universität Rostock, Institut für Physik  
Albert-Einstein-Straße 23, 18059 Rostock  
Phone +49 (0) 381-498 6940  
Fax +49 (0) 381-498 6842  
Email [dieter.bauer@uni-rostock.de](mailto:dieter.bauer@uni-rostock.de)

## Scientific Organisation

### Chair of the Section AMOP (SAMOP)

Prof. Dr. Andreas Buchleitner  
Quantum Optics and Statistics  
Institute of Physics, University of Freiburg  
Hermann-Herder-Straße 3, 79104 Freiburg  
Phone +49 (0) 0761 203 5830  
Fax +49 (0) 0761 203 5967  
Email [a.buchleitner@physik.uni-freiburg.de](mailto:a.buchleitner@physik.uni-freiburg.de)

### Chairs of the Participating Divisions

- (A) Atomic Physics
  - Prof. Dr. Gerhard Paulus  
([gerhard.paulus@uni-jena.de](mailto:gerhard.paulus@uni-jena.de))
- (MO) Molecular Physics
  - Prof. Dr. Stefan Lochbrunner  
([stefan.lochbrunner@uni-rostock.de](mailto:stefan.lochbrunner@uni-rostock.de))
- (MS) Mass Spectrometry
  - Prof. Dr. Michael Block  
([m.block@gsi.de](mailto:m.block@gsi.de))



# Feiern Sie mit uns 600 Jahre

## Die 5 Höhepunkte des Festjahres

🕒 22. März – 5. Mai 2019

### **Experiment Zukunft**

Multimediale Ausstellung | Kunsthalle Rostock

1

🕒 20. Juni – 30. November 2019

### **Menschen – Wissen – Lebenswege**

Ausstellung | Kulturhistorisches Museum Rostock

2

🕒 22./23. Juni 2019

### **Sommerfest**

Bühnenprogramm | Universitätsplatz

3

🕒 2. – 15. November 2019

### **Dead End for Cornelius R.**

Oper | Hochschule für Musik und Theater Rostock

4

🕒 8. – 12. November 2019

### **Festtage zum Universitätsjubiläum**

Festprogramm | verschiedene Orte

5

Alle Veranstaltungen unter:  
[www.uni-rostock.de/jubilaeum2019](http://www.uni-rostock.de/jubilaeum2019)

1419 – 2019

- (Q) Quantum Optics and Photonics  
– Prof. Dr. Giovanna Morigi  
(giovanna.morigi@physik.uni-saarland.de)

### **Chairs of the Participating Working Groups**

- (AGA) Physics and Disarmament  
– Prof. Dr. Götz Neuneck  
(neuneck@ifsh.de)
- (AGI) Information  
– Dr. Uwe Kahlert  
(kahlert@physik.rwth-aachen.de)
- (AKE) Energy  
– Prof. Dr. Hardo Bruhn  
(ake@bruhns.info)
- (AIW) Industry and Business  
– Dr. Rolf Loschek  
(rolf.loschek@t-online.de)
- (AKjDPG) Young DPG  
– Enrico Stein  
(stein@jdpdg.de)

### **Symposia**

- SYAD – SAMOP Dissertation Prize
- SYIT – Physiker in der Energietechnik – Industrietag
- SYPS – PhD-Symposium – Optimal Control Theory in the Leading Domains of Quantum Technology
- SYQM – Novel Perspectives in Quantum Metrology
- SYSI – Fundamental Constants and new SI
- SYXR – Atomic Physics, Molecular Physics and Quantum Optics with X-ray FELs

### **Organisation of the Exhibition of Scientific Instruments and Literature**

DPG-Kongress-, Ausstellungs-  
und Verwaltungsgesellschaft mbH  
Hauptstraße 5, 53604 Bad Honnef  
Phone +49 (0) 2224 9232-0  
Fax +49 (0) 2224 9232-50  
Email dpg@dpg-physik.de  
Homepage www.dpg-gmbh.de

## **Programme**

The scientific programme consists of 1123 contributions:

- 11 Plenary talks
- 2 Evening talks
- 3 Prize talks
- 2 Lunch talks
- 87 Invited talks
- 9 Group reports
- 589 Talks
- 414 Posters
- 6 Tutorials

# Information for Participants

The conference will be held March 10 – 15, 2019.

## Conference Information

### Conference Venues

Universität Rostock  
Ulmencampus  
Ulmenstraße 69, 18057 Rostock

Universität Rostock  
Campus Südstadt  
Albert-Einstein-Straße, 18059 Rostock

The conference takes place at the Ulmencampus and the Campus Südstadt. These two campuses are about 20 minutes walking distance from each other and there will be a daily bus connection from the Ulmencampus to the Campus Südstadt at 10:10 a.m. (only one direction, after the plenary lectures), except on Tuesday.

The Ulmencampus hosts plenary lectures, symposia and sessions of the division mass spectrometry as well as several working groups and the annual conference of the German Society of Mass Spectrometry (DGMS).

Conference attendants who hold a “DPG Spring Meeting name badge” are granted access to the scientific events of the DGMS 2019 annual meeting. Open events include plenary lectures, parallel sessions, poster sessions, and company presentations.

The Campus Südstadt is the venue for the sessions on atomic physics, quantum optics and molecular physics as well as poster sessions and the industrial exhibition. For a detailed map of the campuses and the buildings please see the end of this booklet.

### Conference Offices / Information Desks

The conference offices and the information desks will be located at both locations. The opening hours and locations are the following:

#### Ulmencampus, Building Haus 1, Room SR 021

		<u>Conference Office</u>	<u>Information Desk</u>
Sunday	March 10	closed	closed
Monday	March 11	07:30 – 19:00	07:30 – 18:00

Tuesday	March 12	08:00 – 14:00	08:00 – 16:30
Wednesday	March 13	08:00 – 16:30	08:00 – 16:30
Thursday	March 14	08:00 – 16:30	08:00 – 16:30
Friday	March 15	08:00 – 12:00	08:00 – 16:30

### **Campus Südstadt, Building Physik, Room: SR 2**

		<u>Conference</u>	<u>Information</u>
		<u>Office</u>	<u>Desk</u>
Sunday	March 10	closed	closed
Monday	March 11	07:30 – 19:00	07:30 – 19:00
Tuesday	March 12	08:00 – 16:30	08:00 – 16:30
Wednesday	March 13	08:00 – 16:30	08:00 – 16:30
Thursday	March 14	08:00 – 16:30	08:00 – 16:30
Friday	March 15	08:00 – 12:00	08:00 – 16:30

Beside this programme you have received a receipt for your conference fee, the login-password for using WiFi, and your name tag. The name tag must be worn visibly during the entire conference.

The organisers, staff of the conference desk, and the student assistants will be identifiable by coloured name tags and  $\Phi$ -T-shirts. Please contact them if you have any questions.

### **Message Board**

All alterations of the scientific programme and other important information for participants (e. g. cancellation of lectures, changing of lecture rooms etc.) will be announced on a message board near the conference office as well as the information desks located in each conference area, and via the homepage

*<http://rostock19.dpg-tagungen.de>*

### **With the DPG-App through the Spring Meetings!**

The updated app for the DPG Spring Meetings is ready for use: Faster and in a new design, the app allows you to learn not only about the conference programme but also about the venue and the exhibitors of the industry and book exhibition. With the help of new functions such as “What’s going on now?” or the building plan overview, it is now even easier to find your way through the conferences. Download the free “DPG Spring Meeting” app for Android or iOS now!

### **Presentation**

Scientific presentations will be held either orally or by poster and will be given in English or German. All plenary

talks will be given in English.

All lecture halls and seminar rooms are equipped with beamers (aspect ratio 4:3). The speakers are asked to bring their own laptops and, if applicable, an adapter for HDMI and VGA. In all seminar rooms and lecture halls there will be HDMI and VGA cables available. Additionally, there will be service staff to help you with your presentation.

All lecture theatres will be opened, at the latest, 30 minutes prior to the lecture. Speakers are requested to be in the lecture hall at least 15 minutes prior to the start of the session, reporting to the chairperson of the session as well as the technical staff to ensure the laptops handshake with the beamers and to receive a brief introduction to the equipment in the lecture hall. If you need other presentation facilities, please ask for availability at the information desk as soon as you arrive at the conference.

Usually, presentations will have the following durations. For exact information, please refer to your division.

Contributed talks are 15 minutes including discussion and speaker change (12 min talk + 3 min discussion / speaker change). Invited talks are 30 minutes including discussion and speaker change (25 min talk + 5 min discussion / speaker change). Plenary presentations are 45 minutes without discussion.

## **Broadcast of plenary talks**

All plenary talks will be broadcasted live in the Arno-Esch lecture halls 1 and 2 (next to the Audimax).

## **Poster Presentation**

Due to the dense schedule on Tuesday, all presenters of a poster in the Tuesday session are asked to hang up their posters on Monday, March 11, after 14:00. The poster boards will be marked with the number according to the scientific programme. Authors are asked to mount their poster before their session. Each poster should display the number according to the scientific programme. Each poster should be no larger than 90 cm x 120 cm (DIN A0, portrait).

For the mounting of the poster please use the provided "power strips" or pins at the poster frame or contact the available student staff. The presenting authors should be at hand for discussion at their poster during at least half of the poster session and should note this time at the poster.

The posters have to be removed after the session. Any posters remaining on posters boards will be removed and disposed without requesting your permission. The

conference management accepts no liability for the posters.

## **Wilhelm and Else Heraeus Communication Programme**

Important notes for participants who apply for a grant of the Wilhelm and Else Heraeus-Foundation:

At the beginning of the conference you will receive an identification form at the conference office. The participation in the conference must be certified by the conference desk. You have the possibility to leave this certificate with the staff members of the DPG (recommended!) in the conference office or submit it to the DPG head office (DPG-Geschäftsstelle, Hauptstr. 5, 53604 Bad Honnef, Germany) by **April 23, 2019 at the latest**.

For more detailed information refer to <http://rostock19.dpg-tagungen.de>.

The Deutsche Physikalische Gesellschaft thanks the Wilhelm and Else Heraeus Foundation for the generous financial support of young academic talents. We hope that young physicists will continue to seize the offered opportunity for active scientific communication at scientific conferences. A total of about 35,000 young academics were supported by this programme so far.

## **Communication / Internet Access**

WiFi access will be provided throughout the university buildings and you will obtain login and password credentials with your registration documents. Eduroam access via your home university is also available.

Additionally, there is a PC-pool in room 126 of the physics auditorium building (Albert-Einstein-Str. 24).

## **Catering**

Coffee and tea will be served all-day free of charge for participants at various locations in the buildings with presentation rooms.

### Ulmencampus

Here you can find two smaller canteens: "Mensa Ulme 69", Ulmenstraße 69, and "Kleine Mensa Ulme", Ulmenstraße 45. Lunch will be offered here between 11:15 and 14:00. In all the canteens you can pay in cash.

### Campus Südstadt

Lunch will be offered at the Campus Südstadt in the canteen "Mensa Süd", Albert-Einstein-Straße 6a, and in the smaller "Einstein-Mensa", Erich-Schlesinger-Straße 19 be-

tween 11:15 and 14:00. In the “Einstein-Mensa” they offer some special daily meals (Tuesday: Burger, Thursday: Kebab, and Friday: Pizza).

In addition, several restaurants, bakeries and snack places can be found close to both conference venues. A small list can be found on a handout in your conference bag.

## **Ordentliche Mitgliederversammlung der DPG 2019**

(Annual General Meeting of the DPG 2019)

Date: Monday, March 11, 18:15

Location: Campus Südstadt, Institut für Physik SHS1, Albert-Einstein-Straße 24

The Annual General Meeting of the Deutsche Physikalische Gesellschaft will take place on Monday evening. Members of the DPG are kindly requested to attend the meeting. Please bring your membership card.

## **Annual General Meetings of the DPG Divisions and Working Groups**

<b>Divisions</b>	<b>Date</b>	<b>Time</b>	<b>Room</b>
Atomic Physics	Wednesday, March 13	12:45 – 13:45	S HS 1 Physik
Mass Spectrometry	Wednesday, March 13	12:30 – 13:00	U A-Esch 2
Molecular Physics	Wednesday, March 13	12:45 – 13:45	S HS 001 Biologie
Quantum Optics and Photonics	Wednesday, March 13	12:30 – 14:00	S Gr. HS Maschb
<b>Working Groups</b>			
Information	Wednesday, March 13	16:15 – 17:15	U SR 124
Physics and Disarmament	Friday, March 15	13:00 – 13:30	U HS 3 Parkstr. 6

## Cloakroom

Participants are asked to look carefully after their wardrobe, valuables, laptops, and other belongings for which the organisers are not liable. You will find secured cloakrooms as follows:

		Ulmencampus Building: Haus 1 SR 021	Campus Südstadt Building: Physik SR 2 Physik	Ulmencampus Arno-Esch- Auditorium Foyer
Monday	March 11	07:30 – 18:00	07:30 – 19:00	08:00 – 16:30
Tuesday	March 12	08:00 – 16:30	08:00 – 16:30	08:00 – 16:30 / 18:30 – 22:00
Wednesday	March 13	08:00 – 16:30	08:00 – 16:30	08:00 – 13:00 / 18:00 – 20:00
Thursday	March 14	08:00 – 16:30	08:00 – 16:30	08:00 – 16:30 / 18:00 – 20:00
Friday	March 15	08:00 – 16:30	08:00 – 16:30	08:00 – 13:00

Furthermore, you can find lockers in the basement floor of the Physik-Hörsaalgebäude (Albert-Einstein-Straße 24) and on the second floor of the Audimax.

## Social Events

### Opening

Monday, March 11, 08:05, Audimax Ulmencampus. All participants are kindly invited.

### Welcome Evening

Monday, March 11, 20:00

On Monday, the Welcome Evening will be held in the Stadthalle, Südring 90, 18059 Rostock, to which all registered participants are kindly invited. Small food, beer and soft drinks will be served. Do not miss the opportunity to meet people in an informal atmosphere. Please wear your name tag which you received at the registration. Access is only possible for registered participants. Please note that all conference cloakrooms will close.

It is possible to reach the Stadthalle by tram (station: Stadthalle) and by suburban train (main station).

### Special Plenary Session with Award Ceremony (in German language, talks in English)

On Tuesday, March 12 at 14:00, the award ceremony with the ceremonial lecture will take place in the Audimax Ulmencampus (Arno Esch lecture hall building, Ulmenstraße 69):

Am Dienstag, den 12. März um 14:00 Uhr findet im Audimax Ulmencampus (Arno-Esch-Hörsaalgebäude, Ulmenstraße 69) der Festakt mit Preisverleihung und anschließendem Preis- und Festvortrag statt:

*Musik (es spielt das MorgensternQuartett Rostock)*

### Eröffnung

Prof. Dr. Stefan Lochbrunner und Prof. Dr. Dieter Bauer, Universität Rostock, Örtliche Tagungsleiter

### Begrüßung

Prof. Dr. med. Wolfgang Schareck, Rektor der Universität Rostock

### Ansprachen

Prof. Dr. Andreas Buchleitner, Universität Freiburg, Leiter der Sektion AMOP (S-AMOP)

Prof. Dr. Dieter Meschede, Präsident der Deutschen Physikalischen Gesellschaft

# Festakt

Deutsche Physikalische Gesellschaft

## Preisverleihung

**Max-Planck-Medaille 2019**

an Prof. Dr. Detlef Lohse  
Universität Twente, Niederlanden

**Stern-Gerlach-Medaille 2019**

an Prof. Dr. Johanna Stachel  
Universität Heidelberg

an Prof. Dr. Peter Braun-Munzinger  
GSI Helmholtzzentrum für Schwerionenforschung,  
Darmstadt

**Dissertationspreis der Sektion AMOP (SAMOP)**

(Der/die Preisträger/Preisträgerin wird nach dem  
SAMOP-Dissertationspreissymposium SYAD auserwählt)

## Preisträgervortrag

**Max-Planck-Medaille 2019**

Prof. Dr. Detlef Lohse  
*„Ultimate Rayleigh-Bénard and Taylor-Couette turbulence“*

## Festvortrag

Prof. Dr. Matthias Weidemüller, Universität Heidelberg  
*„Taming Atoms Giants - How Rydberg atoms became veritable  
quantum simulators“*

**Dienstag, 12. März 2019, 14:00 Uhr**  
**Audimax Ulmencampus, Ulmenstraße 69**



*Musik (es spielt das MorgensternQuartett Rostock)*

### **Preisverleihung**

Max-Planck-Medaille 2019

an Prof. Dr. Detlef Lohse, Universität Twente, Enschede (Netherlands)

### **Stern-Gerlach-Medaille 2019**

an Prof. Dr. Johanna Stachel, Universität Heidelberg  
sowie an Prof. Dr. Peter Braun-Munzinger, GSI, Helmholtz-  
zentrum für Schwerionenforschung, Darmstadt

### **SAMOP-Dissertationspreis**

(Der Preisträger oder die Preisträgerin wird nach dem SAMOP-Dissertationspreissymposium SYAD ernannt)

*Musik (es spielt das MorgensternQuartett Rostock)*

### **Preisträgervortrag**

Prof. Dr. Detlef Lohse, Universität Twente, Enschede (Netherlands)

*„Ultimate Rayleigh-Bénard and Taylor-Couette turbulence“*

### **Festvortrag**

Prof. Dr. Matthias Weidemüller, Universität Heidelberg  
*„Taming Atomic Giants – How Rydberg atoms became  
veritable quantum simulators“*

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## **The Laureates 2019 of the Deutsche Physikalische Gesellschaft are:**

### **Max-Planck-Medal**

Prof. Dr. Detlef Lohse, University of Twente, Enschede (Netherlands)

### **Stern-Gerlach-Medal**

Prof. Dr. Peter Braun-Munzinger, GSI, Helmholtzzentrum für Schwerionenforschung, Darmstadt

Prof. Dr. Johanna Stachel, University of Heidelberg

### **Walter-Schottky-Prize**

Dr. Eva Vera Benckiser, MPI for Solid State Research,  
Stuttgart

### **Gaede-Prize**

Dr. Selina Olthof, University of Cologne

### **Gustav-Hertz-Prize**

Dr. Svend-Age Biehs, University of Oldenburg

### **Hertha-Sponer-Prize**

PD Dr. Adriana Pálffy-Buß, MPI for Nuclear Physics Theory  
Division, Heidelberg

### **Georg-Simon-Ohm-Prize**

Robin Yoël Engel, University of Applied Sciences Emden/  
Leer and University of Oldenburg

### **Robert-Wichard-Pohl-Prize**

Prof. Dr. Markus Arndt, University of Vienna (Austria)

### **Georg-Kerschensteiner-Prize**

Thomas Biedermann,  
Christian-Gymnasium Hermannsburg

### **Max-Born-Prize**

Professor Michael Coey, Trinity College Dublin (Ireland)

### **Gentner-Kastler-Prize**

Prof. Dr. Christof Wetterich, University of Heidelberg

### **Herbert-Walther-Prize**

Prof. Sir Peter Knight, Kavli Royal Society and Blackett  
Laboratory (United Kingdom)

### **Marian-Smoluchowski-Emil-Warburg-Preis 2019**

Prof. Dr. Dr. h.c. mult. Peter Hänggi, Lehrstuhl für Theore-  
tische Physik I, Universität Augsburg

### **Schülerinnen- und Schülerpreis**

#### **49. International PhysikOlympiade in Lissabon (Portugal)**

Wilhelm Holfeld, Martin-Andersen-Nexö-Gymnasium,  
Dresden

Tim Pokart, Max-Steenbeck-Gymnasium, Cottbus

Pascal Reeck, Wilhelm-Ostwald-Gymnasium Leipzig

Jule Katharina Schrepfer, Goetheschule Ilmenau

David Ventzke, Wilhelm-Ostwald-Gymnasium, Leipzig

## **Schülerinnen- und Schülerpreis 31<sup>st</sup> International Young Physicists' Tournament (IYPT 2018) in Beijing (China)**

Toni Beuthan, Robert-Bosch-Gymnasium, Langenau  
Saskia Drechsel, Glückauf-Gymnasium, Dippoldiswalde  
Frederik Gareis, Frankenwald-Gymnasium, Kronach  
Martin Link, Gymnasium Kirchheim  
Paul Linke, Geschwister-Scholl-Gymnasium, Löbau

## **SAMOP Dissertation Prize 2019**

Tuesday, March 12, 10:30 – 12:30, Audimax Ulmencampus

Talks by the four finalists will be given at this symposium. Right after the symposium, the awardee will be selected by the prize committee.

## **Public Evening Talks**

The Evening Talks are open for interested public and all conference participants. The entrance is free.

## **Public Evening Lecture**

Wednesday, March 13, 18:30, Audimax Ulmencampus

Prof. Dr. Markus Arndt, University of Vienna (Austria), will speak about

*„Von essbaren Quanten und massiven Materiewellen“*

## **Max-von-Laue-Lecture**

Thursday, March 14, 18:30, Audimax Ulmencampus

Prof. Dr. Hans Joachim Schellnhuber, Potsdam Institute of Climate Impact Research (PIK), will speak about

*„2100: A Climate-Space Odyssey“*

## **jDPG Tower Building Contest**

Tuesday, March 12, 10:00 (directly between the plenary talks and the dissertation prize symposium), Audimax

The time has come to show how well theories perform in practice and teams can work together. The DPG challenges you to a tower building contest! Who builds the highest tower with given materials – wins. It's simple as that... or is it? All interested persons are welcome.

## **Physics Students' Theater**

Tuesday, 12 March 2019, 19:00, Audimax Ulmencampus

The Physics Students' Theater group presents an entertaining play with numerous demonstration experiments. While touring a potential new home, the prospective tenants notice that the building is unsettlingly mysterious and frightening. Will they find their way out of Count Dracula's haunted castle?

The Show is in German and open for all conference participants as well as the interested public. The entrance is free.

## **EinsteinSlam**

Tuesday, March 12, 20:00, Audimax Ulmencampus (just after the Physics Show)

Keen to hit the stage and fascinate the audience? The EinsteinSlam is yours! Be smart, take part, let science rock.

EinsteinSlam is the competitive art of making complex science accessible to a broad audience. There are just 10 minutes for every attendee to present his/her self-made performance. The event will finish with a public poll in order to evaluate if a particular contribution was either instructive and amusing or rather should have never been performed. All presentations will be given in German. For more information please see [www.einstein-slam.de](http://www.einstein-slam.de).

## **Exhibition of Scientific Instruments and Literature**

From Wednesday, March 13, to Friday, March 15, there will be an exhibition of scientific instruments and literature in the buildings ITMZ, MSF, Physik. Lehre and LLM (Campus Südstadt). Several companies (see list of exhibitors at the end of this booklet) will present their products. Opening hours are from 10:00 to 18:30 (Friday 10:00 to 16:00). All conference participants are welcome to attend the exhibition. The entrance is free.

## **Lab Tour**

On Wednesday, March 13, 14:00 – 16:00, there will be a Lab Tour through different labs in the physics research building and the LLM (Life, Light and Matter) building. Since the number of participants is limited participants need to register beforehand. You can register on Tuesday, March 12, at the registration desk, Ulmencampus, Haus1, SR 021.

## **jDPG Pub Crawl**

Wednesday, March 13, 20:00, Meeting Point: Audimax

In case you need some time to take a rest in the middle

of the conference and you are looking for conversations beyond physics, the local group of the young DPG cordially invites you to a pub crawl through the nightlife in Rostock. With subsequent visit of the plenary talks on Thursday ;-)

### **Liability Exclusion**

Participants are asked to look carefully after their wardrobe, valuables, laptops and other belongings. There can be no liability assumed.

### **SAY CHEESE!**

The DPG Spring Meetings are basically public to the press. Please note: On behalf of DPG, photos and videos will be recorded during the Spring Meetings. In the context of public relations, these recordings (as the case may be) will be published on our website, in social media or within prints of the DPG for example.

### **Acknowledgement**

The Deutsche Physikalische Gesellschaft (DPG) and the Local Organisers want to thank the following institutions for supporting the conference:

- Wilhelm and Else Heraeus-Foundation, Hanau
- University of Rostock
- all industrial sponsors and supporters (please refer to page 23)

and all staff, who make the success of the conference possible.

Sponsors of the  
DPG Spring Meeting Rostock 2019



# Supporters of the DPG Spring Meeting Rostock 2019



# Synopsis of the Daily Programme

## Sunday, March 10, 2019

### Atomic Physics Division (A)

#### Session

A 1      16:00 – 18:00    U HS 326  
Tutorial X-Ray Lasers

### Molecular Physics Division (MO)

#### Session

MO 1      16:00 – 18:00    U HS 224  
Tutorial Molecular Spectroscopy

### Working Group "Young DPG" (AKjDPG)

#### Tutorials

- AKjDPG  
1.1      16:00 – 17:00    U HS 326  
Freie-Elektronen Laser für Röntgenstrahlen:  
Physikalische Prinzipien und technische Rea-  
lisierung  
•*Jörg Rossbach*
- AKjDPG  
1.2      17:00 – 18:00    U HS 326  
Introduction to x-ray quantum optics  
•*Jörg Evers*
- AKjDPG  
2.1      16:00 – 17:00    U HS 224  
How Ultrafast Spectroscopy Can Follow Mo-  
lecular Reaction Dynamics in Real Time  
•*Patrick Nuernberger*
- AKjDPG  
2.2      17:00 – 18:00    U HS 224  
Theoretical Perspective on Time-resolved  
Spectroscopy of Molecular Systems  
•*Oliver Kühn*

AKjDPG

3.1

16:00 – 17:00 U HS 323

Quantum metrology from a quantum information science perspective

•*Geza Toth, Iagoba Apellaniz*

AKjDPG

3.2

17:00 – 18:00 U HS 323

Quantum metrology with non-classical states of atoms

•*Carsten Klempt***Sessions**

AKjDPG 1

16:00 – 18:00 U HS 326

Tutorial X-Ray Lasers

AKjDPG 2

16:00 – 18:00 U HS 224

Tutorial Molecular Spectroscopy

AKjDPG 3

16:00 – 18:00 U HS 323

Tutorial Quantum Metrology

# Monday, March 11, 2019

08:05 U Audimax  
Conference Opening

## Plenary Talks

- PV I 08:15 – 09:00 U Audimax  
Quantum optics and information science in multi-dimensional photonics networks  
•*Christine Silberhorn*
- PV II 09:00 – 09:45 U Audimax  
Interstellar radionuclides identified in deep-sea archives  
•*Anton Wallner*

## PhD-Symposium - Optimal Control Theory in the Leading Domains of Quantum Technology (SYPS)

### Invited Talks

- SYPS 1.1 14:00 – 14:30 U Audimax  
Optimal control of many-body quantum systems  
•*Simone Montangero*
- SYPS 1.2 14:30 – 15:00 U Audimax  
Light matter quantum interface based on single colour centres in diamond  
•*Fedor Jelezko*
- SYPS 1.3 15:00 – 15:30 U Audimax  
Principles of Quantum Systems Theory and Control Engineering  
•*Thomas Schulte-Herbrüggen*
- SYPS 1.4 15:30 – 16:00 U Audimax  
Quantum metrology with Rydberg atoms  
•*Sebastien Gleyzes, Arthur Larrouy, Remi Richaud, Sabrina Patsch, Jean-Michel Raimond, Michel Brune, Christiane Koch*

### Session

- SYPS 1 14:00 – 16:00 U Audimax  
PhD – Symposium: Optimal Control Theory in the Leading Domains of Quantum Technology

## Atomic Physics Division (A)

### Invited Talks

- Mon
- A 4.1 10:30 – 11:00 S HS 3 Physik  
Odd electron wave packets from cycloidal ultrashort laser fields  
•*Stefanie Kerbstadt, Kevin Eickhoff, Tim Bayer, Matthias Wollenhaupt*
- A 6.1 14:00 – 14:30 S HS 2 Physik  
Laser spectroscopy of transfermium elements  
•*S. Raeder, D. Ackermann, H. Backe, M. Block, B. Cheal, P. Chhetri, Ch. E. Düllmann, M. Eibach, J. Even, R. Ferrer, F. Giacoppo, S. Götz, F.P. Heßberger, O. Kaleja, J. Khuyagbaatar, P. Kunz, M. Laatiaoui, W. Lauth, L. Lens, N. Lecesne, A. K. Mistry, E. Minaya Ramirez, T. Murböck, P. van Duppen, Th. Walther, A. Yakushev*
- A 7.1 14:00 – 14:30 S HS 3 Physik  
Multielectron polarization effects and ionization of the hydrogen molecule within the semiclassical two-step model  
•*Nikolay Shvetsov-Shilovski, Manfred Lein, Lars Madsen, Karoly Tokesi*
- A 9.1 16:15 – 16:45 S HS 2 Physik  
Non-equilibrium Dynamics of Ion Coulomb Systems  
•*Tanja E. Mehlstäubler*
- A 10.5 17:15 – 17:45 S HS 3 Physik  
Towards testing physics beyond the Standard Model with the bound-electron g-factor  
•*Vincent Debierre, Christoph H. Keitel, Zoltán Harman*

### Sessions

- A 2 10:30 – 12:15 S HS 1 Physik  
Ultra-cold atoms and molecules I
- A 3 10:30 – 12:30 S HS 2 Physik  
Precision Spectroscopy of atoms and ions I
- A 4 10:30 – 12:30 S HS 3 Physik  
Atomic systems in external fields

- A 5      14:00 – 16:00    S HS 1 Physik  
Ultra-cold atoms and molecules II
- A 6      14:00 – 15:45    S HS 2 Physik  
Precision Spectroscopy of atoms and ions II
- A 7      14:00 – 16:00    S HS 3 Physik  
Interaction with strong or short laser pulses
- A 8      16:15 – 17:45    S HS 1 Physik  
Ultra-cold atoms, ions and BEC
- A 9      16:15 – 18:00    S HS 2 Physik  
Precision Spectroscopy of atoms and ions III
- A 10     16:15 – 17:30    S HS 3 Physik  
Highly charged ions and their applications

## Molecular Physics Division (MO)

### Invited Talks

- MO 3.1    10:30 – 11:00    S HS 001 Biologie  
Solvent-Specific Facets in the Ultrafast Photo-chemistry of Reactive Intermediates  
*Johannes Knorr, Pandian Sokkar, Svenja Wortmann, Paolo Costa, Niklas Gessner, Julien Rowen, Wolfram Sander, Elsa Sanchez-Garcia, •Patrick Nuernberger*
- MO 4.1    10:30 – 11:00    S HS 002 Biologie  
Determination of Excited State Dipole Moments for Complex Systems – From Gas to the Condensed Phase  
*•Michael Schmitt, Marie-Luise Hebestreit, Mirko Lindic, Matthias Zajonz, Michael Schneider*
- MO 6.1    14:00 – 14:30    S HS 001 Biologie  
Investigation of structures and electronic states of transition metal containing complexes via transient FTIR spectroscopy  
*Patrick Di Martino-Fumo, Pit Boden, Jasmin Busch, Sven Otto, Katja Heinze, Stefan Bräse, •Markus Gerhards*

**Sessions**

- MO 2    10:30 – 12:15    S HS 1 Physik  
Ultra-cold atoms and molecules I
- MO 3    10:30 – 12:30    S HS 001 Biologie  
Ultrafast Processes in Solution
- MO 4    10:30 – 12:30    S HS 002 Biologie  
Electronic Spectroscopy
- MO 5    14:00 – 16:00    S HS 1 Physik  
Ultra-cold atoms and molecules II
- MO 6    14:00 – 16:00    S HS 001 Biologie  
Metal Complexes
- MO 7    14:00 – 16:00    S HS 002 Biologie  
Experimental Techniques
- MO 8    16:15 – 17:45    S HS 001 Biologie  
XUV and X-ray Excitation and Spectroscopy
- MO 9    16:15 – 17:45    S HS 002 Biologie  
Molecules in Intense Laser Fields

**Mass Spectrometry Division (MS)****Invited Talks**

- MS 1.1    10:30 – 11:00    U A-Esch 2  
Shedding light on Isobars  
*•Robin Golser*
- MS 2.1    14:00 – 14:30    U A-Esch 2  
Precision mass measurements of short-lived isotopes at TITAN  
*•Jens Dilling*

**Sessions**

- MS 1    10:30 – 12:30    U A-Esch 2  
Accelerator Mass Spectrometry and Applications
- MS 2    14:00 – 16:00    U A-Esch 2  
Precision Mass Spectrometry

## Quantum Optics and Photonics Division (Q)

### Invited Talks

- Q 3.1 10:30 – 11:00 S HS 001 Chemie  
Quantum information scrambling and hybrid machine learning with trapped ions  
•*Norbert M. Linke, Kevin A. Landsman, Daiwei Zhu, Chris Monroe*
- Q 13.1 14:00 – 14:30 S Gr. HS Maschb.  
Integrated quantum photonics on silicon chips  
•*Carsten Schuck*
- Q 15.1 14:00 – 14:30 S SR 112 Maschb.  
Tunable and nonlinear resonant semiconductor metasurfaces  
•*Isabelle Staude*

### Sessions

- Q 1 10:30 – 12:15 S HS 1 Physik  
Ultra-cold atoms and molecules I
- Q 2 10:30 – 12:30 S HS 2 Physik  
Precision Spectroscopy of atoms and ions I
- Q 3 10:30 – 12:30 S HS 001 Chemie  
Quantum Information (Quantum Computing) I
- Q 4 10:30 – 12:30 S HS 037 Informatik  
Quantum Gases (Bosons) I
- Q 5 10:30 – 12:45 S SR 111 Maschb.  
Precision Measurements and Metrology I
- Q 6 10:30 – 12:15 S SR 112 Maschb.  
Nano-Optics (Single Quantum Emitters) I
- Q 7 10:30 – 12:15 S SR 211 Maschb.  
Ultracold Plasmas and Rydberg Systems
- Q 8 10:30 – 12:30 S Ex 04 E-Tech  
Quantum Optics and Photonics I
- Q 9 14:00 – 16:00 S HS 1 Physik  
Ultra-cold atoms and molecules II
- Q 10 14:00 – 15:45 S HS 2 Physik  
Precision Spectroscopy of atoms and ions II

- Q 11 14:00 – 15:45 S HS 001 Chemie  
Quantum Information (Concepts and Methods) I
- Q 12 14:00 – 15:45 S HS 037 Informatik  
Quantum Gases (Bosons and Fermions) I
- Q 13 14:00 – 16:00 S Gr. HS Maschb.  
Quantum Optics and Photonics II
- Q 14 14:00 – 16:15 S SR 111 Maschb.  
Precision Measurements and Metrology (Optical Clocks)
- Q 15 14:00 – 16:00 S SR 112 Maschb.  
Nano-Optics (Plasmonics)
- Q 16 14:00 – 15:45 S SR 211 Maschb.  
Laser Developments and Applications
- Q 17 16:15 – 17:45 S HS 1 Physik  
Ultra-cold atoms, ions and BEC
- Q 18 16:15 – 18:00 S HS 2 Physik  
Precision Spectroscopy of atoms and ions III
- Q 19 16:15 – 17:45 S HS 001 Chemie  
Quantum Information (Quantum Repeater) I
- Q 20 16:15 – 17:45 S HS 002 Chemie  
Quantum Information (Solid State Systems)
- Q 21 16:15 – 17:45 S HS 037 Informatik  
Quantum Gases (Bosons) II
- Q 22 16:15 – 17:45 S Gr. HS Maschb.  
Quantum Optics I
- Q 23 16:15 – 17:45 S Ex 04 E-Tech  
Photonics I

## Working Group on Energy (AKE)

### Invited Talks

- AKE 1.1 10:30 – 11:00 U A-Esch 1  
Wendelstein 7-X – Erste Ergebnisse auf dem Weg zum stationären Betrieb  
•Torsten Stange, Das W7-X Team

- AKE 1.3 11:15 – 11:45 U A-Esch 1  
 Inertial Confinement Fusion – will Fast Ignition  
 provide new progress?  
 •*Markus Roth*
- AKE 2.1 11:45 – 12:15 U A-Esch 1  
 Innovation in aviation: the role of hybrid-electric  
 aircraft  
 •*Andreas Reeh*
- AKE 3.1 14:00 – 14:30 U A-Esch 1  
 Radioactive waste in Germany – current situation  
 and future perspectives  
 •*Clemens Walther*
- AKE 3.2 14:30 – 15:00 U A-Esch 1  
 Decommissioning of nuclear facilities  
 •*Thomas Walter Tromm*
- AKE 3.3 15:00 – 15:30 U A-Esch 1  
 The Nobel Prize in Physics 2018 and future applications  
 for Laser-Driven Neutron Sources  
 •*Markus Roth*
- AKE 4.1 15:30 – 16:00 U A-Esch 1  
 Photovoltaics: perspectives for new materials  
 •*Susan Schorr*
- AKE 5.1 16:15 – 16:45 U A-Esch 1  
 Wind und Wasser zu Ammoniak – maritimer  
 Kraftstoff und Energiespeicher für eine emissionsfreie  
 Zukunft  
 •*Angela Kruth*
- AKE 6.1 16:45 – 17:15 U A-Esch 1  
 Decarbonization of the European energy system  
 with strong sector couplings  
*Kun Zhu, Marta Victoria, Tom Brown, Gorm B. Andresen,*  
 •*Martin Greiner*

### Sessions

- AKE 1 10:30 – 11:45 U A-Esch 1  
 Nuclear Fusion
- AKE 2 11:45 – 12:15 U A-Esch 1  
 Mobility: Hybrid Electric Aviation

- AKE 3      14:00 – 15:30    U A-Esch 1  
Decommissioning of Nuclear Facilities and  
Final Repository
- AKE 4      15:30 – 16:45    U A-Esch 1  
Photovoltaics
- AKE 5      16:15 – 16:45    U A-Esch 1  
Mobility: Synthetic Fuels
- AKE 6      16:45 – 17:45    U A-Esch 1  
Intermittent Renewable Energy Supply

**Annual General Meeting of the  
Deutsche Physikalische Gesellschaft e.V.  
(for DPG Members only)**

18:15                      S HS 1

**Welcome Evening** (for Registered Participants only)

20:00                      Stadthalle

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# Tuesday, March 12, 2019

## Plenary Talks, Prize Talks, Lunch Talk

- PV III 08:15 – 09:00 U Audimax  
Exploring Exotic Elements – all about Astatine and Actinides as accessible from Laser Mass Spectrometry  
•*Klaus Wendt*
- PV IV 09:00 – 09:45 U Audimax  
Light and cavity induced new states of matter. Quantum Electrodynamical Density Functional Theory (QEDFT)  
•*Angel Rubio*  
(*Laureate of the Max-Born-Prize 2018*)
- PV V 12:45 – 13:30 U A-Esch 1  
TRUMPF - Arbeiten als Physiker in einem globalen, innovativen Familienunternehmen  
•*Malte Kumkar*

## Special Plenary Session with Award Ceremony

14:00 – 16:00 U Audimax

- PV VI U Audimax  
Ultimate Rayleigh-Bénard and Taylor-Couette turbulence  
•*Detlef Lohse*  
(*Laureate of the Max-Planck-Medal 2019*)

- PV VII U Audimax  
Taming Atomic Giants - How Rydberg atoms became veritable quantum simulators  
•*Matthias Weidemüller*

- PV VIII 16:30 – 17:00 U A-Esch 2  
X-rays go quantum  
•*Adriana Pálffy*  
(*Laureate of the Hertha-Sponer-Prize 2019*)

PV IX 17:00 – 17:30 U A-Esch 2  
Laser filamentation and terahertz pulse generation  
•*Luc Bergé*  
(*Laureate of the Gentner-Kastler-Prize 2018*)

## Symposium SAMOP Dissertation-Prize 2019 (SYAD)

### Invited Talks

- Tue
- SYAD 1.1 10:30 – 11:00 U Audimax  
Quantum States and their Marginals: from Multipartite Entanglement to Quantum Error-Correcting Codes  
•*Felix Huber*
- SYAD 1.2 11:00 – 11:30 U Audimax  
The Uniform Electron Gas at Warm Dense Matter Conditions  
•*Simon Groth*
- SYAD 1.3 11:30 – 12:00 U Audimax  
Relativistically intense laser-microplasma interactions (and potential applications)  
•*Tobias Ostermayer*
- SYAD 1.4 12:00 – 12:30 U Audimax  
Motional quantum state engineering for quantum logic spectroscopy of molecular ions  
•*Fabian Wolf*

### Session

- SYAD 1 10:30 – 12:30 U Audimax  
SAMOP Dissertation-Prize

## Atomic Physics Division (A)

### Sessions

- A 11 16:30 – 18:30 S Fobau Physik  
Ultra-cold plasmas and Rydberg systems
- A 12 16:30 – 18:30 S Fobau Physik  
Ultra-cold atoms, ions and BEC

## Molecular Physics Division (MO)

### Session

- MO 10 16:30 – 18:30 S Foyer LLM  
Posters 1: Cold Molecules, High Resolution Spectroscopy, and Theory

## Mass Spectrometry Division (MS)

### Session

- MS 3 16:30 – 18:15 S Fobau Physik  
Mass Spectrometry – Posters

## Quantum Optics and Photonics Division (Q)

### Sessions

- Q 24 16:30 – 18:30 S Fobau Physik  
Poster: Quantum Optics and Photonics I
- Q 25 16:30 – 18:30 S Atrium Informatik  
Poster: Quantum Optics and Photonics I

## Working Group on Energy (AKE)

### Invited Talks

- AKE 7.1 16:15 – 16:45 U A-Esch 1  
Die Energiewende geht in die nächste Phase  
– wichtige Merkmale der künftigen Energieversorgung  
•*Cyril Stephanos*
- AKE 7.2 16:45 – 17:15 U A-Esch 1  
Die Rolle der Fernwärme bei der Umsetzung  
der Energiewende  
•*Marcel Krämer*
- AKE 7.3 17:15 – 17:45 U A-Esch 1  
WindNODE – Das Schaufenster für intelligente  
Energie aus dem Nordosten Deutschlands  
•*Markus Graebig*

### Session

- AKE 7 16:15 – 17:45 U A-Esch 1  
Sector Coupling

## **jDPG Tower Building Contest**

10:00

U Audimax

## **Physics Students' Theater**

19:00

U Audimax

## **EinsteinSlam**

20:00

U Audimax

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Tue

# Wednesday, March 13, 2019

## Plenary Talks

- PV X 08:15 – 09:00 U Audimax  
The future of time: prospects for a redefinition of the SI second  
•*William D. Phillips*
- PV XI 09:00 – 09:45 U Audimax  
Chemical Energy Storage: a Key Element for a Sustainable Energy Future  
•*Ferdi Schüth*

## Symposium Fundamental Constants and new SI (SYSI)

### Invited Talks

- SYSI 1.1 10:30 – 11:00 U Audimax  
The redefinition of the SI in November 2018  
•*Terry Quinn*
- SYSI 1.2 11:00 – 11:30 U Audimax  
Quantum Hall effect and the new SI  
•*Klaus von Klitzing*
- SYSI 1.3 11:30 – 12:00 U Audimax  
The electron charge for the definition and realization of the ampere  
•*Jan-Theodoor Janssen*
- SYSI 1.4 12:00 – 12:30 U Audimax  
The Planck constant and the realization of the kilogram  
•*Stephan Schlamminger*

### Session

- SYSI 1 10:30 – 12:30 U Audimax  
Fundamental Constants and new SI

## Atomic Physics Division (A)

### Invited Talks

- A 15.1 10:30 – 11:00 S HS 3 Physik  
Decomposition of the Temporal and Spectral Response in Attosecond Transient Absorption Spectroscopy  
•Lorenz Drescher, Vishal Shokeen, Tobias Witting, Serguei Patchkovskii, Marc Vrakking, Jochen Mikosch
- A 18.7 15:30 – 16:00 S HS 2 Physik  
Towards a precise energy determination of the  $^{229}\text{Th}$  nuclear isomer  
•Benedict Seiferle, Lars v.d. Wense, Ines Amersorffer, Peter G. Thirolf
- A 19.1 14:00 – 14:30 S HS 3 Physik  
Imaging ultrafast dynamics in nanoparticles with resonant multicolor XUV pulses  
L Hecht, B Langbehn, J Zimmermann, J Jordan, K Kolatzki, N Monserud, Y Ovcharenko, M Sauppe, B Schütte, R Tanyag, A Ulmer, B Kruse, K Sander, C Peltz, A Colombo, A D'Elia, M diFraia, L Giannessi, P Piseri, O Plekan, K Prince, M Zangrando, C Callegari, MJJ Vrakking, A Rouzée, T Möller, T Fennel, •D Rupp
- A 19.2 14:30 – 15:00 S HS 3 Physik  
Multi-coincidence experiments on electron and photon emission  
•Andre Knie

### Sessions

- A 13 10:30 – 12:30 S HS 1 Physik  
Ultra-cold atoms
- A 14 10:30 – 12:15 S HS 2 Physik  
Precision Spectroscopy of atoms and ions IV
- A 15 10:30 – 12:30 S HS 3 Physik  
Attosecond physics
- A 16 12:45 – 13:45 S HS 1 Physik  
FV Atomic Physics: General Assembly

- A 17      14:00 – 16:00    S HS 1 Physik  
Ultra-cold plasmas and Rydberg systems
- A 18      14:00 – 16:00    S HS 2 Physik  
Precision Spectroscopy of atoms and ions V  
(Th 229)
- A 19      14:00 – 16:15    S HS 3 Physik  
Cluster I
- A 20      14:00 – 16:00    S HS 002 Biologie  
Cold Molecules
- A 21      16:15 – 18:15    S Fobau Physik  
Cluster II
- A 22      16:15 – 18:15    S Fobau Physik  
Highly charged ions and their applications
- A 23      16:15 – 18:15    S Fobau Physik  
Collisions, scattering and correlation phenomena
- A 24      16:15 – 18:15    S Fobau Physik  
Atomic collisions and ultracold plasmas
- A 25      16:15 – 18:15    S Fobau Physik  
Attosecond physics
- A 26      16:15 – 18:15    S Fobau Physik  
Atomic systems in external fields

## Molecular Physics Division (MO)

### Invited Talk

- MO 11.1    10:30 – 11:00    S HS 001 Biologie  
Properties of multiazobenzene systems – old dogs and new tricks  
•*Chavdar Slavov, Chong Yang, Luca Schweighauser, Andreas H. Heindl, Tim Stauch, Hermann A. Wegner, Andreas Dreuw, Josef Wachtveitl*

### Sessions

- MO 11      10:30 – 12:30    S HS 001 Biologie  
Photochemistry

- MO 12 10:30 – 12:30 S HS 002 Biologie  
High Resolution Spectroscopy and Precision Experiments
- MO 13 12:45 – 13:45 S HS 001 Biologie  
Annual General Meeting of the Molecular Physics Division
- MO 14 14:00 – 16:00 S HS 001 Biologie  
Ultrafast Multidimensional and Control Approaches
- MO 15 14:00 – 16:00 S HS 002 Biologie  
Cold Molecules
- MO 16 14:00 – 16:15 S HS 3 Physik  
Cluster I
- MO 17 16:15 – 18:15 S Fobau Physik  
Cluster II
- MO 18 16:15 – 18:15 S Foyer LLM  
Posters 2: Time Resolved Spectroscopy

## Mass Spectrometry Division (MS)

### Invited Talks

- MS 6.1 14:00 – 14:30 U A-Esch 2  
Impact of the Coulomb barrier on the electronic and optical properties of polyanionic silver clusters  
*Klara Raspe, Norman Iwe, Madlen Müller, Franklin Martinez, •Josef Tiggesbäumker, Lutz Schweikhard, Karl-Heinz MeiwesBroer*
- MS 6.2 14:30 – 15:00 U A-Esch 2  
Hitting proteins with a sledgehammer – mass spectrometry meets X-rays  
*•Charlotte Utrecht*

### Sessions

- MS 4 10:30 – 12:15 U A-Esch 2  
Accelerator Mass Spectrometry and Applications

- MS 5      12:30 – 13:00    U A-Esch 2  
Annual General Meeting of the Mass Spectrometry Division
- MS 6      14:00 – 15:00    U A-Esch 2  
Clusters and Molecules
- MS 7      15:00 – 15:45    U A-Esch 2  
New Developments and Techniques

## Quantum Optics and Photonics Division (Q)

### Invited Talks

- Q 28.1    10:30 – 11:00    S HS 037 Informatik  
Spatial entanglement patterns and Einstein-Podolsky-Rosen steering in a Bose-Einstein condensate  
*•Tilman Zibold, Matteo Fadel, Boris Decamps, Yifan Li, Philipp Treutlein*
- Q 29.1    10:30 – 11:00    S Gr. HS Maschb.  
Nonlinear quantum transport of light in a cold atomic cloud  
*Tobias Binninger, Vyacheslav Shatokhin, Andreas Buchleitner, •Thomas Wellens*
- Q 30.1    10:30 – 11:00    S SR 211 Maschb.  
Atom transport at the quantum speed limit and its application for atom interferometry  
*Manolo Rivera, Natalie Peter, Thorsten Groh, Wolfgang Alt, Gautam Ramola, Richard Winkelman, Carsten Robens, Antonio Negretti, Simone Montangero, Tommaso Calarco, Dieter Meschede, •Andrea Alberti*
- Q 33.1    14:00 – 14:30    S HS 001 Chemie  
Topological Quantum Error Correction: From Concepts to Experiments with Trapped Ions  
*•Markus Mueller*

### Sessions

- Q 26      10:30 – 12:30    S HS 1 Physik  
Ultra-cold atoms
- Q 27      10:30 – 12:30    S HS 001 Chemie  
Quantum Information (Concepts and Methods) II

- Q 28 10:30 – 12:30 S HS 037 Informatik  
Quantum Gases (Bosons) III
- Q 29 10:30 – 12:30 S Gr. HS Maschb.  
Quantum Effects
- Q 30 10:30 – 12:45 S SR 211 Maschb.  
Matter Wave Optics
- Q 31 12:30 – 14:00 S Gr. HS Maschb.  
Annual General Meeting of the Quantum Optics  
and Photonics Division
- Q 32 14:00 – 16:00 S HS 1 Physik  
Ultra-cold plasmas and Rydberg systems
- Q 33 14:00 – 16:00 S HS 001 Chemie  
Quantum Information (Quantum Computing) II
- Q 34 14:00 – 15:45 S HS 002 Chemie  
Quantum Information (Quantum Communica-  
tion) I
- Q 35 14:00 – 16:15 S HS 037 Informatik  
Quantum Gases (Fermions) I
- Q 36 14:00 – 15:45 S Gr. HS Maschb.  
Photonics II
- Q 37 14:00 – 16:00 S SR 111 Maschb.  
Precision Measurements and Metrology II
- Q 38 14:00 – 15:45 S SR 112 Maschb.  
Nano-Optics (Single Quantum Emitters) II
- Q 39 14:00 – 16:30 S SR 211 Maschb.  
Ultrashort Laser Pulses
- Q 40 14:00 – 15:15 S Ex 04 E-Tech  
Quantum Effects (QED) I
- Q 41 16:15 – 18:15 S Fobau Physik  
Poster: Quantum Optics and Photonics II
- Q 42 16:15 – 18:15 S Atrium Informatik  
Poster: Quantum Optics and Photonics II

## Working Group on Energy (AKE)

### Invited Talks

- AKE 8.1 10:30 – 11:00 U A-Esch 1  
Bioenergie in Deutschland: Historie, Stand und Perspektiven  
•*Michael Nelles*
- AKE 9.1 11:00 – 11:30 U A-Esch 1  
Floating Offshore Wind – A state of the art review  
•*Frank Adam*
- AKE 10.1 11:30 – 12:00 U A-Esch 1  
Wege zu einer sicheren und stabilen voll-regenerativen Elektrischen Energieversorgung  
•*Harald Weber*
- AKE 11.1 14:00 – 14:30 U A-Esch 1  
Potentiale und Möglichkeiten der untertägigen Energiespeicherung  
•*Sebastian Bauer, Bo Wang, Jens Olaf Delfs, Wolf Tilmann Pfeiffer, Christof Beyer*
- AKE 11.3 14:45 – 15:15 U A-Esch 1  
Numerical modelling of shallow geothermal energy exploration process  
•*Haibing Shao*
- AKE 12.1 15:15 – 15:45 U A-Esch 1  
Photocatalysis – a powerful tool for the generation of Sun Fuels from Water and Carbon Dioxide?  
•*Henrik Junge*
- AKE 13.1 16:15 – 16:45 U A-Esch 1  
The far reach of ice-shelf thinning in Antarctica  
*Ronja Reese, Hilmar Gudmundsson, Anders Lev-ermann, •Ricarda Winkelmann*
- AKE 13.2 16:45 – 17:15 U A-Esch 1  
Globale Klima-Governance: wie wird es nach mittlerweile 24 UN-Klimakonferenzen weitergehen?  
•*Felix Ekardt*

**Sessions**

- AKE 8      10:30 – 11:00    U A-Esch 1  
Bioenergy
- AKE 9      11:00 – 11:30    U A-Esch 1  
Wind Energy
- AKE 10     11:30 – 12:15    U A-Esch 1  
Distributed Energy Generation, Electrical Grids
- AKE 11     14:00 – 15:15    U A-Esch 1  
Geological Energy Storage and Geothermal Energy
- AKE 12     15:15 – 16:00    U A-Esch 1  
Artificial Photosynthesis, CO<sub>2</sub>-Reduction
- AKE 13     16:15 – 17:15    U A-Esch 1  
Climate Change

**Working Group "Young DPG" (AKjDPG)****Session**

- AKjDPG 4   14:00 – 15:45    U SR 124  
New concepts in scientific publishing

**Working Group on Physics and Disarmament (AGA)****Sessions**

- AGA 1      14:00 – 16:00    U HS 3 Parkstr. 6  
Verification I: Simulation and Technologies

**Working Group on Information (AGI)****Invited Talks**

- AGI 1.1     14:00 – 14:45    U SR 124  
Beyond Open Access: SciPost  
•*Jean-Sébastien Caux*
- AGI 1.2     14:45 – 15:30    U SR 124  
Multi-Stage Open Peer Review: Integrating the strengths of traditional peer review with the virtues of transparency and self-regulation  
•*Ulrich Pöschl*

## Sessions

- AGI 1      14:00 – 15:45    U SR 124  
New concepts in scientific publishing
- AGI 2      16:15 – 17:15    U SR 124  
Annual General Meeting of the Working Group  
on Information

## Exhibition of Scientific Instruments and Literature

10:00 – 18:30    Campus Südstadt: ITMZ, MSF,  
Physik. Lehre, LLM

## jDPG Pub Crawl

20:00            U Audimax

## Evening Talk (Free Entrance)

- PV XII      18:30 – 19:30    U Audimax  
Von essbaren Quanten und massiven Materiewellen  
•Markus Arndt  
*(Laureate of the Robert-Wichard-Pohl-Prize 2019)*
-

# Thursday, March 14, 2019

## Plenary Talks

- PV XIII 08:15 – 09:00 U Audimax  
Probing electronic processes in large molecules  
•*Francesca Calegari*
- PV XIV 09:00 – 09:45 U Audimax  
Non-Markovian Dynamics: Correlations, Information Flow and Memory in Open Quantum Systems  
•*Heinz-Peter Breuer*

## Symposium Physiker in der Energietechnik – Industrietag (SYIT)

### Lunch Talk, Invited Talks

- SYIT 1.1 10:30 – 11:10 U A-Esch 1  
LOHC – wie Wasserstoff zum flüssigen Treibstoff bei Raumtemperatur wird  
•*Cornelius von der Heydt*
- SYIT 1.2 11:10 – 11:50 U A-Esch 1  
Energiewende können Physiker auch?!  
•*Matthias Lange*
- SYIT 1.3 11:50 – 12:30 U A-Esch 1  
Windenergietechnik als Arbeitsgebiet für Physikerinnen und Physiker  
•*Uwe Ritschel*
- SYIT 2.1 12:30 – 13:15 U A-Esch 1  
Podiumsdiskussion – Physiker in der Energietechnik  
*Cornelius von der Heydt, Matthias Lange, Uwe Ritschel, •Anna Bakenecker, Hardo Bruhns*

### Sessions

- SYIT 1 10:30 – 12:30 U A-Esch 1  
Industrietag: Physiker in der Energietechnik
- SYIT 2 12:30 – 13:15 U A-Esch 1  
Podiumsdiskussion

SYIT 3 13:15 – 14:00 U A-Esch 1  
Get Together

## Symposium Atomic Physics, Molecular Physics, and Quantum Optics with X-ray FELs (SYXR)

### Invited Talks

- SYXR 1.1 14:00 – 14:30 U Audimax  
Superradiance of an ensemble of nuclei excited by a free electron laser  
•*Aleksandr Chumakov*
- SYXR 1.2 14:30 – 15:00 U Audimax  
Quantum imaging with incoherently scattered light from a Free-Electron Laser  
•*Joachim von Zanthier*
- SYXR 1.3 15:00 – 15:30 U Audimax  
Stimulated X-Ray Emission Spectroscopy for Chemical Analysis  
•*Nina Rohringer*
- SYXR 1.4 15:30 – 16:00 U Audimax  
X-Ray Multiphoton Ionization of Atoms and Molecules  
•*Daniel Rolles*

### Session

- SYXR 1 14:00 – 16:00 U Audimax  
Atomic Physics, Molecular Physics and Quantum Optics with X-ray FELs

## Atomic Physics Division (A)

### Invited Talks

- A 31.8 15:45 – 16:15 S HS 1 Physik  
String patterns in the doped Hubbard model  
•*Daniel Greif*
- A 32.1 14:00 – 14:30 S HS 3 Physik  
Time-resolved dynamics of slow photoelectrons in the rescattering regime  
•*Martin Ranke, Sophie Walther, Anastasios Dimitriou, Mark J. Prandolini, Markus Pfau, Thomas Gebert, Marek Wieland, Markus Drescher, Ulrike Fröhling*

## Sessions

- A 27      10:30 – 12:00    S HS 1 Physik  
Quantum gases (Bosons)
- A 28      10:30 – 12:30    S HS 3 Physik  
Interaction with VUV and X-ray light
- A 29      10:30 – 12:30    S HS 001 Biologie  
Cluster III
- A 30      10:30 – 12:30    S HS 002 Biologie  
Atomic Physics, Molecular Physics, and Quantum Optics with X-ray FELs
- A 31      14:00 – 16:15    S HS 1 Physik  
Quantum gases (Fermions)
- A 32      14:00 – 16:00    S HS 3 Physik  
Collisions, scattering and correlation phenomena
- A 33      16:15 – 18:15    S Fobau Physik  
Interaction with strong and short laser pulses
- A 34      16:15 – 18:15    S Fobau Physik  
Interaction with VUV and X-ray light
- A 35      16:15 – 18:15    S Fobau Physik  
Precision Spectroscopy of atoms and ions

## Molecular Physics Division (MO)

### Invited Talks

- MO 19.1    10:30 – 11:00    S HS 001 Biologie  
Optical spectroscopy of small metal clusters: a deeper look at  $\text{Au}_4^+$   
*•Marko Förstel, Wolfgang Schewe, Otto Dopfer*
- MO 21.1    14:00 – 14:30    S HS 001 Biologie  
Influence of Local and External Electric Fields on the Ultrafast Dynamics of Charge Pairs Photo-Generated in Poly-[3-Hexylthiophene] (P3HT)  
*Debkumar Rana, Tahirzeb Khan, Patrice Donfack, Vladislav Jovanov, Veit Wagner, •Arnulf Materny*

## Sessions

- MO 19 10:30 – 12:30 S HS 001 Biologie Cluster III
- MO 20 10:30 – 12:30 S HS 002 Biologie Atomic Physics, Molecular Physics, and Quantum Optics with X-ray FELs
- MO 21 14:00 – 16:00 S HS 001 Biologie Coupled Systems
- MO 22 16:15 – 18:15 S Foyer LLM Posters 3: Cluster, Strong Field Physics, and Experimental Techniques

## Mass Spectrometry Division (MS)

### Invited Talks

- MS 8.1 10:30 – 11:00 U A-Esch 2  
Penning-Trap Mass Spectrometry of the Heaviest Elements with SHIPTRAP  
•*Oliver Kaleja, Brankica Andjelić, Olesya Bezrodnova, Klaus Blaum, Michael Block, Stanislav Chenmarev, Premaditya Chhetri, Christian Droese, Christoph E. Düllmann, Martin Eibach, Julia Even, Sergey Eliseev, Pavel Filianin, Francesca Giacoppo, Stefan Götz, Yuri Gusev, Manuel Gutiérrez, Frank Herfurth, Fritz-Peter Hessberger, Nasser Kalantar-Nayestanaki, Jadambaa Khuyagbaatar, Jacques J.W. van de Laar, Mustapha Laatiaoui, Steffen Lohse, Natalia Martynova, Enrique Minaya-Ramirez, Andrew Mistry, Tobias Murböck, Yuri Novikov, Sebastian Raeder, Daniel Rodriguez, Fabian Schneider, Lutz Schweikhard, Peter Thirolf, Alexander Yakushev*
- MS 8.4 11:30 – 12:00 U A-Esch 2  
Commissioning of and Preparations for First Experiments at CRYRING@ESR  
•*Michael Lestinsky*

MS 9.1 14:00 – 14:30 U A-Esch 2  
Precision Spectroscopy of Boron Atoms  
•Bernhard Maaß, Jason Clark, Thomas Hüther,  
Phillip Imgram, Simon Kaufmann, Kristian König,  
Jörg Krämer, Jan Krause, Alessandro Lovato, Peter  
Müller, Krzysztof Pachucki, Mariusz Puchalski,  
Robert Roth, Rodolfo Sánchez, Guy Savard, Robert  
Wiringa, Wilfried Nörtershäuser

### Sessions

MS 8 10:30 – 12:30 U A-Esch 2  
Precision Mass Spectrometry

MS 9 14:00 – 16:00 U A-Esch 2  
Resonance Ionization Mass Spectrometry

## Quantum Optics and Photonics Division (Q)

### Invited Talks

Q 46.1 10:30 – 11:00 S HS 037 Informatik  
Controlling the flow of two-dimensional photon  
gases  
•Jan Klaers, Mario Vretenar, Klaas-Jan Gorter,  
David Dung, Christian Kurtscheid, Tobias Damm,  
Julian Schmitt, Frank Vewinger, Martin Weitz

Q 50.1 14:00 – 14:30 S HS 001 Chemie  
Quantum technologies enabled by dissipation  
•Hendrik Weimer

Q 55.1 14:00 – 14:30 S SR 112 Maschb.  
Color centers in diamond as novel atomic-  
scale sensors  
•Elke Neu

### Sessions

Q 43 10:30 – 12:00 S HS 1 Physik  
Quantum gases (Bosons)

Q 44 10:30 – 12:30 S HS 001 Chemie  
Quantum Information (Concepts and Methods)  
III

Q 45 10:30 – 12:15 S HS 002 Chemie  
Quantum Information (Quantum Communica-  
tion) II

- Q 46 10:30 – 12:15 S HS 037 Informatik  
Quantum Gases (Bosons) IV
- Q 47 10:30 – 12:15 S Gr. HS Maschb.  
Quantum Effects (QED) II
- Q 48 10:30 – 12:30 S Ex 04 E-Tech  
Quantum Optics II
- Q 49 14:00 – 16:15 S HS 1 Physik  
Quantum gases (Fermions)
- Q 50 14:00 – 16:00 S HS 001 Chemie  
Quantum Information (Concepts and Methods) IV
- Q 51 14:00 – 15:45 S HS 002 Chemie  
Quantum Information (Quantum Repeater) II
- Q 52 14:00 – 16:00 S HS 037 Informatik  
Quantum Gases (Bosons) V
- Q 53 14:00 – 16:00 S Gr. HS Maschb.  
Quantum Optics and Photonics III
- Q 54 14:00 – 16:15 S SR 111 Maschb.  
Precision Measurements and Metrology III
- Q 55 14:00 – 15:45 S SR 112 Maschb.  
Nano-Optics (Single Quantum Emitters) III
- Q 56 14:00 – 16:00 S Ex 04 E-Tech  
Quantum Optics III
- Q 57 16:15 – 18:15 S Fobau Physik  
Poster: Quantum Optics and Photonics III
- Q 58 16:15 – 18:15 S Atrium Informatik  
Poster: Quantum Optics and Photonics III

## Working Group "Young DPG" (AKjDPG)

### Sessions

- AKjDPG 5 10:30 – 12:30 U SR 124  
Hacky Hour – part 1
- AKjDPG 6 14:00 – 16:00 U SR 124  
Hacky Hour – part 2

## Working Group on Physics and Disarmament (AGA)

### Invited Talks

- AGA 2.1 10:30 – 11:30 U HS 3 Parkstr. 6  
Technological Demands and Institutional Arrangements for Verifying Nuclear Disarmament  
•*Thomas E. Shea*
- AGA 2.2 11:30 – 12:30 U HS 3 Parkstr. 6  
New approaches to verification in nuclear disarmament  
•*Pavel Podvig*
- AGA 3.1 14:00 – 15:00 U HS 3 Parkstr. 6  
North Korean Long-Range Ballistic Missiles and US Missile Defenses  
•*Ted Postol*
- AGA 4.1 16:15 – 17:15 U HS 3 Parkstr. 6  
Technical Challenges to the Verification of Nuclear Weapon Reductions and Controls  
•*Keir Allen*

### Sessions

- AGA 2 10:30 – 12:30 U HS 3 Parkstr. 6  
Verifying Nuclear Disarmament
- AGA 3 14:00 – 16:00 U HS 3 Parkstr. 6  
North Korea, Missile Defense and new Challenges for Arms Control
- AGA 4 16:15 – 18:15 U HS 3 Parkstr. 6  
Verification II: Nuclear Reductions, Nuclear Disarmament and Cyberspace

## Working Group on Information (AGI)

### Sessions

- AGI 3 10:30 – 12:30 U SR 124  
Hacky Hour – part 1
- AGI 4 14:00 – 16:00 U SR 124  
Hacky Hour – part 2

## **Exhibition of Scientific Instruments and Literature**

Campus Südstadt: ITMZ, MSF,  
10:00 – 18:30 Physik. Lehre, LLM

## **Max-von-Laue Lecture**

PV XV 18:30 – 19:30 U Audimax  
2100: A Climate-Space Odyssey  
*•Hans Joachim Schellnhuber*

# Friday, March 15, 2019

## Plenary Talks

- PV XVI 08:15 – 09:00 U Audimax  
Universal dynamics far from equilibrium  
•*Jörg Schmiedmayer*
- PV XVII 09:00 – 09:45 U Audimax  
Controlling and imaging molecules inside  
helium nanodroplets with laser pulses  
•*Henrik Stapelfeldt*

## Symposium Novel Perspectives in Quantum Metrology (SYQM)

### Invited Talks

- SYQM 1.1 10:30 – 11:00 U Audimax  
Robust symmetry-protected metrology with a  
topological phase  
•*Stephen Bartlett, Gavin Brennen, Akimasa  
Miyake*
- SYQM 1.2 11:00 – 11:30 U Audimax  
Diamond quantum sensors for nanoscale mag-  
netic resonance  
•*Fedor Jelezko*
- SYQM 1.3 11:30 – 12:00 U Audimax  
Quantum metrology for subdiffraction incoher-  
ent optical imaging  
•*Mankei Tsang*
- SYQM 1.4 12:00 – 12:30 U Audimax  
Learning Hamiltonians using quantum and  
classical resources  
•*Nathan Wiebe*

### Session

- SYQM 1 10:30 – 12:30 U Audimax  
Symposium: Novel Perspectives in Quantum  
Technologies

## Atomic Physics Division (A)

### Invited Talks

- A 36.1 10:30 – 11:00 S HS 3 Physik  
Attoclock with tailored polarization  
*Nicolas Eicke, •Manfred Lein*
- A 36.2 11:00 – 11:30 S HS 3 Physik  
Chiral fragmentation of a planar molecule  
*•Kilian Fehre, Sebastian Eckart, Maksim Kunitski, Martin Pitzer, Stefan Zeller, Christian Janke, Daniel Trabert, Jonas Rist, Miriam Weller, Alexander Hartung, Lothar Schmidt, Till Jahnke, Robert Berger, Reinhard Dörner, Markus Schöffler*
- A 36.3 11:30 – 12:00 S HS 3 Physik  
Simple and robust control of resonant few-photon ionization  
*•Ulf Saalmann*

### Session

- A 36 10:30 – 12:15 S HS 3 Physik  
Quantum dynamics in tailored waveforms

## Molecular Physics Division (MO)

### Invited Talk

- MO 23.1 10:30 – 11:00 S HS 001 Biologie  
Efficient charge transfer by electron transfer mediated decay mechanism  
*•Kirill Gokhberg*

### Sessions

- MO 23 10:30 – 12:30 S HS 001 Biologie  
Molecular Theory
- MO 24 10:30 – 12:30 S HS 002 Biologie  
Large and Reactive Systems

## Quantum Optics and Photonics Division (Q)

### Invited Talk

- Q 60.1    10:30 – 11:00    S HS 037 Informatik  
Polaronic effects in condensed matter and  
atomic systems  
•Richard Schmidt

### Sessions

- Q 59    10:30 – 12:45    S HS 001 Chemie  
Quantum Information (Concepts and Methods) V
- Q 60    10:30 – 12:30    S HS 037 Informatik  
Quantum Gases (Bosons and Fermions) II
- Q 61    10:30 – 12:30    S Gr. HS Maschb.  
Quantum Effects (Cavity QED)
- Q 62    10:30 – 12:45    S SR 111 Maschb.  
Optomechanics
- Q 63    10:30 – 12:30    S SR 211 Maschb.  
Ultracold Atoms (Trapping and Cooling)

## Working Group on Physics and Disarmament (AGA)

### Sessions

- AGA 5    10:30 – 11:30    U HS 3 Parkstr. 6  
Nuclear Archeology and Fissile Materials
- AGA 6    11:30 – 12:30    U HS 3 Parkstr. 6  
Seismic Verification
- AGA 7    12:30 – 13:00    U HS 3 Parkstr. 6  
Physics and Peace
- AGA 8    13:00 – 13:45    U HS 3 Parkstr. 6  
Annual General Meeting of the Working Group  
on Physics and Disarmament

## Exhibition of Scientific Instruments and Literature

Campus Südstadt: ITMZ, MSF,  
10:00 – 16:00    Physik. Lehre, LLM

# Index of Exhibitors Rostock 2019

Location: University of Rostock, Campus Südstadt  
Buildings: ITMZ – Foyer/Atrium, Albert-Einstein-Str. 22  
MSF – Erdgeschoss/Obergeschoss, Albert-Einstein-Str. 2  
Phys.-Lehre (Seminargebäude) – Erdgeschoss, Albert-Einstein-Str. 24  
LL&M – Erdgeschoss, Albert-Einstein-Str. 25

*Opening Hours Exhibition: Wednesday – Thursday 10:00 – 18:30, Friday 10:00 – 16:00, free entrance*

<b><u>Exhibitor</u></b>	<b><u>Location</u></b>	<b><u>Stand No.</u></b>
<b>AHF analysentechnik AG</b> Kohlplattenweg 18, 72074 Tübingen <i>Optische Filter und Lichtquellen</i>	<b>MSF unten</b>	<b>19</b>
<b>Ametek, TMC GmbH</b> Rudolf-Diesel-Straße 16, 40670 Meerbusch <i>Optische Tische, aktive und passive Schwingungsisolationsysteme</i>	<b>MSF oben</b>	<b>28</b>
<b>attocube systems AG</b> Königinstraße 11 A, Rückgebäude EG, 80539 München <i>Nanopositionierer, Tieftemperatur-Mikroskopie, Kryostaten</i>	<b>MSF unten</b>	<b>23</b>
<b>BeamXpert GmbH</b> Max-Planck-Straße 3, 12489 Berlin <i>Die BeamXpert GmbH vertreibt aktuell ausschließlich das Produkt BeamXpertDESIGNER, eine Software zur Echtzeitsimulation von Laserstrahlung in optischen Systemen.</i>	<b>LLM</b>	<b>45</b>
<b>Bernhard Halle Nachfl. GmbH</b> <b>Optische Werkstätten</b> Hubertusstraße 10, 12163 Berlin <i>Polarisationsoptik, Linsensysteme, Optische Komponenten</i>	<b>ITMZ</b>	<b>16</b>
<b>Cryoandmore Budzylek GbR</b> Fuggerstraße 9a, 41468 Neuss <i>4K Pulse Tube Cooler / GM Refrigerators / Ultra Low Vi-</i>	<b>ITMZ</b>	<b>5</b>

*bration Cryostats / Cryogenic Systems / LHe & LN2 Level Sensors / LN2 Generators / Superconducting Magnets/ UHV Systems / Hall & Seebeck Systems / 77K Stirling Cooler / Cryogenic Spares*

**CryoVac GmbH & Co. KG**                      **MSF unten**                      **24**  
Heuserweg 14, 53842 Troisdorf  
*Helium-Bad und Verdampferkryostate, Temperaturmess- und Regelgeräte*

**FEMTO Messtechnik GmbH**                      **PhysikLehre**                      **34**  
Klosterstraße 64, 10179 Berlin  
*Rauscharme Signalverstärker, Kompakte Lock-In Verstärkermodule, empfindliche Photoreceiver*

**Fraunhofer IOF Department Strategy, Marketing, Communication**                      **MSF unten**                      **22**  
Albert-Einstein-Straße 7, 07745 Jena  
*Ausbildungs-, Forschungs- und Berufsmöglichkeiten im Bereich Photonik (Fraunhofer IOF, Leistungszentrum Photonik, 3Dsensation), Quantentechnologie (QUILT), Max Planck School of Photonics (M.Sc.+PhD)*

**GWU-Lasertechnik Vertriebsgesellschaft mbH**                      **PhysikLehre**                      **37**  
Bonner Ring 9, 50374 Erftstadt  
*Abstimmbare Lasersysteme & OPOs; Kristalle (Laser, nicht-lineare); Echelle-Spektrografen; Fiberlaser*

**Hamamatsu Photonics Deutschland GmbHLLM**                      **46**  
Arzbergerstraße 10, 82211 Herrsching  
*Photomultiplier Tubes & Modules, MCP, Hybriddetektoren, MPPC, MPPC Module und weitere Halbleiterdetektoren*

**HOLOEYE Photonics AG**                      **LLM**                      **41**  
Albert-Einstein-Straße 14, 12489 Berlin  
*HOLOEYE is providing products and services in the fields of Spatial Light Modulators for phase modulation, customized and standard Diffractive Optical Elements and LCOS microdisplay components.*

- HORIBA Jobin Yvon GmbH** **ITMZ** **8**  
 Neuhofstraße 9, 64625 Bensheim  
*Ultrakurzpulslaser von Einzelschuss bis 25 MHz, optische Gitter, Puls Kompressionsgitter, Raman- und Fluoreszenzspektrometer, VUV-Monochromatoren und -spektrographen, CCD-Kameras, Ellipsometer*
- Hositrad Deutschland** **PhysikLehre** **39**  
 Lindnergasse 2, 93047 Regensburg  
*CF, KF, ISO, UHV-Vakuumbauteile, elektrische Durchführungen, Membranbalgen, special Products*
- Institute of Physics Publishing** **ITMZ** **6**  
 Temple Circus, Temple Way, Bristol, BS1 6BE, United Kingdom  
*Publishers of journals, magazines, community websites*
- ISEG Spezialelektronik GmbH** **PhysikLehre** **36**  
 Bautzner Landstraße 23, 01454 Radeberg / Rossendorf  
*Hochspannungsversorgungen, Hochspannungsnetzgeräte, HV-DC/DC-Konverter*
- Jäger Computergesteuerte Messtechnik GmbH** **PhysikLehre** **35**  
 Rheinstraße 4, 64653 Lorsch  
*ADwin-Echtzeitsysteme für schnelle, freiprogrammierbare Steuerungs- und Regelaufgaben.*
- kiutra GmbH** **LLM** **42**  
 Ainmillerstraße 20, 80801 München  
*Cryogen-free research cryostats for the Kelvin and sub-Kelvin temperature range: Closed-cycle cryocoolers, ADR, and Continuous ADR*
- Laser Quantum GmbH** **ITMZ** **13**  
 Max-Stromeyer-Straße 116, 78467 Konstanz  
*fs ti:sapphire lasers with repetition rates from 80 MHz to 10 GHz, THz-TDS systems, ASOPS engine, pump lasers for ti:sapphire oscillators, high power cw lasers at 532, 660, 1064nm for laser cooling*

**M Squared Lasers Ltd** **MSF unten** **21**  
 West of Scotland Science Park, Maryhill Road, Glasgow, G20 0SP, United Kingdom  
*Award winning photonics technology company developing advanced laser platforms (DUV - THz and CW - fs) to further scientific research. M Squared also collaborates with leading universities, institutions and industries globally*

**mechOnics AG** **PhysikLehre** **29**  
 Unnützstraße 2 b, 81825 München  
*Mikropositionierer mit Piezoträgheitsantrieb und Schrittmotor, Piezo- und Schrittmotorsteuerungen*

**Menlo Systems GmbH** **ITMZ** **1+4**  
 Am Klopferspitz 19a, 82152 Martinsried  
*Frequenzkämme, fs laser, THz Systeme*

**MRC Systems GmbH**  
**Medizintechnische Systeme** **ITMZ** **10**  
 Hans-Bunte-Straße 10, 69123 Heidelberg  
*Laserstrahlstabilisierung*

**Newport Spectra-Physics GmbH** **ITMZ** **9**  
 Guerickeweg 7, 64291 Darmstadt  
*Laser, Oriel Produkte, feinm. Komponenten, motor. Positionierer, Schwingdämpfung*

**Owis GmbH Feinmechanische und optische Systemtechnik** **PhysikLehre** **33**  
 Im Gaisgraben 7, 79219 Staufen i. Br.  
*Strahlführungssysteme, Positioniersysteme*

**Qioptiq Photonics GmbH & Co. KG** **PhysikLehre** **32**  
 Königsallee 23, 37081 Göttingen  
*Präzisionsoptik und Mechanik, Faseroptik, Aufbausysteme, Optische Tische*

**Quantel** **LLM** **44**  
 2 Bis avenue du Pacifique, BP 23, 91940 LES ULIS cedex, France  
*Lasers (fiber, solid state, tunable, diodes)*

<b>qutools GmbH</b>	<b>ITMZ</b>	<b>15</b>
Kistlerhofstraße 70, Geb. 88, 81379 München <i>Produkte zur Quanteninformationsverarbeitung, z. B. verschränkte Photonenpaarquellen</i>		
<b>Radiant Dyes Laser Acc. GmbH</b>	<b>ITMZ</b>	<b>11</b>
Friedrichstraße 58, 42929 Wermelskirchen <i>Dye Laser cw &amp; gepulst, Diodenlaser, Optomechanik, Laserzubehör, Lasertraining und Service</i>		
<b>Sacher Lasertechnik GmbH</b>	<b>MSF unten</b>	<b>20</b>
Rudolf-Breitscheid-Straße 1-5, 35037 Marburg/Lahn <i>Durchstimmbare Laserdioden, Laser Controller</i>		
<b>SAES Getters S.p.A.</b>	<b>MSF oben</b>	<b>27</b>
Viale Italia, 77, 20020 Lainate (Milan), Italy <i>UHV NEG-Pumpen, Alkalimetall-Dispenser, Hochvakuum-pumpen, Getter</i>		
<b>Schäfter + Kirchhoff GmbH Optics, Metrology and Photonics</b>	<b>ITMZ</b>	<b>17</b>
Kieler Straße 212, 22525 Hamburg <i>Faserkollimatoren, Faserkabel, Fiberportcluster, Polarizationsanalysatoren</i>		
<b>Single Quantum B.V.</b>	<b>ITMZ</b>	<b>12</b>
van der Waalsweg 8, 2628CH Delft, Netherlands <i>Optics</i>		
<b>Sirah Laser- &amp; Plasmatechnik GmbH</b>	<b>ITMZ</b>	<b>7</b>
Heinrich-Hertz-Straße 11, 41516 Grevenbroich <i>Durchstimmbare Lasersysteme: gepulste ns-/ps Farbstoff-Laser-systeme, cw-Farbstoff-Lasersysteme, gepulste ns- und cw-Ti:Saphir-Lasersysteme, cw-Frequenzverdoppler, Farbstoffe, Optik</i>		
<b>Springer-Verlag GmbH</b>	<b>MSF oben</b>	<b>25</b>
Tiergartenstraße 17, 69121 Heidelberg <i>Wissenschaftliche Bücher und Zeitschriften</i>		
<b>Stable Laser Systems Inc.</b>	<b>LLM</b>	<b>40</b>
4946 63rd St, Boulder, CO 80301, USA <i>Stable Laser Systems sells hardware and systems for laser frequency stabilization</i>		

**Swabian Instruments GmbH      PhysikLehre      38**  
Frankenstraße 39, 71701 Schwieberdingen  
*Scientific instrumentation. Time to digital convertors,  
pulse pattern generator.*

**TEM Messtechnik GmbH      PhysikLehre      31**  
Großer Hillen 38, 30559 Hannover  
*Laserelektronik, Messtechnik, Entwicklung*

**THORLABS GmbH      ITMZ      2+3**  
Hans-Boeckler-Straße 6, 85221 Dachau  
*Optische & optomechanische Komponenten, Test &  
Measurement Systeme, optische Tische und Vibration-  
skontrolle, Nanopositionierungen, Lichtquellen sowie Im-  
aging, Mikroskopie & Life Science Komponenten*

**TOPTICA Photonics AG      ITMZ      14+18**  
Lochhamer Schlag 19, 82166 Gräfelfing / München  
*Tunable Diode Lasers with New Digital Control Electron-  
ics, Amplified and Frequency- Converted Diode Lasers,  
Femtosecond/Picosecond Fiber Lasers, Frequency  
Comb, Wavelength Meters*

**von Gegerfelt PHOTONICS GmbH      LLM      43**  
Hermann-Löns-Straße 4, 64625 Bensheim  
*Laser, DPSS-Laser, Asphärische Optiken, Optische Kom-  
ponenten*

**Zurich Instruments AG**  
**Marketing and Sales      MSF oben      26**  
Technoparkstrasse 1, 8005 Zurich, Switzerland  
*Lock-in amplifiers, phase-locked loops, arbitrary wave-  
form generator, impedance analyzers, digitizers, boxcar  
averagers*

#DPGFR19

# DPG Fall Meeting

of the Deutsche Physikalische Gesellschaft

## Quantum Science and Information Technologies

**Joint Meeting of the Atomic, Molecular, Plasma  
Physics and Quantum Optics Section (SAMOP)  
Condensed Matter Section (SKM)  
Matter and Cosmos Section (SMuK)**

The German Physical Society (DPG) is launching a new meeting format dedicated to a research theme identified by its three sections. The first DPG Fall Meeting addresses Quantum Science in its relation to Information Technologies, and provides a forum for cross-disciplinary discourse between condensed matter and AMO physics, information science and quantum technologies, applied and fundamental research. Rapid developments in a priori distinct fields, from artificial intelligence to the first small-scale quantum computation platforms, dedicated efforts in academia as well as in industrial research, and an intensifying public debate on the diverse aspects of these truly revolutionary emerging technologies, necessitates an accentuated and concerted scientific exchange across disciplines. We look forward to bringing together key players from academia to industry, senior and junior researchers, and the interested public, to engage in this endeavour.

**September  
23-27, 2019  
University of  
Freiburg**



**Local Organiser:**

Prof. Dr. Andreas Buchleitner  
Dept. for Quantum Optics and Statistics  
Physikalisches Institut  
Albert-Ludwigs-Universität Freiburg  
freiburg19@dpg-tagungen.de

**Conference Venue:**

Albert-Ludwigs-Univ. Freiburg  
Kollegiengebäude I  
Platz der Universität 3  
79098 Freiburg

**freiburg19.dpg-tagungen.de**

# Exhibition of Scientific Instruments and Literature

## ITMZ - Erdgeschoss

Fläche zur Nutzung für Aufsteller, Tische, etc.

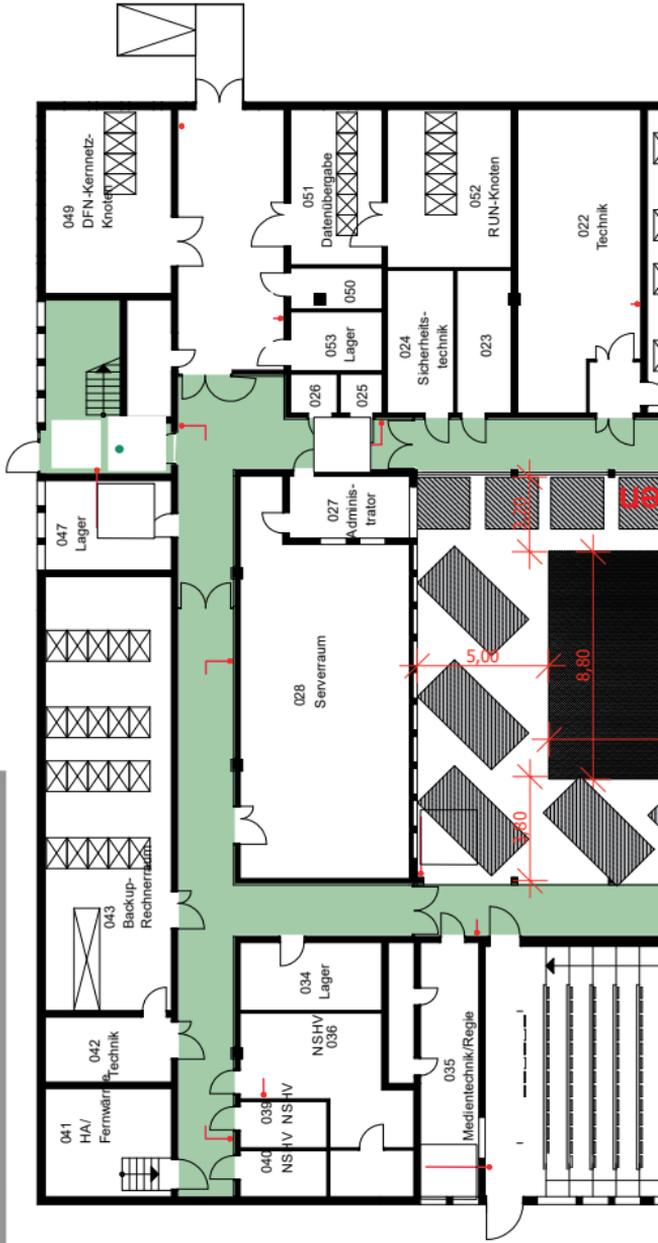


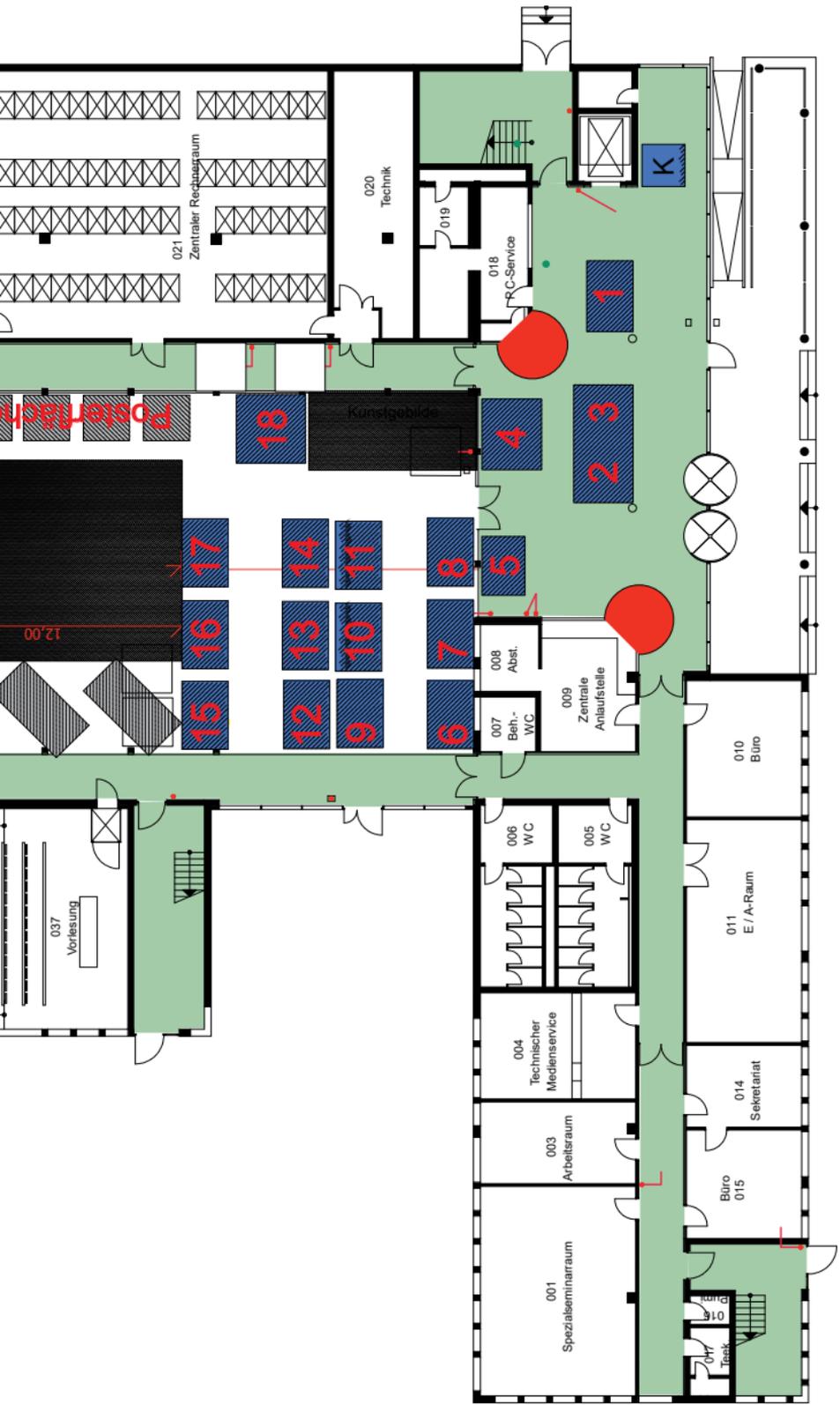
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**K** Kaffeestand

Universität Rostock  
ITMZ - Erdgeschoss  
Albert Einstein Str.22,  
18059 Rostock





Quelle: Universität Rostock

# Exhibition of Scientific Instruments and Literature

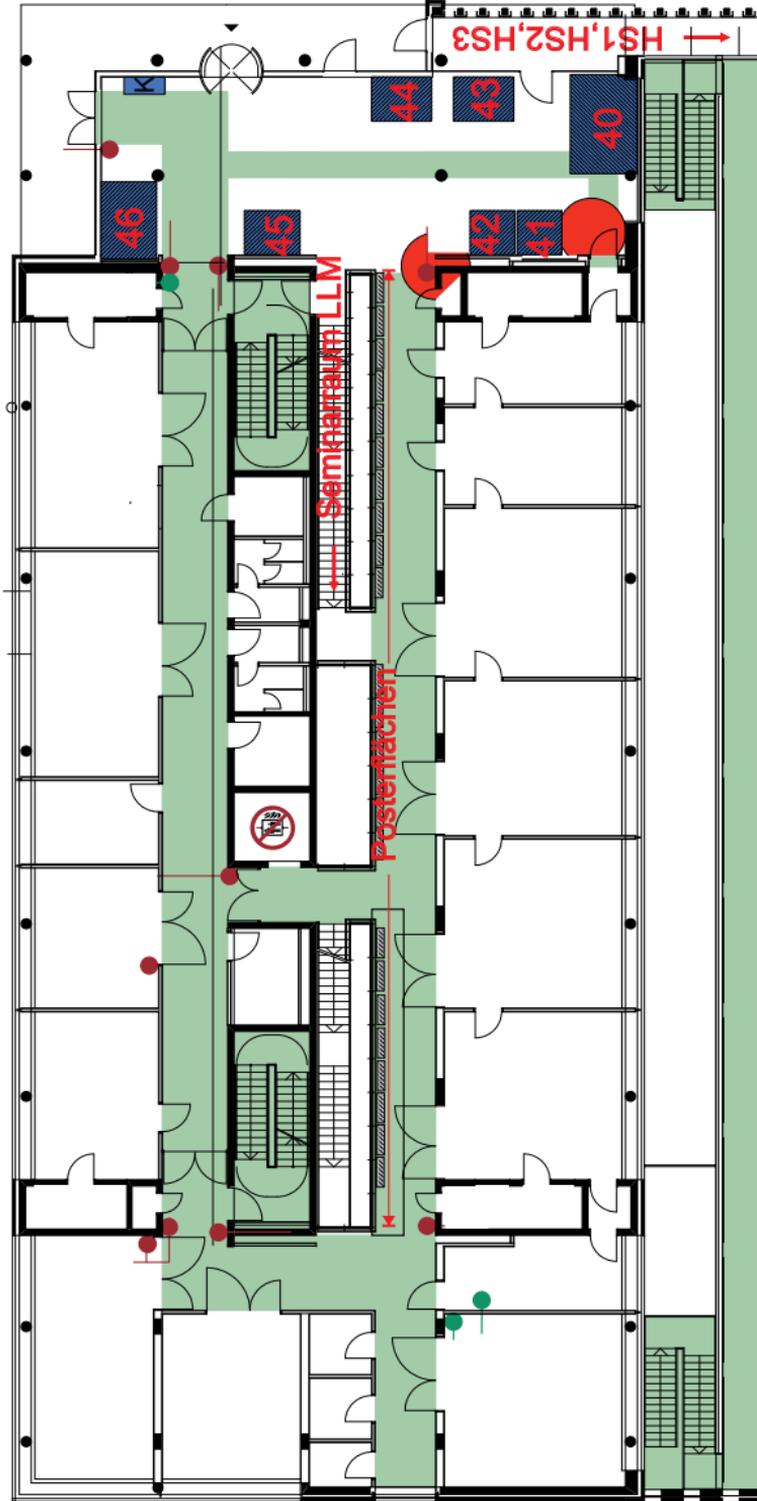
## LL&M - Erdgeschoss

**oben:**  
Universität Rostock  
LL&M - Erdgeschoss  
Albert Einstein Str. 25, 18059 Rostock

**unten:**  
Universität Rostock  
Physik Seminargebäude - Erdgeschoss  
Albert Einstein Str. 24, 18059 Rostock

Fläche zur Nutzung für Aufsteller,  
Tische, etc.

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# Physik Seminargebäude - Erdgeschoss

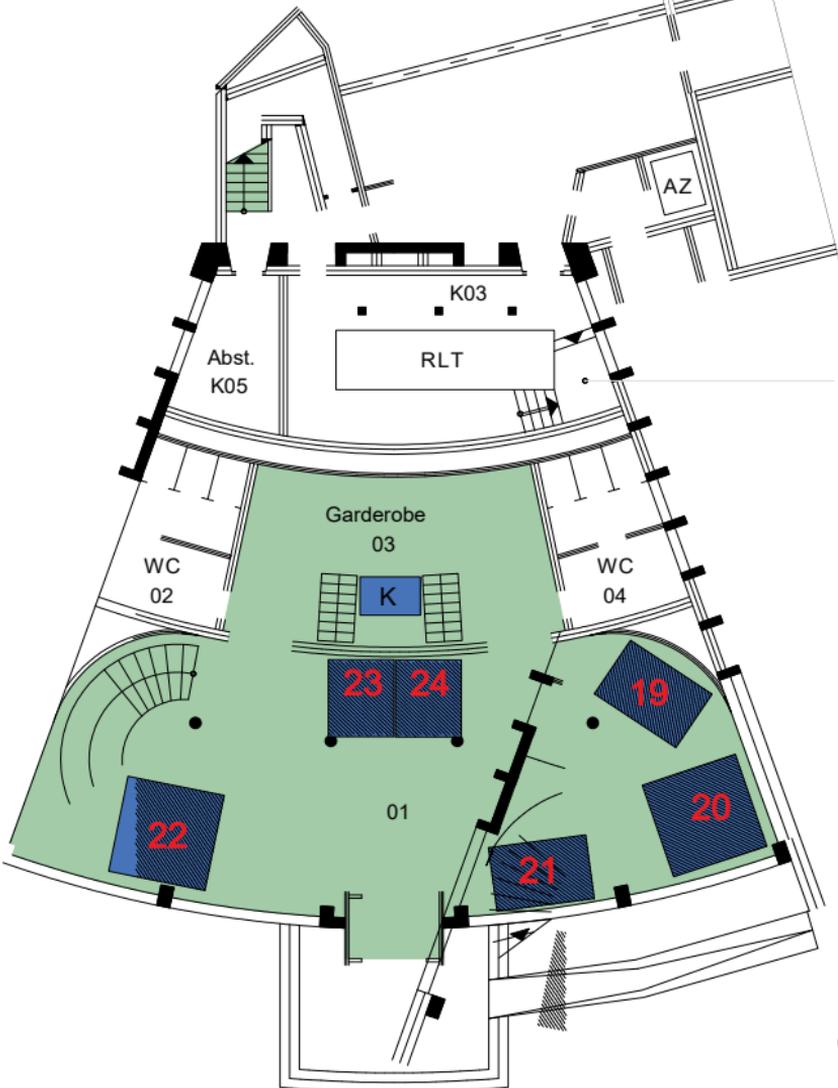


Quelle: Universität Rostock

# Exhibition of Scientific Instruments and Literature

## MSF - Erdgeschoss

<p><b>links:</b> Universität Rostock Hörsaal MSF - Erdgeschoss Albert Einstein Str. 2, 18059 Rostock</p> <p><b>rechts:</b> Universität Rostock Hörsaal MSF - Obergeschoss Albert Einstein Str. 2, 18059 Rostock</p>	 <p>Fläche zu Tische, et</p>
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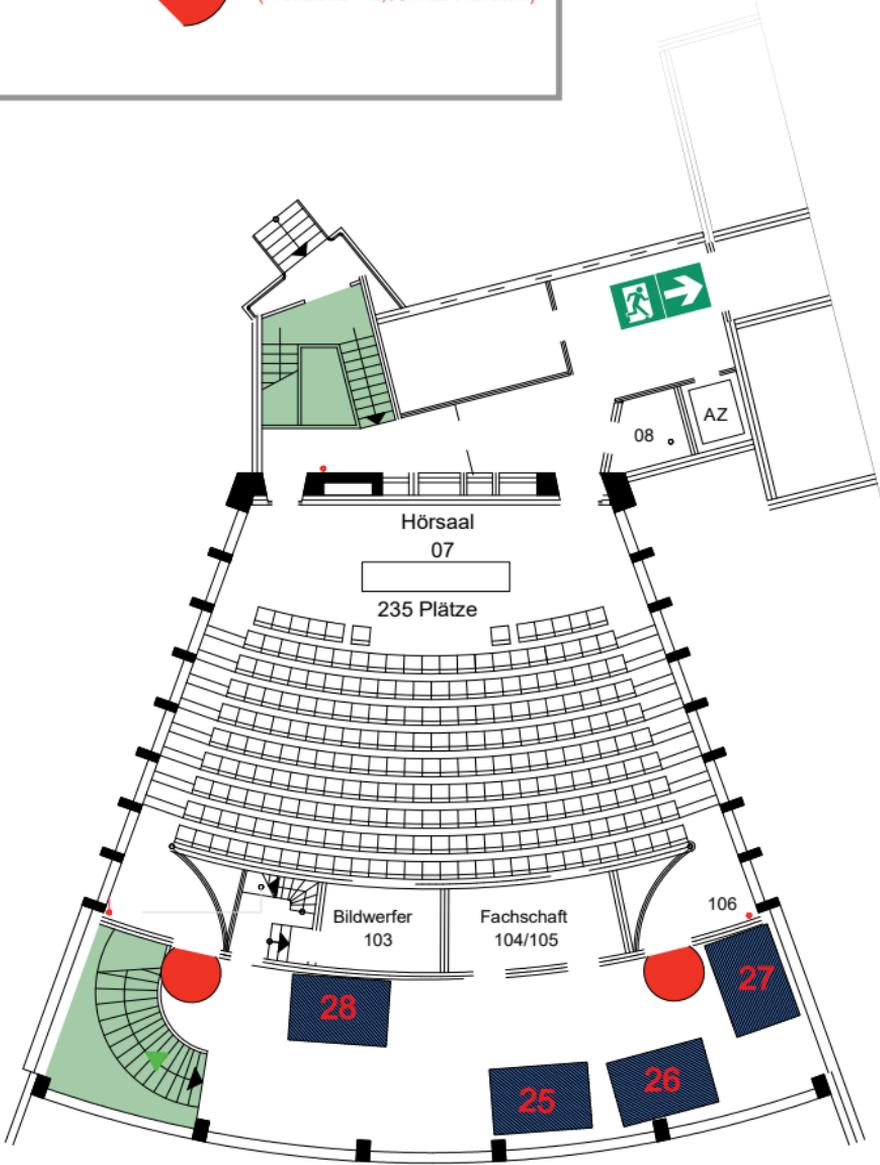
Quelle: Univer

# MSF - Obergeschoss

ur Nutzung für Aufsteller,  
tc.



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Physikzentrum Bad Honnef



Anmeldung:

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Deutsche Physikalische Gesellschaft  $\Phi$  DPG

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