

Deutsche Physikalische Gesellschaft



**DPG-Tagung
(DPG Meeting)**

of the Condensed Matter Section (SKM)

together with the Division
Quantum Information

and the Working Groups
Equal Opportunities

Young DPG

Young Leaders in Physics

Short Programme

4 – 9 September 2022

Universität Regensburg



Impressum:

Deutsche Physikalische Gesellschaft e. V.
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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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Dear conference guests,

As President of the German Physical Society, I would like to welcome you to this meeting of the Condensed Matter Section (SKM) with the participating divisions and working groups involved on the campus of the University of Regensburg.

With around 55,000 members, the DPG is the world's largest physics society. It is also one of the most important international communication platforms for research and education in the field of physics and promotes the exchange of knowledge in physics, especially with its conferences.

It is therefore invaluable that this DPG conference once again enables direct encounters. After all, motivation for physics, inspiration and creativity thrive on personal dialogue, on a culture of discourse that must always be cultivated and promoted – this culture is at the same time indispensable for physics with the primacy of basic research, whose findings are not only important for physics, but also for our society.

At the same time, this conference promotes the public visibility of basic research in a special way. In this year, UNESCO's "International Year of Basic Research for Sustainable Development", the conference is an important contribution by the DPG to draw attention to the importance of basic research, which is often underestimated, at least by the general public - especially as an important component and for the further development of our society, our culture! It is the results of fundamental research that serve as the basis for social decisions and innovations and help to overcome the great challenges facing humanity.

I would like to express my sincere thanks to all those involved for the success of this DPG Conference. First of all, I would like to thank the participating DPG divisions and working groups for organising the scientific programme. My special appreciation also goes to the local organising committee at the University of Re-

gensburg, Prof. Dieter Weiss, Institute of Experimental and Applied Physics. I would like to thank the University of Regensburg for its support and the Wilhelm and Else Heraeus Foundation for once again generously supporting all DPG conferences. I would like to thank the DPG Head Office for its support of all DPG (Spring) Meetings.

A handwritten signature in blue ink, consisting of the name 'Joachim Ullrich' written in a cursive style.

Prof. Dr. Joachim Ullrich

President

Deutsche Physikalische Gesellschaft e.V.

Organisation

Organiser

Deutsche Physikalische Gesellschaft e. V.
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Phone +49 (0) 2224 9232-0
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E-Mail dpg@dpg-physik.de
Homepage www.dpg-physik.de

Local Organiser

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E-Mail dieter.weiss@physik.uni-regensburg.de

Local Secretary

Cordula Böll M.A.
Universität Regensburg
Universitätsstr. 31, 93040 Regensburg
E-Mail dpg-conference@uni-regensburg.de

Scientific Organisation

Chair of the Condensed Matter Section (SKM)

Prof. Dr. Martin Wolf
Fritz-Haber-Institut der MPG
Abt. Physikalische Chemie
Faradayweg 4-6, 14195 Berlin
E-Mail wolf@fhi-berlin.mpg.de

Chairs of the Participating Divisions

- (BP) Biological Physics
 - Prof. Dr. Joachim Rädler
(raedler@lmu.de)
- (CPP) Chemical and Polymer Physics
 - Prof. Dr. Peter Müller-Buschbaum
(muellerb@ph.tum.de)
- (DS) Thin Films
 - Priv.-Doz. Dr. Patrick Vogt
(patrick.vogt@physik.tu-berlin.de)
- (DY) Dynamics and Statistical Physics
 - Prof. Dr. Markus Bär
(markus.baer@ptb.de)

- (HL) Semiconductor Physics
– Prof. Dr. Axel Lorke
(*axel.lorke@uni-due.de*)
- (KFM) Crystalline Solids and their Microstructures
– Prof. Dr. Theo Scherer
(*theo.scherer@kit.de*)
- (MA) Magnetism
– Prof. Dr. Heiko Wende
(*heiko.wende@uni-due.de*)
- (MM) Metal and Material Physics
– Prof. Dr. Christian Elsaesser
(*christian.elsaesser@iwmm.fraunhofer.de*)
- (O) Surface Science
– Prof. Dr. Karsten Reuter
(*reuter@fhi-berlin.mpg.de*)
- (QI) Quantum Information
– Prof. Dr. Otfried Gühne
(*otfried.guehne@uni-siegen.de*)
- (SOE) Physics of Socio-economic Systems
– Priv.-Doz. Dr. Jens C. Claussen
(*claussen@inb.uni-luebeck.de*)
- (TT) Low Temperature Physics
– Prof. Dr. Elke Scheer
(*elke.scheer@uni-konstanz.de*)
- (VA) Vacuum Science and Technology
– Dr.-Ing. Stylianos Varoutis
(*stylianos.varoutis@kit.edu*)

Chairs of the Participating Working Groups

- (AKC) Equal Opportunities
– OStR Agnes Sandner
(*akc@dpg-physik.de*)
- (AKjDPG) Young DPG
– Matthias Dahlmanns
(*@jdpg.de*)
- (AGyouLeaP) Young Leaders in Physics
– Dr. Tobias Heindel
(*tobias.heindel@tu-berlin.de*)
– Dr. Doris Reiter
(*Doris.Reiter@tu-dortmund.de*)

Symposia

- SYED – Entanglement Distribution in Quantum Networks
- SYES – Frontiers of Electronic-Structure Theory: Focus on Artificial Intelligence Applied to Real Materials

- SYNM – From Physics and Big Data to the Design of Novel Materials
- SYOP – Frontiers of Orbital Physics: Statics, Dynamics, and Transport of Orbital Angular Momentum
- SYPQ – High Yield Devices for Photonic Quantum Implementations
- SYQM – Complexity and Topology in Quantum Matter
- SYSD – SKM Dissertation Prize
- SYSM – Interplay of Substrate Adaptivity and Wetting Dynamics from Soft Matter to Biology
- SYSO – Collective Social Dynamics from Animals to Humans
- SYUK – United Kingdom as Guest of Honor

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 **3.640** contributions:

11	Plenary talks
1	Evening talk
1	Ceremonial talk
9	Prize talks
4	Lunch talks
49	Topical talks
11	Tutorials
186	Invited talks
2.245	Contributed talks
1.121	Posters
2	Discussions

Frühjahrstagung

26. - 31.03.2023 in Dresden

Sektion Kondensierte Materie (SKM)

Biologische Physik
Chemische Physik und Polymerphysik
Dünne Schichten
Dynamik und Statistische Physik
Halbleiterphysik
Kristalline Festkörper und deren Mikrostruktur
Magnetismus
Metall- und Materialphysik
Oberflächenphysik
Physik sozio-ökonomischer Systeme
Tiefe Temperaturen
Vakuumphysik und Vakuumtechnik

Arbeitskreis Chancengleichheit
Arbeitskreis jDPG
Arbeitsgruppe young Leaders in Physics

Tutorien

Industrie- und Buchausstellung

**Save the
date!**

Deadline für Abstract-Einreichung: 01.12.2022

Örtlicher Tagungsleiter:

Prof. Dr. Jochen Geck
Institut für Festkörper- und
Materialphysik
TU Dresden
01062 Dresden

Tagungsort:

TU Dresden
Hörsaalzentrum
Bergstraße 64
01069 Dresden

Sponsors of the DPG Meeting Regensburg 2022

Premium Sponsor:



Main Sponsors:



Sponsors:



Please also note the advertisements of our sponsors starting on page 101

Information for Participants

The conference will be held September 4 – 9, 2022.

Conference Information

Conference Venue

University of Regensburg
Universitätsstraße 31
93053 Regensburg

The central activities like registration etc. will take place in the central building of the University of Regensburg, which includes the Main Lecture Hall (Audimax), Universitätsstraße 31. For a detailed map of the campus and the buildings please see the end of this booklet.

Parking at Universität Regensburg

Please note: The underground car parks are closed due to renovation. Please use the new parking area near BioPark and the parking lots between UR and OTH. There are no parking fees.

Please do not park in areas set aside for special users (“reservierte Stellplätze”) or in handicapped parking areas without a special parking permit. If you do, you may be towed away (with costs). Towed vehicles will be taken to the alternative car park near the building of Chemistry and Pharmacy. It can be reached through the street “Am BioPark”. To reclaim your towed vehicle, please telephone the towing service on +49 (0) 172 8128601. You will be provided with a lock code so you can retrieve your car.

Transportation



Regensburg offers a very good transportation infrastructure. **The conference ticket printed on your conference name tag as well as on your payment confirmation will authorize you to use all buses of the public transport system (RVV)**

in Regensburg from September 4 to 9 in the fare zone 1 for free.

You can reach the **bus stop “Universität”** by the bus lines 2, 4, 6 and 11. Please note: Line 4 takes a different route and does not stop at the main station.

Conference Office – Information Desk

The conference office and the information desk are located in the foyer of the Main Lecture Hall (Audimax H1). The opening hours are:

		Registration	Info Desk
Sunday	Sep 4	15:00 – 19:00	12:00 – 20:00
Monday	Sep 5	07:30 – 18:00	07:30 – 22:00
Tuesday	Sep 6	08:00 – 16:00	08:00 – 22:00
Wednesday	Sep 7	08:00 – 16:00	08:00 – 22:00
Thursday	Sep 8	08:00 – 16:00	08:00 – 22:00
Friday	Sep 9	08:00 – 12:00	08:00 – 15:00

To contact the information desk during the opening hours call +49 (0)941-943 2530.

You will receive the printed short programme and your name tag at the conference office. **The name tag must be worn visibly during the entire conference.** With your name tag you will receive a receipt for your conference fee, the conference ticket for public transport and free coffee at our coffee corners.

The organisers, staff of the conference desk, and the student assistants will be identifiable by coloured name tags and Φ -T-shirts. Please contact them if you have any questions. Do not hesitate to inquire about all necessary information concerning the conference, orientation in Regensburg, accommodation, restaurants, going out, and cultural events at the information desk located in the foyer of the Main Lecture Hall.

Lost and found property

You can bring found items to the information desk in the foyer of the Audimax. There you can also get your lost property back.

Cloakroom

Participants are asked to look carefully after their wardrobe, valuables, laptops, and other belongings. The organisers decline any liability. You will find a cloakroom in the basement of the Main Lecture Hall (Audimax). The opening hours will be announced. Please note that there is no possibility to store luggage!

Allocation of the Lecture Halls

H1-H10, H22, H23	Main Lecture Hall
H11-H17	Law and Economy Building
H18-H21	Multi-purpose Building
H31, H32	Mathematics Building
H33-H36	Physics Building
H37-H39	Pre-clinical Medicine Building
H43-H48	Chemistry & Pharmacy Building
S051-S054	Ostbayer. Techn. Hochschule (OTH) / University of Applied Sciences (OTH)

Plenary Talks, joint Symposia

H1 (Audimax), H2

Lunch Talks

H2

Award Ceremony, Evening Talks

H1 (Audimax)

Job Market

Kunsthalle (Foyer Audimax, 1st floor)

Registration Desk

Foyer Audimax (Main Lecture Hall)

Information Desk

Foyer Audimax (Main Lecture Hall)

EinsteinSlam

H1 (Audimax)

With the DPG-App through the DPG Meeting!

The updated DPG-App is ready-to-use and contains additional functions/features: In addition to the option of target groups, the electronical programme booklets for DPG Conferences (E-VERHANDLUNGEN) are accessible and it is possible to compile a „favorite list“ regarding events one wants to attend. Just download the DPG-App for Android or iOS now and utilize the supplemental offerings. You will find more information under <https://www.dpg-physik.de/service/dpg-app.html>.

WIFI

The University of Regensburg is member of the eduroam-network. Users from eduroam institutions, who have registered for eduroam, can use WIFI at the University of Regensburg without local registration in Re-

gensburg. Please ask the computer center/network administration of your home institution for eduroam-registration. Eduroam in Regensburg is possible with WLAN SSID eduroam.

In addition to eduroam WIFI BayernWLAN is offered without prior registration. Furthermore you will have access with StudiWLAN (not at the OTH Regensburg!). Login required:

“RZ Account”: dpg2022

“RZ Password”: dpg2022

LAN

A few workstations for guests are available in the central library for emergencies. Participants sign up directly at the information desk of the central library at th UR! Opening hours: Mo-Fr 10:00 – 14:00.

Printing service „Copy & Paper“

The copyshop at the Forum (Monday to Thursday 08:00-16:00, Friday 08:00-13:00) offers office supplies and printing service up to DIN A0 paper size. You are welcome to print out data from your USB stick or send the copyshop the data in pdf format with the exact details by email: uni@copyandpaper.de. Please note: It is not possible to print posters in DIN A0 format directly at the shop - the printing service needs one day in advance!

Presentation

Scientific presentations will be held either orally or by poster. Presentations with a German abstract will be given in German.

Oral Presentation

Lecturers are requested to provide their presentations electronically. All lecture rooms are equipped with projectors (“beamers”). The projectors mainly display in the 4:3 format. However they are compatible with the 16:9, limited to the display width. Some newer systems also work directly with 16:9. A majority of lecture halls offers radio microphone amplifiers as well. OHPs are not available.

PCs/laptops will be available in all lecture halls. Therefore, the presentation should be recorded onto an USB stick as back-up in PDF and power point format. Of

course, you can also use your own laptop – please consider to bring your own adapter if required.

Contributed talks should take 12 minutes plus 3 minutes for discussions; Invited and Topical Talks should not exceed 25 minutes plus 5 minutes for discussions if not otherwise specified in the programme. Presentations can be held in German language or in English language (conference language). For further information please contact the division in which you have submitted the lecture or the poster.

All lecture rooms will be opened, at the latest, 30 minutes prior to the lecture. Speakers are requested to be in the lecture room at least 20 minutes prior to the start of the session, to report to the chairperson of the session as well as the technical staff, to receive a brief introduction to the equipment in the lecture room.

Poster Presentation

Sites for poster sessions are named and located as follows:

Poster area 1	Sammelgebäude	(Multi-purpose Building)
Poster area 2	Physik	(Physics)
Poster area 3	Exhibition tent	in front of the Physics Building
Poster area 4	Chemie	(Chemistry and Pharmacy)

The poster boards will be marked with the number according to the scientific programme. As there will be several different poster sessions at the poster sites every day, authors are asked to mount their poster max. 2-3 hours before their session. Each poster should display the number according to the scientific programme. Each poster should be no larger than 85 cm x 120 cm (A0 portrait format).

Printing Service: “Copy & Paper”. It is not possible to print posters in DIN A0 format directly at the shop – the printing service needs 1 day in advance!

For the mounting of the poster please use the prepared adhesive tape at the poster frame. Please make sure to use only adhesive tape for mounting the poster (residue-free removing). Authors are requested to be available at their poster for at least half of the length of their poster session.

The posters have to be removed after the session. Any posters remaining on display walls will be removed without requesting your permission before the next poster session. You can get your poster back at the Info Desk. The conference management accepts no liability for the posters.

Notice Board

The programme stated in this document corresponds to the status of the programme publication 12 July 2022 and will not be updated!

All changes to the conference programme (i.e. cancellation of presentations, change of rooms, etc.) will be continuously updated on the notice board of the conference website. The information is identical to the programme updates of the electronic scientific programme and is also available there in other formats (sorted by publication date, filterable by conference parts and as an rss-feed). Please use the form <https://regensburg22.dpg-tagungen.de/programm/notice-board-form> to notify changes or cancellations.

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 **September 26, 2022 at the latest**.

For more detailed information refer to <http://regensburg22.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 37,800 young academics were supported by this programme so far.

Catering

Coffee

Free coffee, tea and water will be provided to all registered participants of the conference at DPG-coffee corners located near all exhibition areas and poster areas. All locations are displayed in the map of the campus at the end of this booklet. Please wear your name tag visibly during the entire conference.

In addition you can get refreshments and snacks at the cafeterias in the Multi-purpose Building and in the Buildings of Chemistry and Philosophy and Law (Monday-Friday). Please pay by your EC- oder credit card. Cash Payment is not possible!

Lunch

Mensa:

Lunch will be supplied in the Mensa of the University (Monday-Friday: 11:00 – 14:00). Prices: about 12.00 € including the meal, one drink and one dessert. Please pay by your EC- oder credit card. Cash Payment is not possible!

Food-Truck:

In addition to the Mensa and the cafeterias a Food truck (“Tommy’s Mutzbraten”) will offer hearty food in front of the Physics Building (outside).

Uni-Pizzeria:

The Pizzeria UNIKAT offers freshly made Italian food. Reservation recommended!

Campus’ Grocery Store

The Campus’ Grocery Store “Hechtbauer” at the Forum offers food, beverages and convenience goods (Monday-Friday: 08:00 – 18:00).

Events

Tutorials

On Sunday, September 4, 16:00 – 18:15, there will be tutorial workshops on current scientific topics for interested conference participants, in particular for students and young scientists. All conference participants are welcome.

Topics:

- Careers in science: "To boldly go where no one has gone before"
- 2D Quantum Materials and Heterostructures: From Fabrication to Applications
- Functional Ferroics
- Stochastic Processes from Financial Risk to Genetics

Welcome Evening

Sunday, September 4, 18:30 – 21:30, Mensa

On Sunday evening, a Bavarian Welcome Evening will be held in the Mensa of the University of Regensburg to which all registered participants are kindly invited. Snacks and drinks will be served. "Vieraloe" (Bavarian Brass Music) will entertain you with music.

Do not miss the opportunity to register in the conference office (15:00 – 19:00) before the Welcome Evening as well as the official beginning of the conference. When registering for the conference you will receive your badge and **food and drink vouchers** for the Welcome Evening. Please note that the cloakroom in the lecture hall basement closes on Sunday at 20:00!

Opening of the Conference

The chair of the Condensed Matter Section (SKM) will give a short opening address on Monday, September 5 from 8:25 until 8:30.

Special Plenary Session with Award Ceremony

(in German language)

On Tuesday, September 6 at 14:30, the special plenary session with award ceremony and ceremonial lecture will take place in the Audimax (H1).

Am Dienstag, den 6. September um 14:30 Uhr findet im H1 (Audimax) die Festsitzung mit Preisverleihung und anschließendem Festvortrag statt:

Musik

Begrüßung

durch den Örtlichen Tagungsleiter

Prof. Dr. Dieter Weiss, Universität Regensburg

Grußbotschaft (per Video)

des Präsidenten der Universität Regensburg

Prof. Dr. Udo Hebel

Rede

des Präsidenten der Deutschen Physikalischen Gesellschaft

Prof. Dr. Joachim Ullrich

Musik

Preisverleihung

Vergabe der Max-Planck-Medaille 2022

an Prof. Dr. Annette Zippelius, Universität Göttingen

Vergabe der Stern-Gerlach-Medaille 2022

an Dr. Frank Eisenhauer, MPI Garching

Vergabe der Stern-Gerlach-Medaille 2021

an Prof. Dr. Joachim Ullrich, Deutsche Physikalische Gesellschaft e.V.

Vergabe der Ehrennadel 2019

an Prof. Dr. Harald Lesch, LMU München

Vergabe des Walter-Schottky-Preises 2022

an Dr. Felix Büttner, Helmholtz-Zentrum Berlin

Vergabe des Max-Born-Preises 2022

an Prof. Dr. Claudia Felser, MPI für Chemische Physik, Dresden

Vergabe des Dissertationspreises der Sektion Kondensierte Materie (SKM)

(Der Preisträger bzw. die Preisträgerin wird nach dem SKM-Dissertationspreissymposium ernannt)

Musik

Festvortrag (in English language)

Prof. Dr. Dieter Bimberg, Technische Universität Berlin

„Quantum Dots for Green Quantum Technologies“

Public Evening Lecture (in German language)

Tuesday, September 6, 19:00 to 20:00, Audimax (H1)
Professor Harald Lesch from the Ludwig-Maximilians-Universität München will speak about:

„Grundlagenforschung für Nachhaltigkeit“.

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

EinsteinSlam

Wednesday, September 7, 20:00, Audimax (H1)

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 English. For more information please see www.einstein-slam.de.

Job Market

During the conference various companies and organisations will present their working fields and career opportunities to all interested participants. The presentations will take place from Tuesday, September 6 to Friday, September 9 in the Kunsthalle (Foyer Audimax, 1st floor). The presentations will last for about 30 minutes plus discussion.

Programme:

Tuesday, Sep 6

14:00 – 15:00 Carl Zeiss AG: „ZEISS Semiconductor Manufacturing Technology: Kleinste Strukturen brauchen großartige Köpfe – Wir entwickeln die EUV-Technologien von morgen.“

Wednesday, Sep 7

12:45 – 13:45 Ritzenhoefer GmbH: „Transformation Consulting – Von der Physik zur Sinngebungs-Maschine fürs Topmanagement.“

14:00 – 15:00 d-fine: *„Auswirkungen von Krisen auf Energieversorger – Einblick in die analytisch-technologische Beratung bei d-fine.“*

Thursday, Sep 8

12:45 – 13:45 Basycon Unternehmensberatung GmbH: *„Was hat Beratung mit Forschung zu tun?“*

14:00 – 15:00 Trumpf GmbH & Co. KG: *Lasersystems for EUV Lithography“*

Friday, Sep 9

11:30 – 12:30 Horn & Company: *„Horn & Company – Gewinne Einblicke in unsere Projekte zu Data Analytics, Big Data und Künstlicher Intelligenz und lerne unseren Beratungsansatz kennen!“*

Exhibition of Scientific Instruments and Literature

From Tuesday to Thursday there will be an exhibition of scientific instruments and literature in the Main Lecture Hall Foyer (Foyer Audimax), Law and Economics Building (“Wirtschaft und Recht”), H6 area and one tent (in front of the Physics Building). Almost 100 companies (see list of exhibitors at the end of this booklet) will present their products. Opening hours are from 09:00 a.m. to 18:00 p.m.. All conference participants are welcome to attend the exhibition. The entrance is free.

Supporting Programme

City Tours „Regensburg – Experience a Historic City“

Walking Tour in German:

Daily 10:30 & 14:30

Costs: 10.00 EUR/person

Meeting Point: in front of the Tourist Information in the Old Town Hall of Regensburg

Please register online or via e-mail tourismus@regensburg.de

Walking Tour in English:

Tuesday, September 6, 15:30 – 17:00

Costs: 10.00 EUR/person

Meeting Point: in front of the Tourist Information in the Old Town Hall of Regensburg

Please register via phone +49 941 507-4410 or via e-mail tourismus@regensburg.de

Bus trip "City Tour"

Information and booking at: <https://www.city-tour.info/en/regensburg/tour>

Bavarian Festival in Regensburg

The "Herbstdult 2022" (traditional and authentic Bavarian beer festival) will take place from August 26 to September 11 (daily 11 a.m. to 11 p.m.).

Fish frying shops, snack stands and beer tents with atmospheric live music ensure a wide range of culinary delights. Further information can be found at: <https://www.regensburg.de/dult/>

SAY CHEESE!

The DPG conferences are basically public to the press. Please note: On behalf of DPG, photos and videos will be recorded during the conferences. 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.

CO₂ Compensation for the DPG Conferences

By decision of the DPG Council, the DPG will compensate for fossil CO₂ emissions resulting from mobility for DPG conferences and committee meetings.

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 Regensburg
- all industrial sponsors (see pages 10/11 in this booklet)
- and all staff who make this conference possible.

Disclaimer of Liability

All participants are asked to take care of their wardrobe and valuables. The organisers assume no liability.

Synopsis of the Daily Programme

Sunday, September 4, 2022

Tutorials (TUT)

Sessions

TUT 1 16:00 – 17:30 H1

Careers in Science

TUT 1.1 16:00 – 17:00 H1

Careers in science: "To boldly go where no one has gone before"

•*Manfred Fiebig*

TUT 2 16:00 – 18:20 H2

2D Quantum Materials and Heterostructures: From Fabrication to Applications

TUT 2.1 16:00 – 16:35 H2

Discovering, Creating, and Exploring Novel Atomically-Thin Materials and Heterostructures

•*Joshua Robinson*

TUT 2.2 16:35 – 17:10 H2

Non-identical moire twins in bilayer graphene

•*Rebeca Ribeiro-Palau*

TUT 2.3 17:10 – 17:45 H2

Single-photon emitters in 2D materials

•*Steffen Michaelis de Vasconcellos*

TUT 2.4 17:45 – 18:20 H2

Introduction to 2D superconducting spintronics

•*Elke Scheer*

TUT 3 16:00 – 18:15 H3

Functional Ferroics

TUT 3.1 16:00 – 16:45 H3

Domains and domain walls in functional ferroics

•*Dennis Meier*

- TUT 3.2 16:45 – 17:30 H3
Theory and simulations of ferroelectrics and related materials
•*Jorge Iniguez*
- TUT 3.3 17:30 – 18:15 H3
Atomic scale analysis of ferroic domain walls
•*Shelly Conroy*
- TUT 4 16:00 – 18:30 H4
Stochastic Processes from Financial Risk to Genetics
- TUT 4.1 16:00 – 16:50 H4
Diffusion approximations for particles in turbulence
•*Bernhard Mehlig*
- TUT 4.2 16:50 – 17:40 H4
Probabilities in physics, paradoxes and populations
•*Tobias Galla*
- TUT 4.3 17:40 – 18:30 H4
Risk Revealed: Cautionary Tales, Understanding and Communication
•*Paul Embrechts*
- 18:30 – 21:30 Mensa
Welcome Evening (for registered participants)
-

Monday, September 5, 2022

Mon

Opening

08:25 – 08:30 H1

Plenary Talks

PLV I 08:30 – 09:15 H1

Intrinsic Josephson junctions in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$:
Generation of Terahertz radiation and beyond

•*Reinhold Kleiner*

PLV II 14:00 – 14:45 H1

Topology and Chirality

•*Claudia Felser (Laureate of the Max-Born-Prize 2022)*

PLV III 14:00 – 14:45 H2

Controlling and exploiting defects in diamond
for Quantum Technologies

•*Mark Newton*

Prize Talk

PRV I 13:15 – 13:45 H1

Ultrafast topological switching of magnetic
skyrmions

•*Felix Büttner (Laureate of the Walter-Schottky-Prize 2022)*

Lunch Talk

PSV I 13:15 – 13:45 H2

Berufsbild: Wissenschaftsmanagement in der
deutschen Raumfahrtagentur

•*Tobias Saltzmann*

Symposium: From Physics and Big Data to the Design of Novel Materials (SYNM)

Invited Talks

SYNM 1.1 15:00 – 15:30 H1

How to tackle the „I“ in FAIR?

•*Claudia Draxl*

- SYNM 1.2 15:30 – 16:00 H1
Beyond the average error: machine learning for the discovery of novel materials
•*Mario Boley*
- SYNM 1.3 16:00 – 16:30 H1
The Phase Diagram of All Inorganic Materials
•*Chris Wolverton*
- SYNM 1.4 16:45 – 17:15 H1
Automated data-driven upscaling of transport properties in materials
•*Danny Perez*
- SYNM 1.5 17:15 – 17:45 H1
Data-driven understanding of concentrated electrolytes
•*Alpha Lee*

Symposium: Frontiers of Orbital Physics: Statics, Dynamics, and Transport of Orbital Angular Momentum (SYOP)

Invited Talks

- SYOP 1.1 09:30 – 10:00 H1
Orbital degeneracy in transition metal compounds: Jahn-Teller effect, spin-orbit coupling and quantum effects
•*Daniel Khomskii*
- SYOP 1.2 10:00 – 10:30 H1
Orbital magnetism out of equilibrium: driving orbital motion with fluctuations, fields and currents
•*Yuriy Mokrousov*
- SYOP 1.3 10:30 – 11:00 H1
Orbitronics: new torques and magnetoresistance effects
•*Mathias Kläui*

- SYOP 1.4 11:15 – 11:45 H1
Orbital and total angular momenta dichroism of the THz vortex beams at the antiferromagnetic resonances
•*Andrei Sirenko*
- SYOP 1.5 11:45 – 12:15 H1
Observation of the orbital Hall effect in a light metal Ti
•*Gyung-Min Choi*

Symposium: SKM Dissertation Prize 2022 (SYSD)

Invited Talks

- SYSD 1.1 10:15 – 10:45 H2
Charge localisation in halide perovskites from bulk to nano for efficient optoelectronic applications
•*Sascha Feldmann*
- SYSD 1.2 10:45 – 11:15 H2
Nonequilibrium Transport and Dynamics in Conventional and Topological Superconducting Junctions
•*Raffael L. Klees*
- SYSD 1.3 11:15 – 11:45 H2
Probing magnetostatic and magnetotransport properties of the antiferromagnetic iron oxide hematite
•*Andrew Ross*
- SYSD 1.4 11:45 – 12:15 H2
Quantum dot optomechanics with surface acoustic waves
•*Matthias Weiss*

Biological Physics Division (BP)

Prize Talk, Invited Talks

- BP 2.4 10:15 – 10:45 H13
Integrative modeling of dynamic biomolecular structures
•*Holger Gohlke*

- BP 3.1 09:30 – 10:00 H15
Basal tension in the wing disc epithelium -
what's collagen got to do with it
•*Elisabeth Fischer-Friedrich (Laureate of the
Hertha-Sponer-Prize 2022)*
- BP 4.1 10:30 – 11:00 H16
Computer simulations of self-motile active
droplets and colloid-active gels composites
•*Davide Davide Marenduzzo*
- BP 5.1 15:00 – 15:30 H15
The functional nano-architecture of axonal actin
•*Christophe Leterrier*
- BP 6.5 16:15 – 16:45 H16
From active bacterial microcolonies to biofilms
as model tissues
•*Vasily Zaburdaev*

Sessions

- BP 2 09:30 – 12:15 H13
Computational Biophysics and Neuroscience
- BP 3 09:30 – 12:30 H15
Cell Mechanics 1
- BP 4 10:30 – 12:45 H16
Active Matter 1
- BP 5 15:00 – 17:30 H15
Focus Session: Super Resolution Microscopy
and Dynamics of Supramolecular Complexes
- BP 6 15:00 – 17:15 H16
Statistical Physics of Biological Systems 1
- BP 7 18:00 – 20:00 P1
Poster 1

Chemical and Polymer Physics Division (CPP)

Invited Talks

- CPP 1.1 09:30 – 10:00 H38

Ternary blend approach for boosting performance and stability of organic solar cells

•*Tayebeh Ameri*

CPP 8.1 15:00 – 15:30 H38

Stimuli-Responsive Opal Films based on Core-Shell Particle Self-Assembly

•*Markus Gallei*

CPP 8.3 15:45 – 16:15 H38

Self-assembled photonic pigments from bottlebrush block copolymers

•*Richard Parker*

CPP 8.5 16:45 – 17:15 H38

Hierarchically structured mechanochromic deformation-sensing pigments

•*Jessica Clough*

Sessions

CPP 1 09:30 – 13:00 H38

Organic Electronics and Photovoltaics 1

CPP 2 09:30 – 10:30 H39

Polymer Networks and Elastomers

CPP 3 09:30 – 12:45 H34

Perovskite and Photovoltaics 1

CPP 4 09:30 – 12:45 H36

2D Materials 1

CPP 5 10:00 – 12:15 H19

Wetting, Droplets and Microfluidics

CPP 6 10:30 – 12:45 H16

Active Matter 1

CPP 7 10:45 – 13:00 H39

Wetting, Fluidics and Liquids at Interfaces and Surfaces

CPP 8 15:00 – 17:15 H38

Focus Session: Photonic Structures from Polymer and Colloidal Self-Assembly

CPP 9 15:00 – 17:45 H39

Modeling and Simulation of Soft Matter

CPP 10	15:00 – 18:30	H36
	2D Materials 2	
CPP 11	17:15 – 17:45	H38
	2D Materials 3	
CPP 12	18:00 – 20:00	P1
	Poster 1	

Thin Films Division (DS)

Invited Talks

DS 2.1	09:30 – 10:00	H17
	GaN-based power converters enabling talktive power	
	• <i>Marco Liserre</i>	
DS 2.2	10:00 – 10:30	H17
	Energy-efficient power electronics based on Gallium Nitride	
	• <i>Oliver Ambacher</i>	
DS 2.4	10:45 – 11:15	H17
	Potential of Aluminum Nitride for Vertical Power Electronics	
	• <i>Andreas Waag</i>	
DS 6.1	15:00 – 15:30	H17
	Novel high power device structures: Enabling compact and integrated power ICs	
	• <i>Elison Matioli</i>	
DS 6.2	15:30 – 16:00	H17
	Ab-initio investigations of V-pits and nanopipes in GaN	
	• <i>Liverios Lymperakis</i>	
DS 6.4	16:15 – 16:45	H17
	Lateral and Vertical β -Ga ₂ O ₃ Power Transistors for High-Voltage Applications	
	• <i>Kornelius Tetzner</i>	

Sessions

- DS 1 09:30 – 10:45 H14
Thin Film Properties: Structure, Morphology and Composition (XRD, TEM, XPS, SIMS, RBS, AFM, ...) 1
- DS 2 09:30 – 11:15 H17
Focus Session: Innovative GaN-based High-power Devices: Growth, Characterization, Simulation, Application 1
- DS 3 09:30 – 12:45 H36
2D Materials 1
- DS 4 11:00 – 11:45 H14
Thin Film Properties: Structure, Morphology and Composition (XRD, TEM, XPS, SIMS, RBS, AFM, ...) 2
- DS 5 11:30 – 13:00 H17
Organic Thin Films, Organic-Inorganic Interfaces
- DS 6 15:00 – 16:45 H17
Focus Session: Innovative GaN-based High-power Devices: Growth, Characterization, Simulation, Application 2
- DS 7 15:00 – 18:30 H36
2D Materials 2
- DS 8 17:15 – 17:45 H38
2D Materials 3

Dynamics and Statistical Physics Division (DY)**Invited Talks**

- DY 2.1 09:30 – 10:00 H18
Roughness growth modes in thin film growth
•*Martin Oettel*
- DY 9.1 15:00 – 15:30 H19
Granular matter composed of non-convex grains
•*Ralf Stannarius*

- DY 12.1 15:30 – 16:00 H20
 A phononic frequency comb from a single resonantly driven nanomechanical mode
 •*Eva Weig*
- DY 12.4 16:30 – 17:00 H20
 From period-doubling bifurcations to time crystals and coherent Ising machines
 •*Oded Zilberberg*
- DY 12.6 17:15 – 17:45 H20
 2D membranes in motion
 •*Herre van der Zant*
- Sessions**
- DY 2 09:30 – 10:00 H18
 Invited Talk Martin Oettel
- DY 3 10:00 – 12:30 H18
 Statistical Physics far from Thermal Equilibrium
- DY 4 10:00 – 12:15 H19
 Wetting, Droplets and Microfluidics
- DY 5 10:00 – 12:45 H20
 Many-Body Quantum Dynamics 1
- DY 6 10:30 – 12:45 H16
 Active Matter 1
- DY 7 15:00 – 17:15 H16
 Statistical Physics of Biological Systems 1
- DY 8 15:00 – 17:45 H18
 Data Analytics for Complex Systems
- DY 9 15:00 – 15:30 H19
 Invited Talk Ralf Stannarius
- DY 10 15:00 – 17:45 H39
 Modeling and Simulation of Soft Matter
- DY 11 15:30 – 18:00 H19
 Granular Matter and Contact Dynamics

DY 12 15:30 – 17:45 H20
Focus Session: Nonlinear Dynamics of Nanomechanic Oscillators

DY 13 17:45 – 18:15 H18
Big Data and Artificial Intelligence

Semiconductor Physics Division (HL)

Invited Talks

- HL 2.1 09:30 – 10:00 H31
Observation of quantum Zeno effects for localized spins
•*Alex Greilich*
- HL 3.1 09:30 – 10:00 H32
Pushing the limits in real-time measurements of quantum dynamics
•*Eric Kleinherbers*
- HL 6.1 09:30 – 10:00 H36
g-factors in van der Waals heterostructures: revealing signatures of interlayer coupling
•*Paulo E. Faria Junior*
- HL 8.1 15:00 – 15:30 H32
Crux of Using the Cascaded Emission of a Three-Level Quantum Ladder System to Generate Indistinguishable Photons
•*Eva Schöll*
- HL 9.1 15:00 – 15:30 H33
Exceptional points in optics: From bulk materials to one-dimensional confined systems
•*Chris Sturm*
- HL 9.2 15:30 – 16:00 H33
Complex Skin Modes in Non-Hermitian Coupled Laser Arrays
•*Mercedeh Khajavikhan*
- HL 9.3 16:15 – 16:45 H33
Non-Hermitian effects in exciton polaritons
•*Eliezer Estrecho*

- HL 9.4 16:45 – 17:15 H33
 Nonlinear dynamics and exceptional points in
 exciton-polariton condensates
 •*Stefan Schumacher*
- Sessions**
- HL 2 09:30 – 11:00 H31
 Spin Phenomena in Semiconductors
- HL 3 09:30 – 13:00 H32
 Quantum Dots and Wires 1: Transport and
 Electronic Properties
- HL 4 09:30 – 12:45 H33
 Semiconductor Lasers
- HL 5 09:30 – 12:45 H34
 Perovskite and Photovoltaics 1
- HL 6 09:30 – 12:45 H36
 2D Materials 1
- HL 7 15:00 – 18:00 H31
 (Quantum) Transport Properties
- HL 8 15:00 – 18:15 H32
 Quantum Dots and Wires 2: Optics 1
- HL 9 15:00 – 17:30 H33
 Focus Session: Exceptional Points and Non-
 Hermitian Physics in Semiconductor Systems
- HL 10 15:00 – 18:30 H34
 Nitrides
- HL 11 15:00 – 18:30 H36
 2D Materials 2

Crystalline Solids and their Microstructure Division (KFM)

Invited Talks

- KFM 2.1 09:30 – 10:00 H5
 Domain-wall engineering in multiferroic
 materials
 •*Guillaume Nataf*

- KFM 2.5 11:15 – 11:45 H5
 Charged Higher Order Topologies in Room Temperature Magnetoelectric Multiferroic Thin Films
 •*Shelly Conroy*
- KFM 7.1 15:00 – 15:30 H5
 Multiferroic coupling on the level of domain walls
 •*Mads C. Weber*
- Sessions**
- KFM 2 09:30 – 12:25 H5
 Focus Session: Defects and Interfaces in Multiferroics 1
- KFM 3 09:30 – 10:50 H7
 Microscopy and Tomography with X-ray, Photons, Electrons, Ions and Positrons
- KFM 4 09:30 – 12:45 H34
 Perovskite and Photovoltaics 1
- KFM 5 10:30 – 13:00 S053
 New Methods and Developments: Scanning Probe Techniques 1
- KFM 6 11:05 – 12:25 H7
 Instrumentation and Methods for Micro- and Nanoanalysis
- KFM 7 15:00 – 17:25 H5
 Focus Session: Defects and Interfaces in Multiferroics 2
- KFM 8 15:00 – 17:15 H7
 Crystallography in Materials Science, Microstructure and Dielectric Properties
- KFM 9 15:00 – 16:15 S053
 New Methods and Developments: Scanning Probe Techniques 2

Magnetism Division (MA)

Invited Talk

- MA 10.1 15:00 – 15:30 H47

Magnetic vortices: into the third dimension

•*Sebastian Gliga*

Sessions

- | | | | |
|-------|---------------|-----|--|
| MA 2 | 09:30 – 10:30 | H37 | Magnetic Imaging Techniques |
| MA 3 | 09:30 – 10:15 | H43 | Spin-Dependent Phenomena in 2D |
| MA 4 | 09:30 – 10:30 | H47 | Disordered Magnetic Materials |
| MA 5 | 09:30 – 10:30 | H48 | Magnetic Instrumentation and Characterization |
| MA 6 | 11:00 – 12:00 | H37 | Complex Magnetic Oxides |
| MA 7 | 11:00 – 12:00 | H43 | Magnetic Relaxation and Gilbert Damping |
| MA 8 | 15:00 – 18:00 | H37 | Ultrafast Magnetization Effects 1 |
| MA 9 | 15:00 – 17:00 | H43 | INNOMAG e.V. Prizes 2022 (Diplom-/Master and Ph.D. Thesis) |
| MA 10 | 15:00 – 16:45 | H47 | Non-Skyrmionic Magnetic Textures |
| MA 11 | 15:00 – 17:00 | H48 | Computational Magnetism 1 |

Metal and Material Physics Division (MM)

Invited Talk, Topical Talks

- | | | | |
|--------|---------------|-----|--|
| MM 1.1 | 09:30 – 10:00 | H44 | A novel mechanism to generate metallic single crystals
• <i>Carolin Körner</i> |
| MM 5.1 | 15:00 – 15:30 | H44 | Vacancy transport in oxides exposed to high electric fields
• <i>Reiner Kirchheim</i> |

- MM 9.1 17:15 – 17:45 H45
 Design of corrosion-free and highly active electrocatalysts and photocatalysts via combinations of ab initio calculations and electrodynamics
•Heechae Choi
- Sessions**
- MM 1 09:30 – 10:00 H44
 Invited Talk Carolin Körner
- MM 2 10:15 – 13:00 H44
 Computational Materials Modelling: Energy Materials
- MM 3 10:15 – 12:45 H45
 Microstructures and Phase Transformations: Metals & Alloys
- MM 4 10:15 – 13:00 H46
 Structural Materials
- MM 5 15:00 – 15:30 H44
 Non-equilibrium Phenomena in Materials Induced by Electrical and Magnetic Fields 1
- MM 6 15:45 – 18:30 H44
 Computational Materials Modelling: Defects / Alloys
- MM 7 15:45 – 17:00 H45
 Microstructures and Phase Transformations: Oxides & Perovskites
- MM 8 15:45 – 18:30 H46
 Materials for Storage and Conversion of Energy
- MM 9 17:15 – 18:30 H45
 Non-equilibrium Phenomena in Materials Induced by Electrical and Magnetic Fields 2
- MM 10 18:00 – 20:00 P2
 Poster Session 1

Surface Science Division (O)**Invited Talk, Topical Talks**

- O 1.1 09:30 – 10:15 S054
Laser-excited electrons: how hot are they?
•*Baerbel Rethfeld*
- O 3.1 10:30 – 11:00 H4
Rational design of single atom electrocatalysts: handle with care
•*Gianfranco Pacchioni*
- O 5.1 10:30 – 11:00 S051
Molecular nanostructures on metals vs. graphene
•*Meike Stöhr*
- O 7.1 10:30 – 11:00 S053
Identification of active electrocatalytic centers using EC- STM under reaction conditions
•*Aliaksandr Bandarenka*
- O 8.1 10:30 – 11:00 S054
Dynamic structure changes of bare and modified Cu(111) during CO and water activation
•*Andrea Auer*
- O 10.1 15:00 – 15:30 H4
Atomically-precise design of low-nuclearity catalysts
•*Sharon Mitchell*
- O 10.4 16:00 – 16:30 H4
Design of Model Single-Atom Catalysts: Metal Adatoms, Monomeric Oxide Units, and Mixed Surface Layers on Oxide Surfaces
•*Zdenek Dohnalek*
- O 10.7 17:00 – 17:30 H4
Model catalysis of single atoms on ultrathin solid films
•*Kai Wu*

- O 15.1 15:00 – 15:30 S054
 Hydration Layer Mapping at Solid-Liquid Interfaces
•Angelika Kühnle
- Sessions**
- O 1 09:30 – 10:15 S054
 Overview Talk Bärbel Rethfeld
- O 2 10:30 – 13:00 H3
 Ultrafast Electron Dynamics at Surfaces and Interfaces 1
- O 3 10:30 – 12:45 H4
 Focus Session: Single Atom Catalysis 1
- O 4 10:30 – 11:30 H6
 Topology and Symmetry-Protected Materials
- O 5 10:30 – 13:00 S051
 Organic Molecules at Surfaces 1: Substrate Effects
- O 6 10:30 – 13:00 S052
 Nanostructures at Surfaces 1
- O 7 10:30 – 13:00 S053
 New Methods and Developments 1: Scanning Probe Techniques 1
- O 8 10:30 – 12:45 S054
 Solid-Liquid Interfaces 1: Reactions and Electrochemistry
- O 9 15:00 – 18:15 H3
 Ultrafast Electron Dynamics at Surfaces and Interfaces 2
- O 10 15:00 – 17:30 H4
 Focus Session: Single Atom Catalysis 2
- O 11 15:00 – 16:30 H6
 Electronic Structure Theory
- O 12 15:00 – 18:00 S051
 Organic Molecules at Surfaces 2:
 Characterization of Organic Monolayers

- O 13 15:00 – 17:30 S052
Nanostructures at Surfaces 2
- O 14 15:00 – 16:15 S053
New Methods and Developments 2: Scanning
Probe Techniques 2
- O 15 15:00 – 18:00 S054
Solid-Liquid Interfaces 2: Structure and
Spectroscopy
- O 16 18:00 – 20:00 P4
Poster Monday: Ultrafast Processes 1
- O 17 18:00 – 20:00 P4
Poster Monday: Organic Molecules at Surfaces 1
- O 18 18:00 – 20:00 P4
Poster Monday: 2D Materials 1
- O 19 18:00 – 20:00 P4
Poster Monday: Scanning Probe Techniques 1
- O 20 18:00 – 20:00 P4
Poster Monday: Solid-Liquid Interfaces
- O 21 18:00 – 20:00 P4
Poster Monday: Topology and Symmetry-
Protected Materials
- O 22 18:00 – 20:00 P4
Poster Monday: Surface Structure, Epitaxy,
Growth and Tribology
- O 23 18:00 – 20:00 P4
Poster Monday: Nanostructures 1

Physics of Socio-economic Systems Division (SOE)

Invited Talk

- SOE 2.1 09:30 – 10:15 H11
Two-armed bandits versus Carnapian truth
seekers and epistemic free riders with bound-
ed confidence
•*Rainer Hegselmann*

Sessions

- SOE 2 09:30 – 10:15 H11
Invited Talk Rainer Hegselmann: Opinion Formation
- SOE 3 10:15 – 11:45 H11
Economic Models
- SOE 4 12:00 – 12:30 H11
Financial Risk
- SOE 5 12:30 – 13:30 H11
Social Systems, Opinion and Group Dynamics
- SOE 6 15:00 – 17:45 H18
Data Analytics for Complex Systems
- SOE 7 17:45 – 18:15 H18
Big Data and Artificial Intelligence

Low Temperature Physics Division (TT)**Invited Talks**

- TT 1.1 09:30 – 10:00 H10
Stability of Floquet Majorana box qubits
•*Anne Matthies*
- TT 5.1 15:00 – 15:30 H10
Dynamics of visons and thermal Hall effect in perturbed Kitaev models
•*Aprem Joy*

Sessions

- TT 1 09:30 – 13:15 H10
Topology: Majorana Physics
- TT 2 09:30 – 13:15 H22
Nanotubes, Nanoribbons and Graphene
- TT 3 09:30 – 13:00 H23
Superconductivity: Properties and Electronic Structure
- TT 4 10:00 – 12:45 H20
Many-Body Quantum Dynamics 1

- TT 5 15:00 – 17:00 H10
Frustrated Magnets – Spin Liquids
- TT 6 15:00 – 18:15 H22
Kondo Physics, f-Electron Systems and Heavy Fermions
- TT 7 15:00 – 18:00 H23
Fluctuations, Noise, Magnetotransport, and Related Topics
- TT 8 17:15 – 19:00 H10
Frustrated Magnets – Strong Spin-Orbit Coupling
- TT 9 18:00 – 19:15 H23
Cold Atomic Gases and Superfluids

Vacuum Science and Technology Division (VA)

Sessions

- VA 1 09:30 – 11:30 H12
Rarefied gas dynamics and novel numerical approaches
- VA 2 12:30 – 15:10 H12
Vacuum technology: New developments and applications

Quantum Information Division (QI)

Invited Talks

- QI 1.1 09:30 – 10:00 H8
Coherence of spin qubits in planar germanium
•*Nico Willem Hendrickx*
- QI 2.1 09:30 – 10:00 H9
Measuring the thermodynamic cost of time-keeping
•*Yelena Guryanova*
- QI 2.6 11:15 – 11:45 H9
Finite-size effects in quantum thermodynamics
•*Kamil Korzekwa*

- QI 3.1 15:00 – 15:30 H8
Generalized randomized benchmarking with
short random quantum circuits
•*Martin Kliesch*
- Sessions**
- QI 1 09:30 – 12:45 H8
Implementations: Spin Qubits, Atoms, and
Photons
- QI 2 09:30 – 12:45 H9
Quantum Thermodynamics and Open Quantum
Systems
- QI 3 15:00 – 18:00 H8
Certification and Benchmarking of Quantum
Systems
- QI 4 18:00 – 20:00 P2
Poster: Quantum Information
-

Tuesday, September 6, 2022

Plenary Talk

- PLV IV 08:30 – 09:15 H1
Insights from Atomic-Scale Studies on Surfaces
•*Ulrike Diebold*

Prize Talk

- PRV II 13:15 – 13:45 H1
Water flows in carbon nanochannels: from quantum friction to carbon memories
•*Lydéric Bocquet (Laureate of the Gentner Kastler Prize 2022)*

Lunch Talk, Ceremonial Talk

- PSV II 13:15 – 13:45 H2
Wissenschaftskommunikation – für wen eigentlich?
•*Nicolas Wöhrl*

Special Plenary Session with Award Ceremony

14:30 – 17:15 H1

- PSV III 16:30 – 17:15 H1
Quantum Dots for Green Quantum Technologies
•*Dieter Bimberg*

Symposium: High Yield Devices for Photonic Quantum Implementations (SYPQ)

Invited Talks

- SYPQ 1.1 09:30 – 10:00 H1
Designing driving protocols for high-fidelity quantum devices using numerically exact predictions
•*Moritz Cygorek*
- SYPQ 1.2 10:00 – 10:30 H1
Challenges towards high efficiency quantum dot single photon sources
•*Arne Ludwig*

- SYPQ 1.3 10:30 – 11:00 H1
Organic Molecules in photonic quantum technologies
•*Costanza Toninelli*
- SYPQ 1.4 11:15 – 11:45 H1
Quantum-dot single-photon sources for quantum photonic networks
•*Peter Michler*
- SYPQ 1.5 11:45 – 12:15 H1
Quantum light sources: entanglement generation in semiconductor nanostructures
•*Ana Predojevic*

Biological Physics Division (BP)

Prize Talk, Invited Talk

- BP 8.1 09:30 – 10:00 H15
Phase separation in cells: gene localization and noise buffering
•*Samuel Safran*
- BP 9.11 12:30 – 13:00 H16
Super-resolution STED and MINFLUX Nanoscopes by Abberior Instruments
•*Gerald Donnert (Laureate of the DPG-Technologietransferpreis 2022)*

Sessions

- BP 8 09:30 – 13:00 H15
Focus Session: Phase Separation in Biochemical Systems
- BP 9 09:30 – 13:00 H16
Bioimaging
- BP 10 10:00 – 12:30 H13
Cell Adhesion and Multicellular Systems
- BP 11 10:00 – 13:00 H18
Active Matter 2
- BP 12 17:30 – 19:30 P4
Poster 2

Chemical and Polymer Physics Division (CPP)

Invited Talks

- CPP 13.1 09:30 – 10:00 H38
 Insights into degradation mechanisms in Li-based batteries and advantages of polymer coatings
 •*Neelima Paul*
- CPP 18.1 11:30 – 12:00 H38
 How X-rays can reveal waters mysteries
 •*Katrin Amann-Winkel*

Sessions

- CPP 13 09:30 – 11:15 H38
 Charged Soft Matter, Polyelectrolytes and Ionic Liquid
- CPP 14 09:30 – 11:15 H39
 Emerging Topics in Chemical and Polymer Physics, New Instruments and Methods
- CPP 15 09:30 – 12:00 H36
 2D Materials 4
- CPP 16 10:00 – 13:00 H18
 Active Matter 2
- CPP 17 11:00 – 13:00 P2
 Poster 2
- CPP 18 11:30 – 13:00 H38
 Complex Fluids and Colloids, Micelles and Vesicles

Thin Films Division (DS)

Prize Talks

- DS 10.1 09:40 – 10:10 H17
 Atomic-Scale Optical Spectroscopy at Surfaces
 •*Takashi Kumagai (Laureate of the Gaede Prize 2020)*

- DS 10.2 10:20 – 10:50 H17
 Slow highly charged ions as a tool for
 monolayer sensitive nano-engineering
 •*Richard Wilhelm (Laureate of the Gaede Prize
 2021)*
- DS 10.3 11:00 – 11:30 H17
 Quantum Science with Single Atoms and
 Molecules on Surfaces
 •*Philip Willke (Laureate of the Gaede Prize
 2022)*
- Sessions**
- DS 9 09:30 – 11:00 H14
 Thin Film Properties: Structure, Morphology
 and Composition (XRD, TEM, XPS, SIMS, RBS,
 AFM, ...) 3
- DS 10 09:30 – 11:30 H17
 Gaede Prize Talks
- DS 11 09:30 – 12:45 H34
 Focus Session: Quantum Properties at
 Functional Oxide Interfaces 1
- DS 12 09:30 – 12:00 H36
 2D Materials 4

Dynamics and Statistical Physics Division (DY)

Invited Talks

- DY 14.1 09:30 – 10:00 H18
 Non-Markovian Brownian systems: from
 single-particle thermodynamics to collective
 behavior
 •*Sabine Klapp*
- DY 17.1 10:30 – 11:00 H19
 Caustics in turbulent aerosols
 •*Bernhard Mehlig*

Sessions

- DY 14 09:30 – 10:00 H18
 Invited Talk Sabine Klapp

- DY 15 09:30 – 10:30 H19
 Delay and Feedback Dynamics
- DY 16 10:00 – 13:00 H18
 Active Matter 2
- DY 17 10:30 – 11:00 H19
 Invited Talk Bernhard Mehlig
- DY 18 11:15 – 12:45 H19
 Nonlinear Dynamics 1: Synchronization and
 Chaos
- DY 19 11:30 – 13:00 H20
 Many-Body Quantum Dynamics 2
- DY 20 11:30 – 13:00 H38
 Complex Fluids and Colloids, Micelles and
 Vesicles

Semiconductor Physics Division (HL)

Invited Talks

- HL 12.1 09:30 – 10:00 H32
 Wafer-Scale Epitaxial Modulation of Quantum
 Dot Density
 •*Nikolai Bart*
- HL 14.1 09:30 – 10:00 H34
 Materials and Device Engineering for Gallium
 Oxide-based Electronics
 •*Siddharth Rajan*
- HL 14.2 10:00 – 10:30 H34
 Ferroelectric two-dimensional electron gases
 for oxide spin-orbitronics
 •*Julien Bréhin*
- HL 14.8 12:15 – 12:45 H34
 Strain-driven dissociation of water on
 (incipient) ferroelectrics
 •*Chiara Gattinoni*

- HL 15.1 09:30 – 10:00 H36
 Ultrafast all-optical modulation and frequency conversion in 2D materials
 •*Sebastian Klimmer*
- Sessions**
- HL 12 09:30 – 12:45 H32
 Quantum Dots and Wires 3: Growth
- HL 13 09:30 – 12:15 H33
 Ultra-Fast Phenomena
- HL 14 09:30 – 12:45 H34
 Focus Session: Quantum Properties at Functional Oxide Interfaces
- HL 15 09:30 – 12:00 H36
 2D Materials 3

Crystalline Solids and their Microstructure Division (KFM)

Prize Talk, Invited Talks, Topical Talk

- KFM 10.1 09:30 – 10:00 H5
 Einfluss des Sauerstoffgehalts auf das Koerzitivfeld für die Polarisationsumschaltung in HfO_2 aus der Dichtefunktionaltheorie
 •*Luis Azevedo Antunes (Laureate of the Georg-Simon-Ohm-Prize 2022)*
- KFM 10.2 10:00 – 10:30 H5
 Negative capacitance and voltage amplification in ferroelectric heterostructures
 •*Jorge Iniguez*
- KFM 10.3 10:30 – 11:00 H5
 Advanced Phase-field Simulation of Ferroelectrics and Antiferroelectrics
 •*Bai-Xiang Xu*
- KFM 10.4 11:15 – 11:45 H5
 Magnetization processes in SmFeO_3
 •*Thomas Schrefl*

Sessions

- KFM 10 09:30 – 12:25 H5
Focus session: Polar Materials Meet Energy demands
- KFM 11 09:30 – 11:10 H7
Crystal Structure Defects / Real Structure / Microstructure
- KFM 12 09:30 – 12:45 H37
Skyrmions 1
- KFM 13 10:15 – 11:30 H46
Materials for Storage and Conversion of Energy

Magnetism Division (MA)**Invited Talks**

- MA 12.1 09:30 – 10:00 H37
Topological spin structures at surfaces
•*Stefan Heinze*
- MA 14.1 09:30 – 10:00 H47
Overriding universality of ferromagnetic phase transitions through nano-scale materials design
•*Andreas Berger*
- MA 17.1 15:00 – 15:30 H43
Ultimately fast, small and energy-efficient magnetism: fundamentals and prospects
•*Johan Mentink*
- MA 17.2 15:30 – 16:00 H43
From spintronics at limiting temporal and spatial scales in antiferromagnets to an emerging altermagnetic phase
•*Tomas Jungwirth*
- MA 17.3 16:00 – 16:30 H43
An electronic structure viewpoint on candidate van der Waals ferromagnets
•*Phil King*

- MA 17.4 16:30 – 17:00 H43
 Nano-scale skyrmions and atomic-scale spin textures studied with STM
 •*Kirsten von Bergmann*
- Sessions**
- MA 12 09:30 – 12:45 H37
 Skyrmions 1
- MA 13 09:30 – 12:30 H43
 Magnonics 1
- MA 14 09:30 – 12:00 H47
 Cooperative Phenomena: Spin Structures and Magnetic Phase Transitions
- MA 15 09:30 – 11:30 H48
 Computational Magnetism 2
- MA 16 15:00 – 17:45 H37
 Frustrated Magnets
- MA 17 15:00 – 17:00 H43
 PhD Focus Session: The Hitchhiker's Guide to Spin Phenomena at the Space and Time Limit
- MA 18 15:00 – 17:15 H47
 Spintronics
- MA 19 17:30 – 20:00 P2
 Poster 1

Metal and Material Physics Division (MM)

Invited Talk, Topical Talks

- MM 11.1 09:30 – 10:00 H44
 Fast calorimetry: studying phase transitions in slow motion
 •*Jörg F. Löffler*
- MM 13.1 10:15 – 10:45 H45
 Supercompatibility in ceramic micropillars of lanthanum niobate
 •*Olivia A. Graeve*

MM 13.2 10:45 – 11:15 H45
X-Ray Spectro(micro)scopy as analytics for field assisted deposition processes
•*David N. Mueller*

MM 13.7 12:30 – 13:00 H45
Field-assisted processing of magnetic materials
•*Fernando Maccari*

Sessions

MM 11 09:30 – 10:00 H44
Invited Talk Jürg F. Löffler

MM 12 10:15 – 13:00 H44
Computational Materials Modelling: Physics of Ensembles 1

MM 13 10:15 – 13:00 H45
Non-equilibrium Phenomena in Materials Induced by Electrical and Magnetic Fields 3

MM 14 10:15 – 11:30 H46
Materials for Storage and Conversion of Energy

MM 15 11:45 – 13:00 H46
Hydrogen in Materials: Hydrogen Effects

MM 16 14:00 – 15:00 H44
Mechanical Properties

MM 17 14:00 – 15:15 H46
Hydrogen in Materials: Hydrogen Storage

MM 18 17:30 – 20:00 P2
Poster Session 2

Surface Science Division (O)

Invited Talk, Topical Talks

O 24.1 09:30 – 10:15 S054
Oxygen Evolution on Rutile Ruthenium and Iridium Dioxides
•*Yang Shao-Horn*

- O 25.1 10:30 – 11:00 H2
Designer electronic states in van der Waals heterostructures
•*Peter Liljeroth*
- O 25.2 11:00 – 11:30 H2
Magnetic order in a coherent Kondo lattice in the 1T/1H TaSe₂ heterostructure
•*Miguel Ugeda*
- O 25.4 11:45 – 12:15 H2
Electron-lattice correlations and charge order in two-dimensional materials
•*Tim Wehling*
- O 30.1 10:30 – 11:00 S053
Surface Phase Transitions in Atomistic Detail and with Femtosecond Resolution
•*Wolf Gero Schmidt*
- O 31.1 10:30 – 11:00 S054
Towards a realistic description of electrified solid-liquid interfaces
•*Nicolas G. Hörmann*
- Sessions**
- O 24 09:30 – 10:15 S054
Overview Talk Yang Shao-Horn
- O 25 10:30 – 13:00 H2
Focus Session: Atomic-Scale Characterization of Correlated Ground States in Epitaxial 2D Materials
- O 26 10:30 – 12:45 H4
Surface Magnetism
- O 27 10:30 – 11:45 H6
Electron-Driven Processes
- O 28 10:30 – 12:45 S051
Organic Molecules at Surfaces 3: Theory
- O 29 10:30 – 12:15 S052
Metal substrates 1

- O 30 10:30 – 12:45 S053
Semiconductor Surfaces
- O 31 10:30 – 12:30 S054
Solid-Liquid Interfaces 3: Reactions and
Electrochemistry
- O 32 11:00 – 13:00 P3
Poster Tuesday: Adsorption and Catalysis 1
- O 33 11:00 – 13:00 P3
Poster Tuesday: Ultrafast Processes 2
- O 34 11:00 – 13:00 P3
Poster Tuesday: Scanning Probe Techniques 2
- O 35 11:00 – 13:00 P3
Poster Tuesday: Plasmonics and Nanooptics 1

Physics of Socio-economic Systems Division (SOE)

Invited Talk

- SOE 8.1 09:30 – 10:15 H11
Musicians' Synchronization and the Enigma of
Swing
•*Theo Geisel*

Sessions

- SOE 8 09:30 – 10:15 H11
Invited Talk Theo Geisel: Human
Synchronization in Music Performance
- SOE 9 10:15 – 11:15 H11
Physics of Contagion Processes
- SOE 10 11:15 – 12:45 H19
Nonlinear Dynamics 1: Synchronization and Chaos

Low Temperature Physics Division (TT)

Invited Talks

- TT 10.1 09:30 – 10:00 H3
Two-fold symmetric superconductivity in few-
layer NbSe₂
•*Vlad Pribiag*

- TT 10.2 10:00 – 10:30 H3
Spin-orbit coupling and triplet pairing in mesoscopic superconductors
•*marco aprili*
- TT 10.3 10:30 – 11:00 H3
Supercurrent diode effect in few-layer NbSe₂
•*Nicola Paradiso*
- TT 10.4 11:15 – 11:45 H3
Superconducting devices in magic-angle twisted bilayer graphene
•*Folkert de Vries*
- TT 10.5 11:45 – 12:15 H3
Minigap and Andreev bound states in ballistic graphene
•*Luca Banszerus*
- Sessions**
- TT 10 09:30 – 13:15 H3
Focus Session: Superconductivity in 2d-Materials and their Heterostructures
- TT 11 09:30 – 12:30 H10
Topology: Quantum Hall Systems
- TT 12 09:30 – 13:00 H22
Correlated Electrons: Materials
- TT 13 09:30 – 11:00 H23
Quantum Dots, Quantum Wires, Point Contacts
- TT 14 11:30 – 13:00 H20
Many-Body Quantum Dynamics 2
- TT 15 11:15 – 12:45 H23
Nano- and Optomechanics

Quantum Information Division (QI)

Invited Talks

- QI 5.1 09:30 – 10:00 H8
Towards universal quantum computation and simulation with NV centre in diamond
•*Vadim Vorobyov*
- QI 6.1 09:30 – 10:00 H9
Towards an Artificial Muse for new Ideas in Quantum Physics
•*Mario Krenn*

Sessions

- QI 5 09:30 – 12:15 H8
Implementations: Solid state systems
- QI 6 09:30 – 12:45 H9
Quantum Information: Concepts and Methods

Job Market: Carl Zeiss AG

"ZEISS Semiconductor Manufacturing Technology: Kleinste Strukturen brauchen großartige Köpfe – Wir entwickeln die EUV-Technologien von morgen."

14:00 – 15:00 Kunsthalle

Exhibition of Scientific Instruments and Literature (free entrance)

09:00 – 18:00 Foyer Audimax, H6, Economy Bldg, Tent (Physics Building)

Evening Talk (free entrance)

- PSV IV 19:00 – 20:00 H1+H2
Grundlagenforschung für Nachhaltigkeit
•*Harald Lesch*
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Wednesday, September 7, 2022

Plenary Talks

- PLV V 08:30 – 09:15 H1
Towards useful quantum computing with superconducting qubits
•*Rami Barends*
- PLV VI 14:00 – 14:45 H1
Disordered Solids
•*Annette Zippelius (Laureate of the Max-Planck-Medal 2022)*
- PLV VII 14:00 – 14:45 H2
Topological insulator lasers
•*Mordechai Segev*

Prize Talk

- PRV III 13:15 – 13:45 H1
Learning the stochastic dynamics of living systems across scales: from single cells to tissues
•*David Brückner (Laureate of the Gustav-Hertz-Prize 2022)*

Lunch Talk

- PSV V 13:15 – 13:45 H2
The German Research Foundation – Funding Opportunities for International Collaborations
•*Michael Mößle*

Symposium: Entanglement Distribution in Quantum Networks (SYED)

Invited Talks

- SYED 1.1 09:30 – 10:00 H1
A multi-node quantum network of remote solid-state qubits
•*Ronald Hanson*

- SYED 1.2 10:00 – 10:30 H1
 Quantum key distribution with highly entangled photons from GaAs quantum dots
 •*Armando Rastelli*
- SYED 1.3 10:30 – 11:00 H1
 Entanglement distribution with minimal memory requirements using time-bin photonic qudits
 •*Johannes Borregaard*
- SYED 1.4 11:15 – 11:45 H1
 Quantum photonics: interference beyond HOM and quantum networks
 •*Stefanie Barz*
- SYED 1.5 11:45 – 12:15 H1
 Photonic cluster-state generation for memory-free quantum repeaters
 •*Tobias Huber*

Session

Symposium: Interplay of Substrate Adaptivity and Wetting Dynamics from Soft Matter to Biology (SYSM)

Invited Talks

- SYSM 1.1 15:00 – 15:30 H1
 Statics and Dynamics of Soft Wetting
 •*Bruno Andreotti*
- SYSM 1.2 15:30 – 16:00 H1
 Droplets on elastic substrates and membranes – Numerical simulation of soft wetting
 •*Sebastian Aland*
- SYSM 1.3 16:00 – 16:30 H1
 Wetting of Polymer Brushes in Air
 •*Sissi de Beer*
- SYSM 1.4 16:45 – 17:15 H1
 Elastocapillary phenomena in cells
 •*Roland L. Knorr*

SYSM 1.5 17:15 – 17:45 H1

Active contact line depinning by micro-organisms spreading on hydrogels

•*Adrian Daerr*

Symposium United Kingdom as Guest of Honor (SYUK)

Invited Talks

SYUK 1.1 09:30 – 10:00 H2

Structure and Dynamics of Interfacial Water

•*Angelos Michaelides*

SYUK 1.2 10:00 – 10:30 H2

A molecular view of the water interface

•*Mischa Bonn*

SYUK 1.3 10:30 – 11:00 H2

Motile cilia waves: creating and responding to flow

•*Pietro Cicuta*

SYUK 1.4 11:00 – 11:30 H2

Cilia and flagella: Building blocks of life and a physicist's playground

•*Oliver Bäumchen*

SYUK 1.5 11:45 – 12:15 H2

Computational modelling of the physics of rare earth – transition metal permanent magnets from SmCo_5 to $\text{Nd}_2\text{Fe}_{14}\text{B}$

•*Julie Staunton*

SYUK 2.1 15:00 – 15:30 H2

Hysteresis Design of Magnetic Materials for Efficient Energy Conversion

•*Oliver Gutfleisch*

SYUK 2.2 15:30 – 16:00 H2

Non-equilibrium dynamics of many-body quantum systems versus quantum technologies

•*Irene D'Amico*

- SYUK 2.3 16:00 – 16:30 H2
Quantum computing with trapped ions
•*Ferdinand Schmidt-Kaler*
- SYUK 2.4 16:45 – 17:15 H2
Breaking the millikelvin barrier in cooling nano-electronic devices
•*Richard Haley*
- SYUK 2.5 17:15 – 17:45 H2
Superconducting Quantum Interference Devices for applications at mK temperatures
•*Sebastian Kempf*

Biological Physics Division (BP)

Invited Talks

- BP 13.1 09:30 – 10:00 H15
Cortex mechanics – how subtle modifications matter
•*Andreas Janshoff*
- BP 15.4 11:00 – 11:30 H13
The importance of water in membrane receptor function
•*Anthony Watts*
- BP 18.1 15:00 – 15:30 H15
Bottom-up molecular control of biomimetic hydrogels
•*Kerstin G. Blank*

Sessions

- BP 13 09:30 – 12:45 H15
Cytoskeleton
- BP 14 09:30 – 12:30 H16
Active Matter 3
- BP 15 10:00 – 12:15 H13
Protein Structure and Single Molecules
- BP 16 10:15 – 12:45 H11
Networks: From Topology to Dynamics

BP 17	15:00 – 17:00	H13	Membranes and Vesicles
BP 18	15:00 – 17:30	H15	Biomaterials
BP 19	15:00 – 17:15	H16	Cell Mechanics 2
BP 20	15:00 – 17:30	H18	Active Matter 4
BP 21	18:00 – 19:00	H15	Members' Assembly

Chemical and Polymer Physics Division (CPP)

Invited Talk

CPP 19.1	09:30 – 10:00	H38	Elucidating the role of antisolvent polarity on the surface chemistry and optoelectronic properties of lead-halide perovskite nanocrystals <i>•Robert Hoyer</i>
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Sessions

CPP 19	09:30 – 11:00	H38	Perovskite and Photovoltaics 2
CPP 20	09:30 – 11:15	H39	General Session to the Symposium: Interplay of Substrate Adaptivity and Wetting Dynamics from Soft Matter to Biology
CPP 21	09:30 – 12:05	H7	Materials for Energy Storage
CPP 22	09:30 – 12:30	H16	Active Matter 3
CPP 23	09:30 – 12:00	H18	Complex Fluids and Soft Matter 1
CPP 24	09:30 – 12:00	H36	2D Materials 5

CPP 25	11:15 – 13:00	H17	2D Materials 6
CPP 26	11:30 – 13:00	H38	Organic Electronics and Photovoltaics 2
CPP 27	11:30 – 13:00	H39	Composites and Functional Polymer Hybrids
CPP 28	15:00 – 17:15	H38	Perovskite and Photovoltaics 3
CPP 29	15:00 – 17:30	H15	Biomaterials
CPP 30	15:00 – 16:00	H17	2D Materials 7
CPP 31	15:00 – 17:30	H18	Active Matter 4
CPP 32	15:00 – 18:15	H34	Perovskite and Photovoltaics 4

Thin Films Division (DS)

Invited Talks

DS 14.1	09:30 – 10:00	H17	Facet dependence of reconstructions at quantum material interfaces • <i>Eva Benckiser</i>
DS 14.3	10:15 – 10:45	H17	Designing novel electronic phases at oxide interfaces from first principles • <i>Rossitza Pentcheva</i>

Sessions

DS 13	09:30 – 10:45	H14	Thin Film Applications 2
DS 14	09:30 – 11:00	H17	Focus session: Quantum Properties at Functional Oxide Interfaces 2

- DS 15 09:30 – 12:00 H36
2D Materials 5
- DS 16 11:00 – 12:00 H14
Thin Film Applications 2
- DS 17 11:15 – 13:00 H17
2D Materials 6
- DS 18 15:00 – 16:00 H14
Thin Oxides and Oxide Layers 1
- DS 19 15:00 – 16:00 H17
2D Materials 7
- DS 20 16:00 – 18:00 P3
Poster

Dynamics and Statistical Physics Division (DY)

Invited Talks

- DY 29.1 12:00 – 12:30 H18
Derivation of a continuum description of sheared jammed soft suspensions from particle dynamics
•*Eric Bertin*
- DY 32.1 15:00 – 15:30 H19
Large scale patterns in turbulent Rayleigh-Bénard convection
•*Stephan Weiss*
- DY 33.1 15:00 – 15:30 H20
Detecting dynamical quantum phase transitions by string observables
•*Anatoli Polkovnikov*

Sessions

- DY 21 09:30 – 10:15 H11
Invited Talk Dirk Brockmann
- DY 22 09:30 – 12:30 H16
Active Matter 3
- DY 23 09:30 – 12:00 H18
Complex Fluids and Soft Matter 1

- DY 24 09:30 – 11:15 H19
Stochastic Thermodynamics and Information Processing
- DY 25 09:30 – 11:15 H39
General Session to the Symposium: Interplay of Substrate Adaptivity and Wetting Dynamics from Soft Matter to Biology
- DY 26 10:00 – 11:30 H20
Critical Phenomena and Phase Transitions
- DY 27 10:15 – 12:45 H11
Networks: From Topology to Dynamics
- DY 28 11:15 – 13:00 H19
Extreme Events, Glasses and Miscellaneous
- DY 29 12:00 – 12:30 H18
Invited Talk Eric Bertin
- DY 30 12:45 – 13:15 H11
Energy Networks
- DY 31 15:00 – 17:30 H18
Active Matter 4
- DY 32 15:00 – 15:30 H19
Invited Talk Stephan Weiss
- DY 33 15:00 – 15:30 H20
Invited Talk Anatoli Polkovnikov
- DY 34 15:30 – 17:15 H19
Fluid Physics: Turbulence and Convection
- DY 35 15:30 – 18:00 H20
Quantum Chaos and Coherent Dynamics

Semiconductor Physics Division (HL)

Invited Talk

- HL 19.1 09:30 – 10:00 H34
Quantum Interference of Identical Photons from Remote GaAs Quantum Dots
•*Giang Nam Nguyen*

Sessions

- HL 16 09:30 – 11:00 H17
Focus Session: Quantum Properties at
Functional Oxide Interfaces
- HL 17 09:30 – 12:30 H32
Quantum Dots and Wires 4: Devices
- HL 18 09:30 – 12:30 H33
Oxide Semiconductors
- HL 19 09:30 – 13:00 H34
Materials and Devices for Quantum Technology 1
- HL 20 09:30 – 12:00 H36
2D Materials 4
- HL 21 15:00 – 18:30 H32
Optical Properties 1
- HL 22 15:00 – 18:00 H33
Heterostructures, Interfaces and Surfaces
- HL 23 15:00 – 18:15 H34
Perovskite and Photovoltaics 2
- HL 24 15:00 – 18:30 H36
Functional Semiconductors for Renewable
Energy Solutions
- HL 25 18:00 – 20:00 P2
Poster 1

Crystalline Solids and their Microstructure Division (KFM)

Invited Talk

- KFM 18.1 15:00 – 15:30 H5
Deep understanding of advanced optical and
dielectric materials for fusion diagnostic
applications
•*Anatoli I. Popov*

Sessions

- KFM 14 09:30 – 12:05 H5
Ferroics – Domains and Domain Walls 1

- KFM 15 09:30 – 12:05 H7
Materials for Energy Storage
- KFM 16 09:30 – 12:30 H33
Oxide Semiconductors
- KFM 17 15:00 – 18:30 H3
Focus Session: Surfaces and Interfaces of
(Incipient) Ferroelectrics
- KFM 18 15:00 – 16:50 H5
Focus Session: Diamond and related dielectric
materials
- KFM 19 15:00 – 16:00 H7
Ferroics – Domains and Domain Walls 2
- KFM 20 15:00 – 18:15 H34
Perovskite and Photovoltaics 2
- KFM 21 15:00 – 18:30 H36
Functional semiconductors for renewable
energy solutions
- KFM 22 17:00 – 18:00 H5
Members' Assembly

Magnetism Division (MA)

Invited Talks

- MA 20.1 09:30 – 10:00 H37
Recent developments in X-ray three-dimensional
magnetic imaging
•*Valerio Scagnoli*
- MA 20.2 10:00 – 10:30 H37
Magnetic depth profiling with x-ray resonant
magnetic reflectivity (XRMR)
•*Timo Kuschel*
- MA 20.3 10:30 – 11:00 H37
Magnetic Bragg Ptychography Studies of Spin
Caloritronic
•*Dina Carbone*

- MA 20.4 11:15 – 11:45 H37
Imaging the 3D magnetic texture of skyrmion tubes and approaches towards determining their Hall signature
•*B. Rellinghaus*
- MA 20.5 11:45 – 12:15 H37
Determination of spin chirality and helicity angle by circular dichroism in soft x-ray absorption and resonant elastic scattering
•*Gerrit van der Laan*
- MA 20.6 12:15 – 12:45 H37
Identification of complex spin-textures by novel Hall effects
•*Juba Bouaziz*
- Sessions**
- MA 20 09:30 – 13:00 H37
Focus Session: Revealing Multidimensional Spin Textures and their Dynamics via X-rays and Electrons
- MA 21 09:30 – 12:15 H43
Terahertz Spintronics
- MA 22 09:30 – 11:45 H47
Thin Films: Magnetic Coupling Phenomena / Exchange Bias / Magnetic Anisotropy
- MA 23 09:30 – 10:45 H48
Magnetic Domain Walls
- MA 24 15:00 – 18:00 H37
Spin Transport and Orbitronics, Spin-Hall Effects
- MA 25 15:00 – 17:00 H43
Ultrafast Magnetization Effects 2
- MA 26 15:00 – 16:00 H48
Molecular Magnetism

Metal and Material Physics Division (MM)

Invited Talk, Topical Talks

- MM 19.1 09:30 – 10:00 H44
High-Entropy Alloys: Materials design in high dimensional chemical space from ab initio thermodynamics
•*Fritz Körmann*
- MM 22.1 10:15 – 10:45 H46
Ingredients for effective computer-augmented experimental materials science
•*Christoph T. Koch*
- MM 22.5 11:45 – 12:15 H46
Physics guided machine learning tools in analytical transmission electron microscopy
•*Cecile Hebert*
- MM 24.1 15:45 – 16:15 H45
Electromigration effects on the atomic ordering process in hard magnetic L1₀ intermetallic phases
•*Daniel Urban*
- MM 24.6 17:30 – 18:00 H45
From Uncovering the Mechanisms of Flash Sintering to Realizing Ultrafast Sintering without Electric Fields and Discovering Electrochemically Driven Microstructural Evolution
•*Jian Luo*
- MM 24.7 18:00 – 18:30 H45
Electric fields effects in ionic conductors during flash sintering and ion exchange
•*Mattia Biesuz*
- MM 25.1 15:45 – 16:15 H46
Automated atomistic calculation of thermodynamic and thermophysical data
•*Jan Janssen*

- MM 25.5 17:15 – 17:45 H46
 Understanding Dislocation Flow and Avalanches in High Entropy Alloys by Machine Learning-based Data Mining of In-Situ TEM Experiments
 •*Stefan Sandfeld*
- Sessions**
- MM 19 09:30 – 10:00 H44
 Invited Talk Fritz Kyrmann
- MM 20 10:15 – 13:00 H44
 Computational Materials Modelling: HEA, Alloys & Nanostructures
- MM 21 10:15 – 13:00 H45
 Transport in Materials: Thermal transport
- MM 22 10:15 – 13:00 H46
 Data Driven Materials Science: Experimental Data Treatment and Machine Learning
- MM 23 15:45 – 18:30 H44
 Computational Materials Modelling: Magnetic & Electrical Properties
- MM 24 15:45 – 18:30 H45
 Non-equilibrium Phenomena in Materials Induced by Electrical and Magnetic Fields 4
- MM 25 15:45 – 18:30 H46
 Data Driven Materials Science: Computational Frameworks / Chemical Complexity
- MM 26 18:45 – 20:15 H44
 Members' Assembly

Surface Science Division (O)

Invited Talk, Topical Talks

- O 36.1 09:30 – 10:15 S054
 Heterogeneous chemistry of liquid-vapor interfaces investigated with X-ray photoelectron spectroscopy
 •*Hendrik Bluhm*

- O 37.1 10:30 – 11:00 H3
Merging integrated photonics with free-electron beams
•*Armin Feist*
- O 38.1 10:30 – 11:00 H4
Electrochemical Microcalorimetry
•*Rolf Schuster*
- O 44.1 15:00 – 15:30 H3
In search of electrostatic happiness at surfaces
•*Nicola Spaldin*
- O 44.2 15:30 – 16:00 H3
Synthesis and Characterisation of Ultra-thin Aurivillius Phase Multiferroics
•*Lynette Keeney*
- O 44.6 16:45 – 17:15 H3
Water-oxidation catalysis on surfaces of ferroelectrics
•*Ulrich Aschauer*
- O 44.10 18:00 – 18:30 H3
Spin-orbitronics and superconductivity in KTaO₃ twodimensional electron gases
•*Srijani Mallik*
- O 45.1 15:00 – 15:30 H4
Addressing Electronic Effects in Catalysis by Intermetallic Compounds
•*Marc Armbrüster*
- O 45.5 16:15 – 16:45 H4
Understanding liquid metal catalysts for graphene synthesis using machine learning interatomic potentials
•*Hendrik H. Heenen*
- O 45.6 16:45 – 17:15 H4
Ionic liquids and deep eutectic solvents - sustainable media for selective molecular recognition and adsorption
•*Jan Blasius*

- O 47.1 15:00 – 15:30 S051
Quantum control of multi-spin architectures on a surface
•*Yujeong Bae*
- O 47.6 16:30 – 17:00 S051
Free coherent evolution of a coupled atomic spin system initialized by electron scattering
•*Sander Otte*
- Sessions**
- O 36 09:30 – 10:15 S054
Overview Talk Hendrik Bluhm
- O 37 10:30 – 12:45 H3
Plasmonics and Nanooptics 1
- O 38 10:30 – 12:30 H4
Solid-Liquid Interfaces 4: Reactions and Electrochemistry
- O 39 10:30 – 12:15 H6
Tribology
- O 40 10:30 – 12:45 S051
Organic Molecules at Surfaces 4: Chemistry on Surfaces
- O 41 10:30 – 12:30 S052
Graphene: Growth, Substrate Interaction, Intercalation, and Doping
- O 42 10:30 – 11:45 S053
Metal substrates 2
- O 43 10:30 – 13:00 S054
Frontiers of Electronic Structure Theory: Focus on Artificial Intelligence Applied to Real Materials 1
- O 44 15:00 – 18:30 H3
Focus Session: Surfaces and Interfaces of (Incipient) Ferroelectrics
- O 45 15:00 – 18:00 H4
Focus Session: Catalysis at Liquid Interfaces

- O 46 15:00 – 17:00 H6
New Methods and Developments 3: Theory
- O 47 15:00 – 18:00 S051
Focus Session: Atomic-Scale Studies of
Spins on Surfaces with Scanning Tunneling
Microscopy 1
- O 48 15:00 – 17:30 S052
2D Materials 1: Electronic Structure of
Transition Metal Dichalcogenides
- O 49 15:00 – 17:30 S053
Oxide Surfaces 1
- O 50 15:00 – 18:00 S054
Frontiers of Electronic Structure Theory:
Focus on Artificial Intelligence Applied to Real
Materials 2
- O 51 18:00 – 20:00 P4
Poster Wednesday: Atomic-Scale Studies of
Spins on Surfaces with Scanning Tunneling
Microscopy
- O 52 18:00 – 20:00 P4
Poster Wednesday: Adsorption and Catalysis 2
- O 53 18:00 – 20:00 P4
Poster Wednesday: Spins and Magnetism
- O 54 18:00 – 20:00 P4
Poster Wednesday: 2D Materials 2
- O 55 18:00 – 20:00 P4
Poster Wednesday: Organic Molecules at
Surfaces 2
- O 56 18:00 – 20:00 P4
Poster Wednesday: Nanostructures 2
- O 57 18:00 – 20:00 P4
Poster Wednesday: Electronic Structure
- O 58 18:00 – 20:00 P4
Poster Wednesday: New Methods and
Developments, Frontiers of Electronic Structure
Theory

O 59 18:00 – 20:00 P4
Poster Wednesday: Plasmonics and
Nanooptics 2

Physics of Socio-economic Systems Division (SOE)

Invited Talk

SOE 11.1 09:30 – 10:15 H11
The Corona Data Donation Project - When
Citizens Collaborate to Fight a Pandemic
•Dirk Brockmann

Sessions

SOE 11 09:30 – 10:15 H11
Invited Talk Dirk Brockmann: Big Data in
Epidemic Dynamics

SOE 12 10:15 – 12:45 H11
Networks: From Topology to Dynamics

SOE 13 12:45 – 13:15 H11
Energy Networks

SOE 14 15:00 – 16:45 H11
Computational Social Science

SOE 15 17:00 – 18:15 H11
Traffic Dynamics, Urban and Regional Systems

SOE 16 18:15 – 19:30 H11
Members' Assembly

Low Temperature Physics Division (TT)

Invited Talks

TT 16.1 09:30 – 10:00 H10
Multimethod, multimessenger approaches to
models of strong correlations
•Thomas Schäfer

TT 22.1 15:00 – 15:30 H10
Evidence for orbital loop current magnetism in
 Sr_2RuO_4
•A. Di Bernardo

- TT 22.8 17:15 – 17:45 H10
 Role of the film geometry in the electronic reconstruction of infinite-layer nickelates on SrTiO₃(001)
•Benjamin Geisler
- Sessions**
- TT 16 09:30 – 13:15 H10
 Correlated Electrons: Method Development
- TT 17 09:30 – 12:00 H22
 Cryogenic Detectors and Cryotechnique
- TT 18 09:30 – 11:45 H23
 Topological Insulators
- TT 19 11:45 – 13:00 H23
 Topological Superconductors
- TT 20 15:00 – 18:00 P1
 Topology: Poster Session
- TT 21 15:00 – 18:00 P1
 Correlated Electrons: Poster Session
- TT 22 15:00 – 19:15 H10
 Unconventional Superconductors
- TT 23 15:00 – 18:30 H22
 Frustrated Magnets – General
- TT 24 15:00 – 19:00 H23
 Quantum-Critical Phenomena

Quantum Information Division (QI)

Invited Talk

- QI 8.1 15:00 – 15:30 H9
 Exploring Quantum Materials with Quantum Sensors
•Uri Vool

Sessions

- QI 7 15:00 – 17:45 H8
 Quantum Communication and Networks

QI 8 15:00 – 17:45 H9
Quantum Sensors and Metrology

Job Market: Ritzenhoefer GmbH
*„Transformation Consulting – Von der Physik zur
Sinngewinnungs-Maschine fürs Topmanagement“.*

12:45 – 13:45 Kunsthalle

Job Market: d-fine
*„Auswirkungen von Krisen auf Energieversorger
– Einblick in die analytisch-technologische Be-
ratung bei d-fine“*

14:00 – 15:00 Kunsthalle

Exhibition of Scientific Instruments and Literature (free
entrance)

09:00 – 18:00 Foyer Audimax, H6, Economy
Bldg, Tent (Physics Building)

EinsteinSlam

20:00 H1

Thursday, September 8, 2022

Plenary Talks

- PLV VIII 08:30 – 09:15 H1
Physics of Structure Formation in Living Systems
•*Stephan Grill*
- PLV IX 14:00 – 14:45 H1
Evolutionary transitions: universality, complexity and predictability
•*Ricard Sole*
- PLV X 14:00 – 14:45 H2
Semiconductor quantum optics: from artificial atoms to atomically thin materials
•*Jonathan Finley*

Lunch Talk

- PSV VII 13:15 – 13:45 H2
Berufsbild: Wissenschaftskommunikation und Museumsdidaktik
•*Kim Ludwig-Petsch*

Symposium: Frontiers of Electronic-Structure Theory: Focus on Artificial Intelligence Applied to Real Materials (SYES)

Invited Talks

- SYES 1.1 15:00 – 15:30 H1
Machine-learning-driven advances in modelling inorganic materials
•*Volker L. Deringer*
- SYES 1.2 15:30 – 16:00 H1
Machine-Learning Discovery of Descriptors for Square-Net Topological Semimetals
•*Eun-Ah Kim*
- SYES 1.3 16:00 – 16:30 H1
Four Generations of Neural Network Potentials
•*Jörg Behler*

- SYES 1.4 16:30 – 17:00 H1
Using machine learning to find density functionals
•*Kieron Burke*
- SYES 1.5 17:00 – 17:30 H1
Coarse graining for classical and quantum systems
•*Cecilia Clementi*

Symposium: Collective Social Dynamics from Animals to Humans (SYSO)

Invited Talks

- SYSO 1.1 09:30 – 10:00 H1
Capturing group interactions: The next frontier of modeling social and biological systems
•*Frank Schweitzer*
- SYSO 1.2 10:00 – 10:30 H1
Modelling Individual Mobility Behavior
•*Laura Maria Alessandretti*
- SYSO 1.3 10:30 – 11:00 H1
Validating argument-based opinion dynamics with survey experiments
•*Sven Banisch*
- SYSO 1.4 11:15 – 11:45 H1
Self-organization, Criticality and Collective Information Processing in Animal Groups
•*Pawel Romanczuk*
- SYSO 1.5 11:45 – 12:15 H1
Collective dynamics and physiological interactions in bird colonies
•*Hanja Brandl*

Biological Physics Division (BP)

Invited Talks

- BP 22.1 09:30 – 10:00 H15
Cell and tissue mechano-plasticity in development
•*Verena Ruprecht*
- BP 24.1 10:30 – 11:00 H16
Actin waves as building blocks of cellular function
•*Carsten Beta*
- BP 26.1 15:00 – 15:30 H15
Molecular robots working cooperatively in swarm
•*Akira Kakugo*

Sessions

- BP 22 09:30 – 12:15 H15
Migration and Multicellular Systems
- BP 23 10:00 – 10:45 H13
Evolution
- BP 24 10:30 – 12:30 H16
Systems Biology, Gene Expression, Signalling
- BP 25 11:00 – 12:00 H13
Bioinspired Systems
- BP 26 15:00 – 17:30 H15
Focus Session: Bioinspired Systems
- BP 27 15:00 – 16:30 H16
Statistical Physics of Biological Systems 2

Chemical and Polymer Physics Division (CPP)

Invited Talks

- CPP 33.1 09:30 – 10:00 H38
Cooperative and non-Gaussian dynamics of entanglement strands in polymer melts
•*Margarita Kruteva*

- CPP 37.1 10:30 – 11:00 H39
Non-equilibrium Properties of Thin Polymer Films
•*Günter Reiter*
- CPP 40.1 15:00 – 15:30 H38
Computational Design of Organic Semiconductors
•*Harald Oberhofer*
- CPP 41.1 15:00 – 15:30 H39
Interface-induced crystallization in polymers:
From model systems to applications for semi-
conducting polymers
•*Oleksandr Dolynchuk*
- Sessions**
- CPP 33 09:30 – 11:15 H38
Focus Session: Soft Matter and Nanocom-
posites: New Opportunities with Advanced
Neutron Sources 1
- CPP 34 09:30 – 10:15 H39
Hydrogels and Microgels
- CPP 35 09:30 – 11:30 H17
2D Materials 8
- CPP 36 10:00 – 11:30 H18
Complex Fluids and Soft Matter 2
- CPP 37 10:30 – 13:00 H39
Interfaces and Thin Films and Responsive and
Adaptive Systems
- CPP 38 11:15 – 12:15 H36
2D Materials 9
- CPP 39 11:30 – 13:00 H38
Molecular Electronics and Excited State Properties
- CPP 40 15:00 – 17:45 H38
Organic Electronics and Photovoltaics 3
- CPP 41 15:00 – 17:30 H39
Crystallization, Nucleation and Self-Assembly

- CPP 42 15:00 – 16:30 H31
Perovskite and Photovoltaics 5
- CPP 43 18:00 – 19:00 H39
Members' Assembly

Thin Films Division (DS)

Sessions

- DS 21 09:30 – 10:30 H14
Layer Deposition (ALD, MBE, Sputtering, ...)
- DS 22 09:30 – 11:30 H17
2D Materials 8
- DS 23 10:45 – 12:15 H14
Optical Analysis of Thin Films (Reflection, Ellipsometry, Raman, IR-DUV Spectroscopy, ...)
- DS 24 11:15 – 12:15 H36
2D Materials 9
- DS 25 15:00 – 16:00 H14
Transport Properties
- DS 26 16:15 – 17:15 H14
Thin Oxides and Oxide Layers 2

Dynamics and Statistical Physics Division (DY)

Invited Talk

- DY 37.1 09:30 – 10:00 H20
Controlled and robust phase separation in cells
•*David Zwicker*

Sessions

- DY 36 09:30 – 12:30 H22
Quantum Coherence and Quantum Information Systems
- DY 37 09:30 – 10:00 H20
Invited Talk David Zwicker
- DY 38 10:00 – 11:30 H18
Complex Fluids and Soft Matter 2

- DY 39 10:00 – 12:15 H19
 Pattern Formation and Reaction-Diffusion Systems
- DY 40 10:00 – 12:00 H20
 Brownian Motion and Anomalous Diffusion
- DY 41 15:00 – 18:15 H22
 Nonequilibrium Quantum Many-Body Systems
- DY 42 15:00 – 16:30 H16
 Statistical Physics of Biological Systems 2
- DY 43 15:00 – 18:00 P2
 Poster Session: Quantum Chaos and Many-Body Dynamics
- DY 44 15:00 – 18:00 P2
 Poster Session: Statistical Physics and Critical Phenomena
- DY 45 15:00 – 18:00 P2
 Poster Session: Nonlinear Dynamics, Pattern Formation, Data Analytics and Machine Learning
- DY 46 15:00 – 18:00 P2
 Poster Session: Complex Fluids, Soft Matter, Active Matter, Glasses and Granular Materials
- DY 47 18:30 – 19:15 H19
 Members' Assembly

Semiconductor Physics Division (HL)

Invited Talks

- HL 27.1 09:30 – 10:00 H33
 What limits state-of-the-art chalcopyrite solar cells?
 •*Susanne Siebentritt*
- HL 27.2 10:00 – 10:30 H33
 Approaches to improve CIGS absorber quality and the CIGS/buffer interface to reach 24% efficiency and beyond
 •*Wolfram Witte*

- HL 33.6 16:30 – 17:00 H32
Ultrastrong light-matter coupling in materials
•*Niclas S. Mueller*
- HL 34.1 15:00 – 15:30 H33
Super-high efficiency CIGS devices: current status and pathways forward
•*Romain Carron*
- HL 34.2 15:30 – 16:00 H33
Highlights from the development of the world record Cd-free CIGSSe 30x30cm² solar module
•*Anastasia Zelenina*
- HL 34.5 17:00 – 17:30 H33
Digital Twins - a simulation model for Cu(In,Ga)Se₂ solar cells of high and moderate efficiency
•*Matthias Maiberg*
- Sessions**
- HL 26 09:30 – 12:45 H32
Quantum Dots and Wires 5: Optics 2
- HL 27 09:30 – 11:00 H33
Focus Session: Perspectives in Cu(In,Ga)Se 1
- HL 28 09:30 – 11:45 H34
Organic Semiconductors 1
- HL 29 09:30 – 11:00 H36
2D Materials: Graphene
- HL 30 11:00 – 13:00 P3
Poster 2
- HL 31 11:15 – 12:15 H36
2D Materials 5
- HL 32 15:00 – 16:30 H31
Perovskite and Photovoltaics 3
- HL 33 15:00 – 18:00 H32
Optical Properties 2
- HL 34 15:00 – 18:00 H33
Focus Session: Perspectives in Cu(In,Ga)Se 2

- HL 35 15:00 – 16:00 H34
Acoustic Waves and Nanomechanics
- HL 36 15:00 – 17:45 H36
Materials and Devices for Quantum
Technology 2
- HL 37 16:30 – 17:15 H34
Thermal Properties
- HL 38 18:00 – 19:00 H34
Members' Assembly

Crystalline Solids and their Microstructure Division (KFM)

Sessions

- KFM 23 09:30 – 12:45 H37
Skyrmions 2
- KFM 24 10:30 – 12:30 H6
New Methods and Developments: Spectros-
copies, Diffraction and Others
- KFM 25 15:00 – 18:00 P2
Poster
- KFM 26 15:00 – 18:30 H10
Focus Session: Topological Devices
- KFM 27 15:00 – 16:30 H31
Perovskite and Photovoltaics 3
- KFM 28 15:00 – 17:45 H37
Topological Insulators
- KFM 29 15:00 – 16:45 H47
Multiferroics and Magnetoelectric Coupling

Magnetism Division (MA)

Invited Talk

- MA 31.1 15:00 – 15:30 H37
Neutron scattering on magnetic topological materials: From topological magnon insulators to emergent many-body effects
•*Yixi Su*

Sessions

- MA 27 09:30 – 12:45 H37
Skyrmions 2
- MA 28 09:30 – 12:45 H43
Magnonics 2
- MA 29 09:30 – 11:45 H47
Caloric Effects in Magnetic Materials
- MA 30 09:30 – 11:30 H48
Surface Magnetism
- MA 31 15:00 – 17:45 H37
Topological Insulators
- MA 32 15:00 – 17:00 H43
Bulk Materials: Soft and Hard Permanent Magnets
- MA 33 15:00 – 16:45 H47
Multiferroics and Magnetoelectric Coupling
- MA 34 15:00 – 16:45 H48
Functional Antiferromagnetism
- MA 35 16:00 – 18:00 P4
Poster 2
- MA 36 18:00 – 19:00 H37
Members' Assembly

Metal and Material Physics Division (MM)

Invited Talk

- MM 27.1 09:30 – 10:00 H44
Crystal rotation kinematics during the tribological loading of high-purity copper
•*Christian Greiner*

Sessions

- MM 27 09:30 – 10:00 H44
Invited Talk Christian Greiner
- MM 28 10:15 – 11:30 H44
Transport in Materials: Diffusion / Electrical Transport & Magnetism
- MM 29 10:15 – 11:30 H45
Data Driven Materials Science: Design of Functional Materials
- MM 30 10:15 – 13:00 H46
Liquid and Amorphous Metals
- MM 31 11:45 – 13:00 H44
Computational Materials Modelling: Physics of Ensembles 2
- MM 32 11:45 – 13:00 H45
Nanomaterials: Surface Effects
- MM 33 15:45 – 18:30 H44
Computational Materials Modelling: Process Schemes / Oxides
- MM 34 15:45 – 18:30 H45
Data Driven Materials Science: Interatomic Potentials / Reduced Dimensions
- MM 35 15:45 – 18:30 H46
Nanomaterials: Structure & Properties

Surface Science Division (O)

Invited Talk, Topical Talks

- O 60.1 09:30 – 10:15 S054
Exciting states in atomically thin layers
•*Thorsten Deilmann*
- O 61.1 10:30 – 11:00 H2
Single Molecule Nonlinearity in a Plasmonic Waveguide
•*Markus Lippitz*
- O 63.1 10:30 – 11:00 H6
Element and Structure Analysis of Surfaces Using Positrons
•*Christoph Hugenschmidt*
- O 66.1 10:30 – 11:00 S053
Charge-ordered states on incipient ferroelectric polar surfaces
•*Cesare Franchini*
- O 68.1 15:00 – 15:30 H3
Exploring Excitonic Excitations in Momentum Space
•*Keshav Dani*
- O 68.2 15:30 – 16:00 H3
Moiré interlayer and charge-transfer excitons in space and time: new experiments enabled by time-resolved momentum microscopy
•*Stefan Mathias*
- O 68.5 16:30 – 17:00 H3
Momentum and energy dissipation of hot electrons in metals and metal-molecular heterostructures
•*Benjamin Stadtmueller*
- O 68.8 17:30 – 18:00 H3
Is there a perfect electron analyzer for time-resolved ARPES?
•*Laurenz Rettig*

- O 69.1 15:00 – 15:30 H4
Theoretical Investigations of Size and Support Effects in Heterogeneous Catalysis
•*Felix Studt*
- O 70.1 15:00 – 15:30 H6
Stability and dynamics of cluster catalysts and their supports
•*Barbara A. J. Lechner*
- O 71.1 15:00 – 15:30 S051
Theory for Electron Spin Resonance based on electron transport
•*Nicolas Lorente*
- O 71.7 16:45 – 17:15 S051
Stochastic resonance as a new tool to investigate spin dynamics
•*Susanne Baumann*

Sessions

- O 60 09:30 – 10:15 S054
Overview Talk Thorsten Deilmann
- O 61 10:30 – 12:45 H2
Plasmonics and Nanooptics 2
- O 62 10:30 – 12:45 H4
Surface Reactions and Heterogeneous Catalysis 1
- O 63 10:30 – 12:30 H6
New Methods and Developments 4: Spectroscopies, Diffraction and Others
- O 64 10:30 – 13:00 S051
Gerhard Ertl Young Investigator Award
- O 65 10:30 – 12:30 S052
2D Materials 2: Growth, Structure and Substrate Interaction
- O 66 10:30 – 13:00 S053
Oxide Surfaces 2

- O 67 10:30 – 12:45 S054
 Frontiers of Electronic Structure Theory:
 Focus on Artificial Intelligence Applied to Real
 Materials 3
- O 68 15:00 – 18:30 H3
 Focus Session: Time-Resolved Momentum
 Microscopy
- O 69 15:00 – 17:45 H4
 Surface Reactions and Heterogeneous
 Catalysis 2
- O 70 15:00 – 17:45 H6
 Supported nanoclusters: Structure, Reactions,
 Catalysis
- O 71 15:00 – 18:00 S051
 Focus Session: Atomic-Scale Studies of
 Spins on Surfaces with Scanning Tunneling
 Microscopy 2
- O 72 15:00 – 17:00 S052
 2D Materials 3: hBN and Electronic Structure
- O 73 15:00 – 17:45 S053
 Electronic Structure of Surfaces 1
- O 74 15:00 – 18:00 S054
 Organic Molecules at Surfaces 5: Molecular
 Switches
- O 75 19:00 – 19:30 H1
 Members' Assembly
- O 76 19:30 – 20:30 H1
 Post-Deadline Session

Physics of Socio-economic Systems Division (SOE)

Session

- SOE 17 15:00 – 18:00 P2
 Poster

Low Temperature Physics Division (TT)

Invited Talks

- TT 25.1 09:30 – 10:00 H3
Topology: Open and with diverse backgrounds
•*Tobias Meng*
- TT 28.5 10:30 – 11:00 H23
Towards an ab-initio theory of Anderson localization for correlated electrons
•*Liviu Chioncel*
- TT 32.1 15:00 – 15:30 H10
Supercurrents in HgTe-based topological nanowires
•*Dieter Weiss*
- TT 32.2 15:30 – 16:00 H10
Majorana bound states and non-reciprocal transport in topological insulator nanowire devices
•*Henry Legg*
- TT 32.3 16:00 – 16:30 H10
Integration of topological insulator Josephson junctions in superconducting qubit circuits
•*Tobias W. Schmitt*
- TT 32.4 16:45 – 17:15 H10
Universal fluctuations of the induced superconducting gap in an elemental nanowire
•*Matthieu Delbecq*
- TT 32.5 17:15 – 17:45 H10
Exploring the full potential of edge channel transport in HgTe based two-dimensional topological insulators
•*Saquib Shamim*

Sessions

- TT 25 09:30 – 13:15 H3
Topological Semimetals

- TT 26 09:30 – 13:00 H10
Superconductivity: Tunnelling and Josephson Junctions
- TT 27 09:30 – 12:30 H22
Quantum Coherence and Quantum Information Systems
- TT 28 09:30 – 13:00 H23
Correlated Electrons: Theory 1
- TT 29 15:00 – 18:00 P1
Transport: Poster Session
- TT 30 15:00 – 18:00 P1
Superconductivity: Poster Session
- TT 31 15:00 – 18:00 P1
Superconducting Electronics and Cryogenics: Poster Session
- TT 32 15:00 – 18:30 H10
Focus Session: Topological Devices
- TT 33 15:00 – 18:15 H22
Nonequilibrium Quantum Many-Body Systems
- TT 34 15:00 – 18:45 H23
Correlated Electrons: Theory 2
- TT 35 19:00 – 20:00 H22
Members' Assembly

Quantum Information Division (QI)

Invited Talk

- QI 10.1 09:30 – 10:00 H9
Entanglement Transition in the Projective Transverse Field Ising Model
•*Hans Peter Büchler*

Sessions

- QI 9 09:30 – 12:15 H8
Quantum Correlations
- QI 10 09:30 – 12:15 H9
Quantum Simulation and Many-Body Systems

QI 11 14:00 – 15:00 H8

Members' Assembly

QI 12 15:00 – 18:15 H8

Quantum Computing and Algorithms

Job Market: Basycon Unternehmensberatung GmbH -
"Was hat Beratung mit Forschung zu tun?"

12:45 – 13:45 Kunsthalle

Job Market: Trumpf GmbH & Co. KG
"Lasersystems for EUV Lithography"

14:00 – 15:00 Kunsthalle

Exhibition of Scientific Instruments and Literature (free
entrance)

09:00 – 18:00 Foyer Audimax, H6, Economy
Bldg, Tent (Physics Building)

Friday, September 9, 2022

Plenary Talk

- PLV XI 08:30 – 09:15 H1
Spinwaves as experimental probes
•*Christian Back*

Symposium: Complexity and Topology in Quantum Matter (SYQM)

Invited Talks

- SYQM 1.1 09:30 – 10:00 H1
The role of crystalline symmetries in topological materials: the topological materials database
•*Maia Vergniory*
- SYQM 1.2 10:00 – 10:30 H1
Microwave Bulk and Edge Transport in HgTe-Based 2D Topological Insulators
•*Erwann Bocquillon*
- SYQM 1.3 10:30 – 11:00 H1
Spectral Sensitivity of Non-Hermitian Topological Systems
•*Jan Carl Budich*
- SYQM 1.4 11:15 – 11:45 H1
Topological photonics and topological lasers with coupled vertical resonators
•*Sebastian Klemmt*
- SYQM 1.5 11:45 – 12:15 H1
Spectroscopic Studies of the Topological Magnon Band Structure in a Skyrmion Lattice
•*Markus Garst*

Biological Physics Division (BP)

Sessions

- BP 28 09:30 – 11:15 H39
Biopolymers, Biomaterials and Bioinspired Functional Materials

BP 29 10:00 – 12:45 H18
Active Matter 5

Chemical and Polymer Physics Division (CPP)

Invited Talks

- CPP 44.1 09:30 – 10:00 H38
Connecting dynamics and phase behavior of proteins: The neutron perspective
•*Frank Schreiber*
- CPP 44.5 10:45 – 11:15 H38
Magnetic particle self-assembly at functionalized interfaces
•*Max Wolff*
- CPP 45.1 09:30 – 10:00 H39
New biobased material concepts using scattering techniques to elucidate and control nanoscale assembly
•*Daniel Söderberg*

Sessions

- CPP 44 09:30 – 11:15 H38
Focus Session: Soft Matter and Nanocomposites: New Opportunities with Advanced Neutron Sources 2
- CPP 45 09:30 – 11:15 H39
Biopolymers, Biomaterials and Bioinspired Functional Materials
- CPP 46 09:30 – 12:00 H36
2D Materials 10
- CPP 47 10:00 – 12:45 H18
Active Matter 5
- CPP 48 11:30 – 12:30 H38
Electrical, Dielectrical and Optical Properties of Thin Films
- CPP 49 11:30 – 13:00 H39
Polymer and Molecular Dynamics, Friction and Rheology

- CPP 50 12:30 – 13:00 H38
 Nanostructures, Nanostructuring and Nano-
 sized Soft Matter
- CPP 51 13:15 – 14:00 S054
 Overview Talk Claus M. Schneider

Thin Films Division (DS)

Session

- DS 27 09:30 – 12:00 H36
 2D Materials 10

Dynamics and Statistical Physics Division (DY)

Invited Talk

- DY 48.1 09:30 – 10:00 H19
 Photonic Reservoir Computing: Analytic
 insights and possibilities for optimization
 •Kathy Lüdge

Sessions

- DY 48 09:30 – 10:00 H19
 Invited Talk Kathy Lüdge
- DY 49 09:30 – 12:15 H20
 Statistical Physics: General
- DY 50 10:00 – 12:45 H18
 Active Matter 5
- DY 51 10:00 – 11:15 H19
 Machine Learning in Dynamics and Statistical
 Physics
- DY 52 11:30 – 12:45 H19
 Nonlinear Dynamics 2: Stochastic and
 Complex Systems, Networks

Semiconductor Physics Division (HL)

Invited Talk

- HL 40.5 10:45 – 11:15 H33
Ultrafast subcycle dynamics of deep-strong
light-matter coupling
• *Joshua Mornhinweg*

Sessions

- HL 39 09:30 – 10:45 H32
Quantum Dots and Wires 6: II-VI and related
- HL 40 09:30 – 11:45 H33
THz and MIR Physics in Semiconductors
- HL 41 09:30 – 10:45 H34
Organic Semiconductors 2
- HL 42 09:30 – 12:00 H36
2D Materials 6

Crystalline Solids and their Microstructure Division (KFM)

Sessions

- KFM 30 09:30 – 12:45 H37
Skyrmions 3
- KFM 31 11:30 – 12:30 H38
Electrical, Dielectrical and Optical Properties of
Thin Films

Magnetism Division (MA)

Sessions

- MA 37 09:30 – 12:45 H37
Skyrmions 3
- MA 38 09:30 – 11:15 H43
Electron Theory of Magnetism and Correlations
- MA 39 09:30 – 11:00 H47
Magnetic Particles / Clusters

- MA 40 09:30 – 10:45 H48
Weyl Semimetals
- MA 41 11:30 – 12:45 H47
Micro- and Nanostructured Magnetic Materials
- MA 42 11:30 – 12:45 H48
Magnetic Heuslers

Surface Science Division (O)

Invited Talks, Topical Talk

- O 77.1 09:30 – 10:15 S054
Sub-molecular fluorescence microscopy with STM
•*Guillaume Schull*
- O 79.1 10:30 – 11:00 H4
Exploitation of Heterocycles for N-doped Graphene Nanomaterials
•*Shi-Xia Liu*
- O 84.1 13:15 – 14:00 S054
Exploring the Mysteries of Topology in Quantum Materials
•*Claus M. Schneider*

Sessions

- O 77 09:30 – 10:15 S054
Overview Talk Guillaume Schull
- O 78 10:30 – 12:30 H3
Plasmonics and Nanooptics 3
- O 79 10:30 – 12:45 H4
Surface Reactions and Heterogeneous Catalysis 3
- O 80 10:30 – 12:15 S051
Focus Session: Atomic-Scale Studies of Spins on Surfaces with Scanning Tunneling Microscopy 3
- O 81 10:30 – 12:00 S052
2D Materials 4: Heterostructures

- O 82 10:30 – 12:15 S053
Electronic Structure of Surfaces 2
- O 83 10:30 – 13:00 S054
Frontiers of Electronic Structure Theory:
Focus on Artificial Intelligence Applied to Real
Materials 4
- O 84 13:15 – 14:00 S054
Overview Talk Claus M. Schneider

Physics of Socio-economic Systems Division (SOE)

Sessions

- SOE 18 09:30 – 10:00 H19
Invited Talk Kathy Lbidge
- SOE 19 10:00 – 11:15 H19
Machine Learning in Dynamics and Statistical
Physics
- SOE 20 11:30 – 12:45 H19
Nonlinear Dynamics 2: Stochastic and
Complex Systems, Networks

Low Temperature Physics Division (TT)

Invited Talks

- TT 36.1 09:30 – 10:00 H10
Coherent control of lattice and electronic
states
•*Steven Johnson*
- TT 36.2 10:00 – 10:30 H10
New opportunities for light-matter control of
quantum materials
•*Michael Sentef*
- TT 36.3 10:30 – 11:00 H10
Coherent electronic control of an insulator-to-
metal transition
•*Claudio Giannetti*

- TT 36.4 11:15 – 11:45 H10
 Nanoscale transient magnetization dynamics:
 A comprehensive EUV TG study
 •*Laura Foglia*
- TT 36.5 11:45 – 12:15 H10
 Ultrafast magnetism of antiferromagnets
 •*Alexey Kimel*
- Sessions**
- TT 36 09:30 – 12:15 H10
 Focus Session: Ultrafast Spin, Lattice and
 Charge Dynamics of Solids
- TT 37 09:30 – 13:15 H22
 Superconducting Electronics: SQUIDs, Qubits,
 Circuit QED
- TT 38 09:30 – 11:00 H23
 Superconductivity: Theory
- TT 39 11:15 – 13:15 H23
 Correlated Electrons: Charge Order

Quantum Information Division (QI)

Invited Talks

- QI 13.1 09:30 – 10:00 H8
 Scalable control of superconducting qubits
 •*Stefan Filipp*
- QI 14.1 09:30 – 10:00 H9
 Testing quantum theory with generalized
 noncontextuality
 •*Markus P. Müller*

Sessions

- QI 13 09:30 – 12:45 H8
 Implementations: Superconducting Qubits
- QI 14 09:30 – 12:30 H9
 Quantum Foundations

Working Group on Equal Opportunities (AKC)

Invited Talk

AKC 1.1 09:30 – 10:00 H2

Closing the gender gap: avoid dropout in the postdoc and junior professor phase

•*Petra Rudolf*

Session

AKC 1 09:30 – 12:00 H2

Career in Academia

Job Market: Horn & Company

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11:30 – 12:30 Kunsthalle

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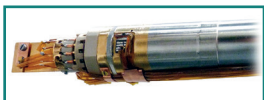
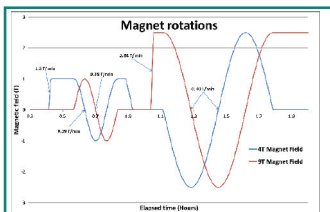
BOOTH A09

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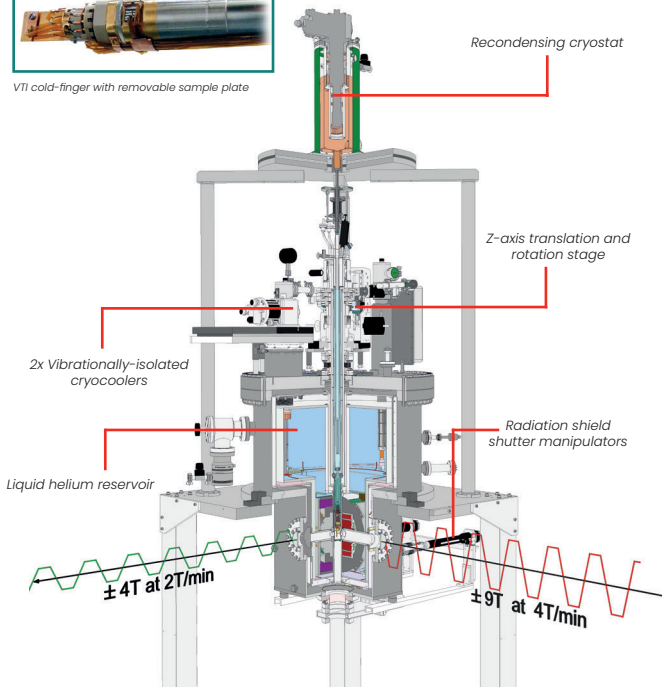


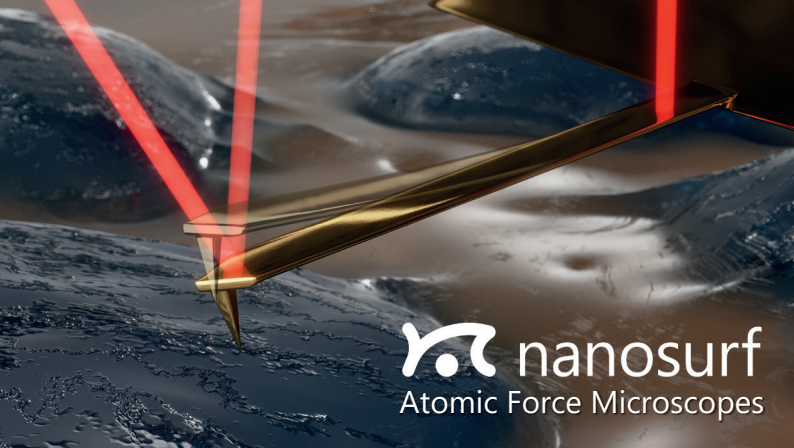
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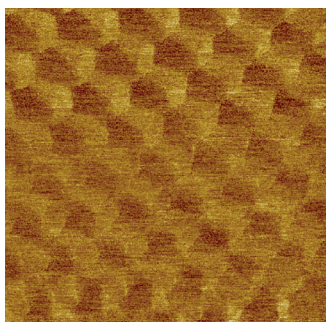
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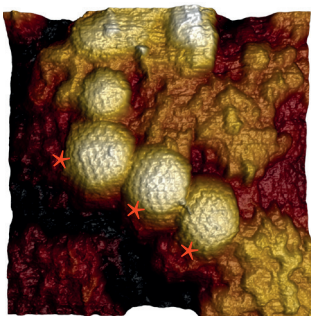
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Life
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Moiré super lattice of twisted graphene on hBN imaged in force modulation mode on the contact resonance frequency. (A) phase image with scan size of: 170 x 170 nm²



HSV-1 capsids (*) imaged bound to and on intact rat liver nuclei resolving individual capsomers. Sample courtesy: Alex Evilevitch, Lund University.

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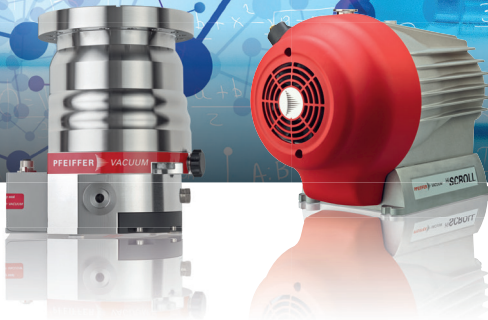
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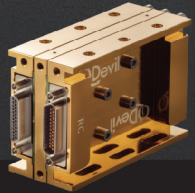
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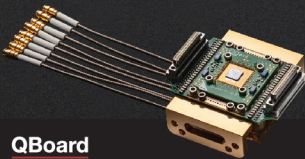
QBox

Breakout box for DC wiring



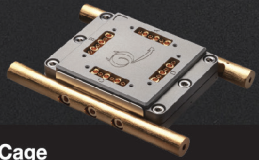
QFilter-II

Cryogenic filtering



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Exhibition Sites

Abbr.

- Audimax/Main Lecture Hall Bldg. **A**
- Main Lecture Hall area H6 **H6**
- Law & Economy Building **E**
- Tent close to Physics Building **P**

Opening hours exhibition:

- Tuesday, Sept 6 09:00 – 18:00
(*optional until 14:30 due to the award ceremony*)
- Wednesday, Sept 7 09:00 – 18:00
- Thursday, Sept 8 09:00 – 18:00

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UHV NEG-Pumpen, Alkalimetall-Dispenser, Hochvakuumpumpen, Getter

Schaefer Technologie GmbH	H6	A 58+ A59
Robert-Bosch-Straße 31, 63225 Langen		
<i>Rastersondenmikroskopie, optische 3D-Mikroskopie, Dünnschicht-Technologie, Nano-Analytik</i>		
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Limburger Straße 75, 65232 Taunusstein		
<i>Systems and Instruments for Surface Science and Thin Film Technology</i>		
SEKELS GmbH	H6	A56
Dieselstraße 6, 61239 Ober-Mörlen		
<i>Magnetische Abschirmungen, Magnetsysteme, weichmagnetische Halbzeuge, induktive Bauelemente</i>		
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Paukengasse 14, 89077 Ulm		
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SENTECH Instruments GmbH	A	01
Schwarzschildstraße 2, 12489 Berlin		
<i>Plasma Prozess technologie und Ellipsometer</i>		
SI Scientific Instruments GmbH	P	14
Römerstraße 67, 82205 Gilching		
<i>Spektrometer, Lock-In Verstärker</i>		
SmarAct GmbH	P	17
Schütte-Lanz-Straße 9, 26135 Oldenburg		
<i>SmarAct Kleingeräte</i>		
SPECS Surface Nano Analysis GmbH	A	19
Voltastraße 5, 13355 Berlin		
<i>Photoelektronenspektroskopie, Rastersondenmikroskopie, winkelaufgelöste Photoemission, Elektronenmikroskopie</i>		

Springer-Verlag GmbH A 45
Tiergartenstraße 17, 69121 Heidelberg
Wissenschaftliche Bücher und Zeitschriften

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Hagenaustraße 22, 85416 Langenbach
In situ growth monitoring for MBE, RHEED, TorrRHEEDTM, AUGERProbeTM, AES, XPS, UPS, REELS, electron and ion sources, complete surface analysis systems, STAIB MultitecTM

Surface Concept GmbH H6 A51
Am Sägewerk 23 a, 55124 Mainz
Scientific cameras, ToF momentum microscopes, imaging & time-resolved MCP based detection, analog pulse processing

Swabian Instruments GmbH A 42
Stammheimer Straße 41, 70435 Stuttgart
TCSPC, Time Taggers, Pulse Streamer

Technische Informationsbibliothek Hannover (TIB) P 03
Welfengarten 1B, 30167 Hannover
Wissenschaftliche Fachliteratur

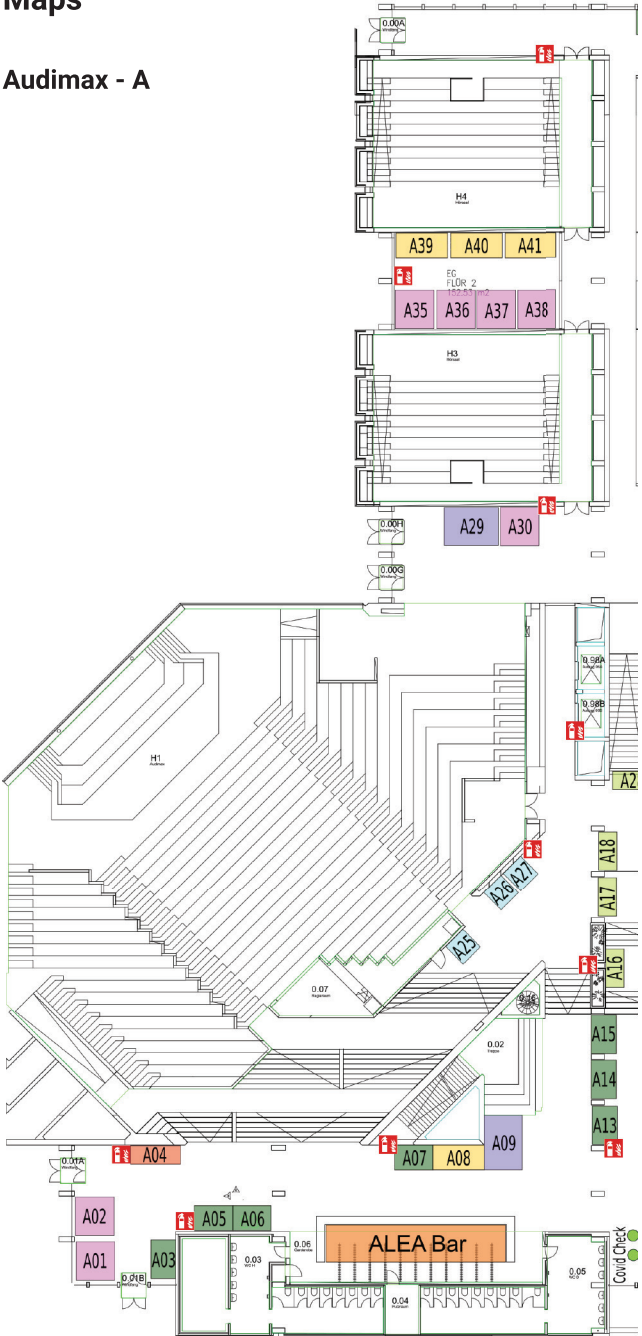
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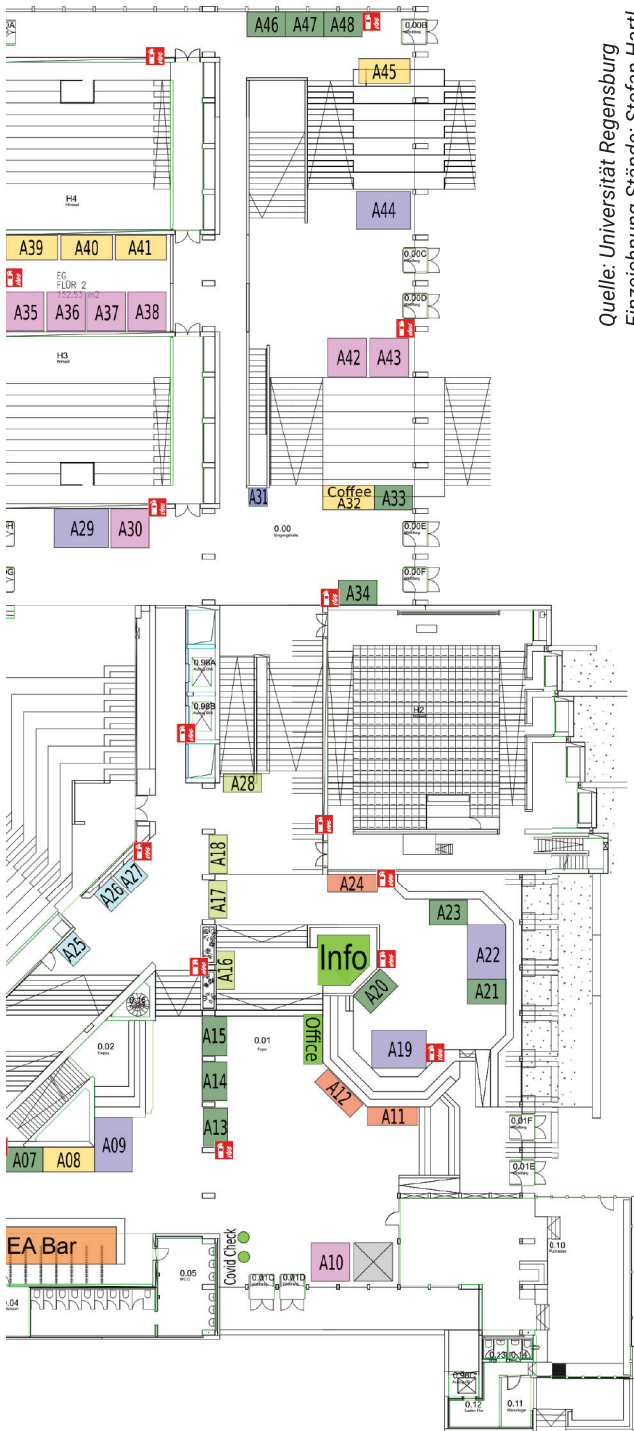
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Münchner Weg 1, 85232 Bergkirchen
Optische und optomechanische Komponenten, Test & Measurement Systeme, optische Tische und Vibrationskontrolle, Nanopositionierungen, Lichtquellen sowie Imaging, Mikroskopie und Life Science Komponenten

- TOPAG Lasertechnik GmbH** H6 A54
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- Ulrich Neumann** P 12
 Tschidererstraße 3, 86609 Donauwörth
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- Vaqtec-scientific Mario Melzer** E. 07
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 Boschstraße 12, 69469 Weinheim
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- Zurich Instruments AG Marketing and Sales** A 22
 Technoparkstrasse 1, 8005 Zurich, SWITZERLAND
Lock-in Amplifiers, Test & Measurement

Maps

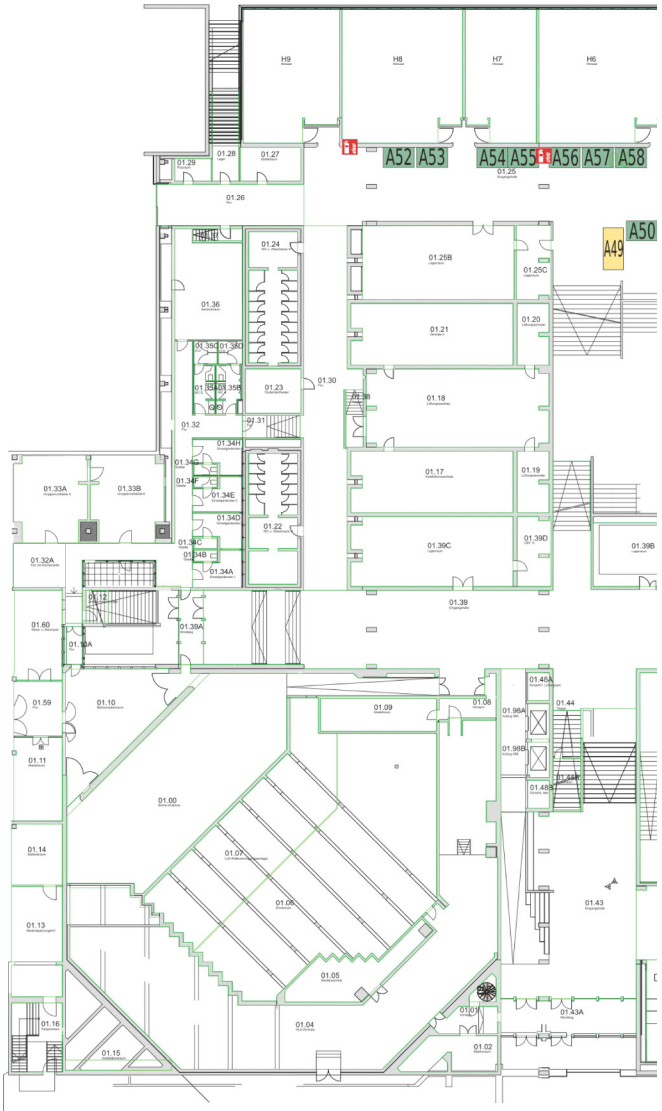
Audimax - A

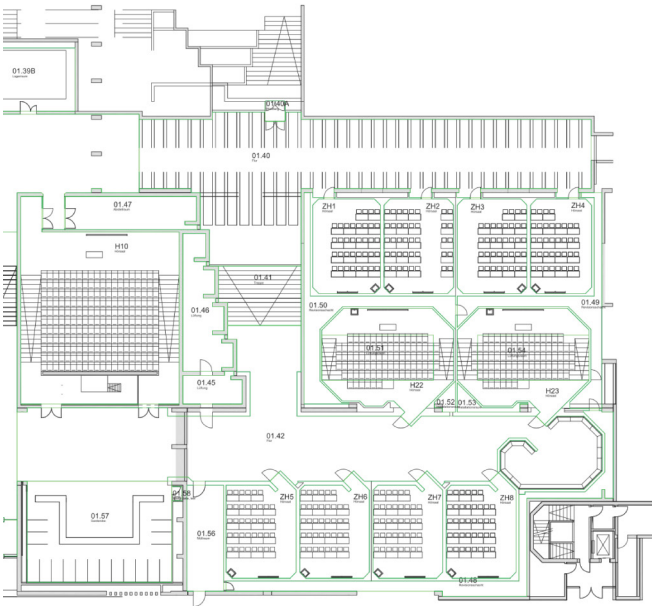




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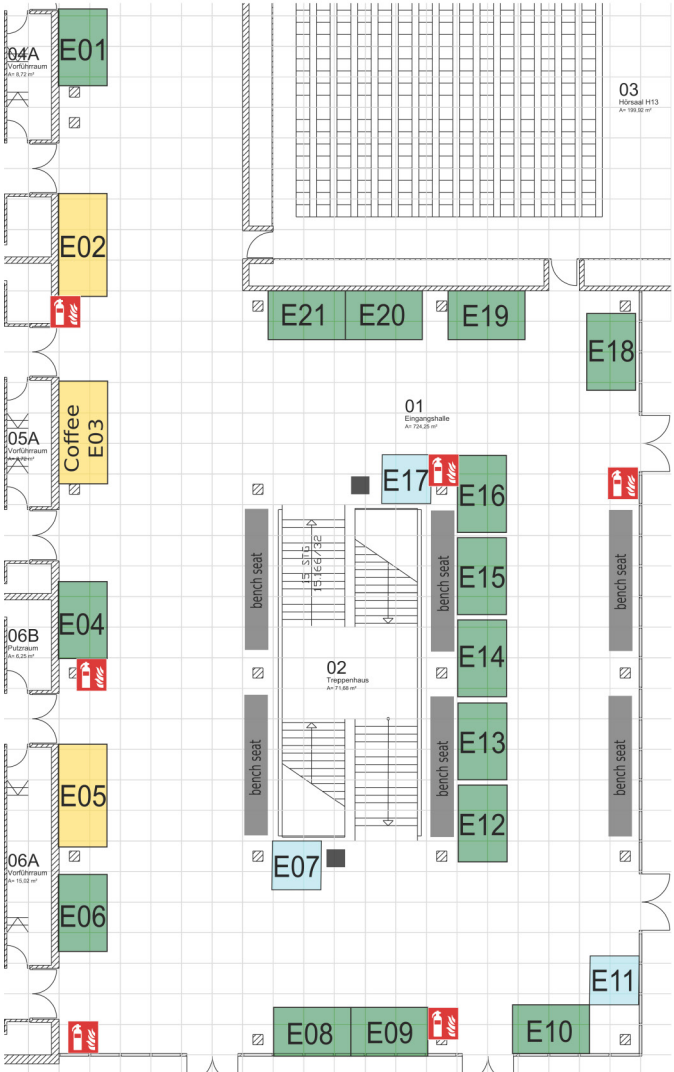
Audimax (H6) - A





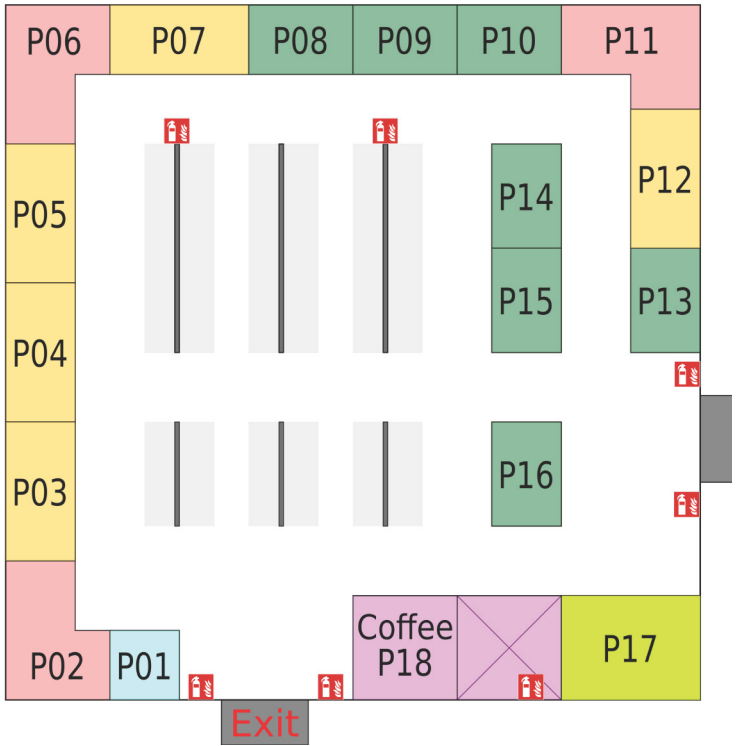
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Economy Bldg. - E



Quelle: Universität Regensburg
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Tent Physics Bldg. - P



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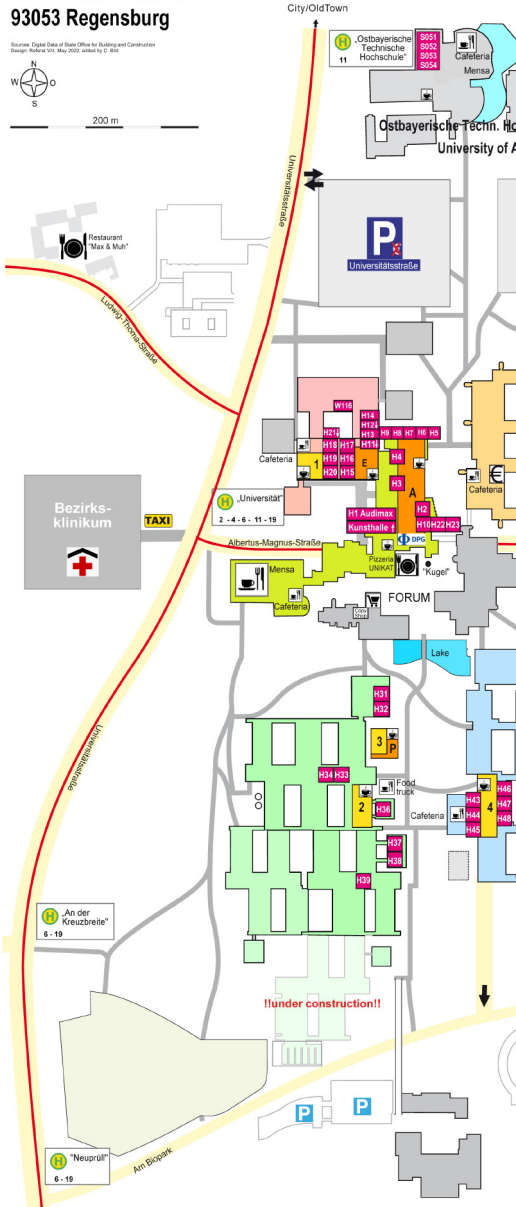
Universität Regensburg - Campus Map

Universitätsstraße 31
93053 Regensburg

Source: Digital Data of State Office for Building and Construction
Design: Kutzler I&H, May 2022, updated by G. Böh



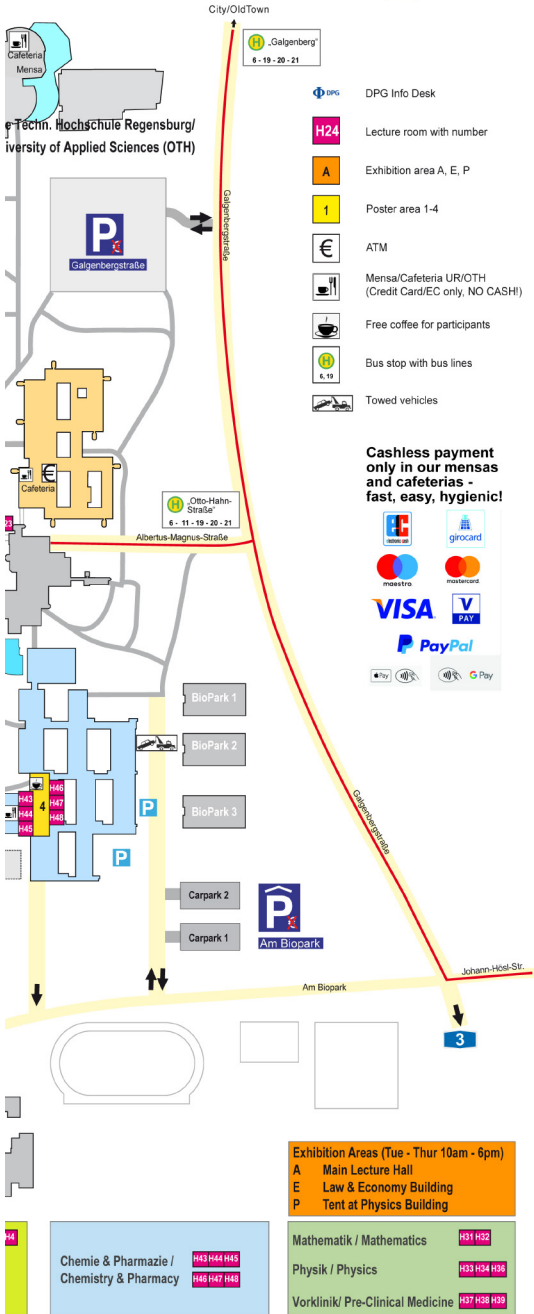
200 m



Sammelgebäude / Multi-purpose Building	H18 H19 H20 H21
Recht & Wirtschaft / Law/Business/Economics	H11 H12 H13 H14 H15 H16 H17

Zentrales Hörsaalgebäude / Main Lecture Hall	H1 Audimax H2 H3 H4 H5 H6 H7 H8 H9 H10 H22 H23 Kunsthalle
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Timetable

Start	Sunday, September 4	Monday, September 5	Tuesday, September 6
08:15		08:25 Opening remarks (Audimax)	
08:30		Plenary Talk (Audimax)	Plenary Talk (Audimax)
08:45			
09:00			
09:15			
09:30			
09:45			
10:00			
10:15			
10:30			
10:45			
11:00			
11:15			
11:30			
11:45			
12:00			
12:15			
12:30			
12:45			
13:00			
13:15		Prize Talk (Audimax)	Prize Talk (Audimax)
13:30		Lunch Talk (H2)	Lunch Talk (H2)
13:45			
14:00		Plenary Talks (Audimax + H2)	
14:15			
14:30			
14:45			
15:00			
15:15			
15:30			
15:45			
16:00	15:00-19:00 Registration		14:30-17:15 Ceremonial Session with Award Ceremony and Ceremonial Talk (Audimax)
16:15			
16:30	16:00-18:15 Tutorials (Audimax, H2, H3, H4)		
16:45			
17:00			
17:15			
17:30			
17:45			
18:00			
18:15			
18:30			
18:45			
19:00			
19:15			
19:30			
19:45			
20:00			19:00-20:00 Public Evening Talk (in German) (Audimax + H2)
20:15			
20:30			
20:45			
21:00			
21:15			
21:30			
21:45			

Wednesday, September 7			Thursday, September 8		Friday, September 9		
Plenary Talk (Audimax)			Plenary Talk (Audimax)		Plenary Talk (Audimax)		
SYED (Audimax)	SYUK I (H2)	Sessions of divisions	SYSD (Audimax)	Sessions of divisions	SYQM (Audimax)	Panel Discussion AKC (H2)	Sessions of divisions
Prize Talk (Audimax)	Lunch Talk (H2)		Lunch Talk (Audimax)	Lunch Talk (H2)	Closing Talk (OTH - S054)		
Plenary Talks (Audimax + H2)			Plenary Talks (Audimax + H2)				
SYSM (Audimax)	SYUK II (H2)	Sessions of divisions	SYES (Audimax)	Sessions of divisions			
			Annual General Meetings of the DPG divisions				
Einstein Slam (Audimax)							
					04.07.2022		



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