

1. DPG-Herbsttagung 2019 (1st DPG Fall Meeting 2019)

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

**Quantum Science and
Information Technologies**

Exhibition of
Scientific Instruments and Literature

Short Programme

**Universität Freiburg
23 – 27 September 2019**



Impressum:

Deutsche Physikalische Gesellschaft e. V.

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www.dpg-physik.de

Gerichtsstand: Königswinter

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

Verantwortlich für den Inhalt:

Dr. Bernhard Nunner (Hauptgeschäftsführer)

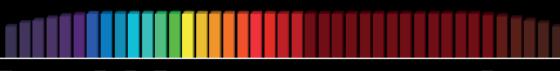
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Greeting

Dear guests,

Welcome to the 1st DPG Fall Meeting of the German Physical Society (DPG) at the University of Freiburg. With this Joint Meeting of the Atomic, Molecular, Plasma Physics and Quantum Optics Section (SAMOP), the Condensed Matter Section (SKM) and the Matter and Cosmos Section (SMuK) the DPG is launching a new meeting format dedicated to a research area jointly identified by its three Sections. This conference takes into account the long-standing wish of the DPG to not only have separate conferences according to subject areas - which is the usual procedure at the DPG Spring Meetings - but also to promote exchange on current and overlapping research topics.

This year's DPG Fall Meeting deals with *Quantum Science and Information Technology* at the interface between basic research and application orientation. The topic reflects a current international development, causing Europe and many nations outside to invest large financial resources into physical sciences. The developments and possibly revolutionary new technologies attract a great deal of public and political attention as well. In the near future, the German government intends to put much more emphasis than before on application-related quantum technology research, justified by strong research, economic and security policy arguments. These include in particular the German government's programme "Quantum Technologies - From Basics to Market" launched in September 2018, granting a volume of 650 million Euros for research and development. At the EU level, the "Quantum Flagship" was officially launched in 2018, being one of the largest and most ambitious research initiatives of the European Union under Horizon 2020, budgeting more than two billion Euros and with a duration of ten years.

The aim is to shape the next generation of technologies that will have an impact on society, and to make Europe a global leader in the fields of quantum technology and data science. But what exactly is it all about? What technological innovations and applications can be expected? What is so special about quantum technologies that we are even talking about a "2nd quantum revolution"? All these issues suggested to make an intensified, well-founded, and coordinated and communicative interdisciplinary exchange available.

My thanks go to everyone who made this DPG Fall Meeting possible. I thank the University of Freiburg for its hospitality and assistance. Thanks to the Wilhelm and Else Heraeus Foundation for its generous support. My special acknowledgement for an excellent scientific programme goes to the Sections involved, the Programme Committee and the Advisory Board. I sincerely acknowledge the strong commitment of the Local Organising Committee for their great work. And it is my pleasure to thank the DPG office staff in Bad Honnef for their contribution to the management of this conference.

I wish you an exciting conference with many new insights.

A handwritten signature in blue ink that reads "Dieter Meschede".

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

Organisation

Organiser

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Local Organisation Team

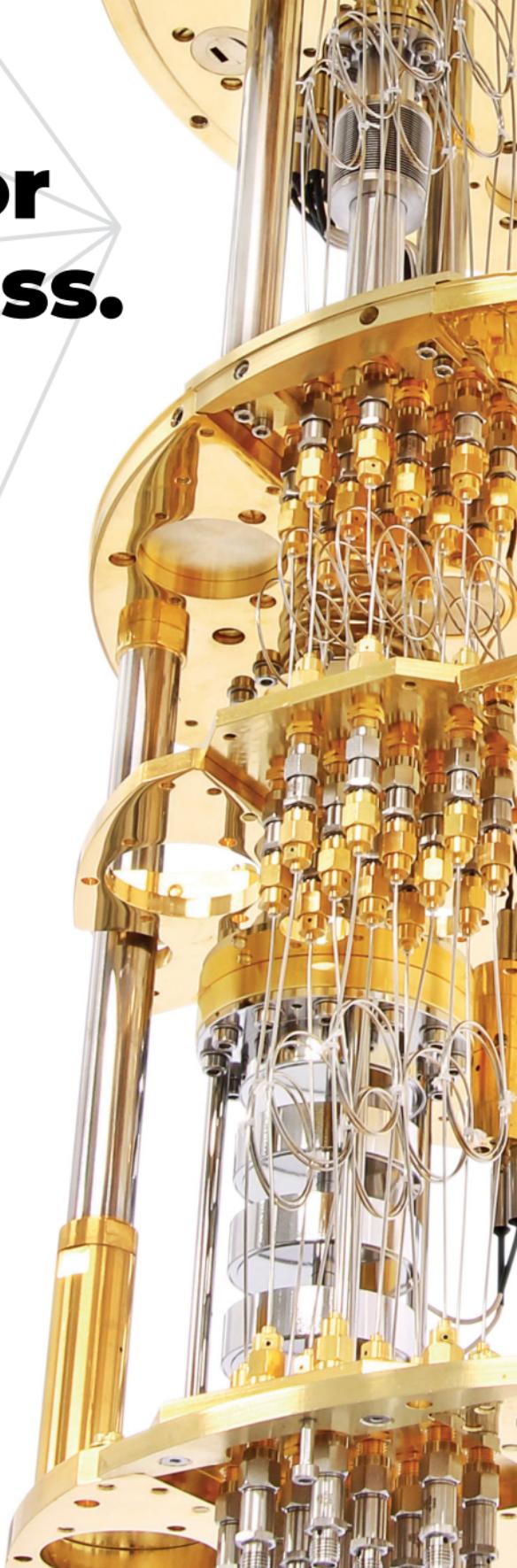
Robert Bennett	Christoph Dittel
Eric Brunner	Gabriel Dufour
Andreas Buchleitner	Andreas Ketterer
Gislinde Bühler	Alberto Rodríguez González
Stefan Yoshi Buhmann	Fabian Spallek
Edoardo Carnio	

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Harald Weinfurter, München (Chair)
Walter Zimmermann, Bayreuth

Programme

The scientific programme consists of 511 contributions:

Plenary Talks:	5
Introductory Talks:	5
Focus Talks:	4
Invited Talks:	66
Talks:	277
Posters:	154

Additionally, there will be 5 Lunch Talk Sessions and 3 Outreach Events.

Organisation of the Exhibition of Scientific Instruments and Literature

DPG-Kongress-, Ausstellungs- und

Verwaltungsgesellschaft mbH

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Homepage www.dpg-gmbh.de

Sponsors and Supporters of the 1st DPG Fall Meeting



Information for Participants

The conference will be held 23 – 27 September 2019.

Conference Information

Conference Venue

Albert-Ludwigs-Universität Freiburg
Universitätszentrum
Platz der Universität 3
79098 Freiburg

The conference is being held in university buildings which surround the Platz der Alten Synagoge in the centre of Freiburg. The plenary talks will take place in the Kollegiengebäude II (KG II), with contributed talks being held in KG I, KG II and KG III. The industry exhibition and the poster sessions will be held in tents on Platz der Alten Synagoge itself. A dedicated Science Lounge is available in Peterhofkeller (PH), this is intended as a place for informal discussions. For a detailed map of the campus and the buildings please see the end of this booklet.

Conference Office – Information Desk

The conference office and the information desk are located in room 1108, on the upper level of Kollegiengebäude I. The opening hours are:

Monday	23 September	07:30 – 19:00
Tuesday	24 September	08:00 – 17:00
Wednesday	25 September	08:00 – 17:00
Thursday	26 September	08:00 – 17:00
Friday	27 September	08:00 – 12:00

Besides this programme you have received a receipt for your conference fee, the login-password for using WiFi, a selection of maps, and your name tag. The name tag must be worn visibly during the entire conference. The organisers, staff of the conference desk, and the student assistants will be identifiable by coloured name tags and Ø-T-shirts. Please contact them if you have any questions.

Do not hesitate to inquire about all necessary information concerning the conference, orientation in Freiburg, accommodation, restaurants, areas to go out, and cultural events at the information desk.

Message Board

All alterations of the scientific programme and other important information for participants (e. g. cancellation of lectures, changing of lecture rooms etc.) will be announced on a message board via the homepage

<http://freiburg19.dpg-tagungen.de>.

With the DPG-App through the Fall Meeting!

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

Speakers' and Poster Instructions

Scientific presentations will be held either as oral presentations or posters. Presentations are held in English (conference language) if not stated otherwise.

Science Lounge

Coffee, tea, and refreshments will be served in the "Science Lounge" which is located in the Peterhofkeller. After the plenary talks there will be the possibility of informal discussions with the plenary speakers, as well as seating areas.

Oral Presentations

Unless otherwise stated, presentations will have the following formats:

- Contributed talks are 15 minutes including discussion and speaker change (12 min talk + 3 min discussion/speaker change).
- Invited talks are 30 minutes including discussion and speaker change (25 min talk + 5 min discussion/speaker change).
- Plenary, introductory and focus talks are 60 minutes (45 min talk + 15 min discussion).

All lecture halls and seminar rooms are equipped with projectors (aspect ratio 4:3) and laptops, and will be opened at least 30 minutes prior to the session. We kindly ask all speakers of contributed talks to upload their presentation at least 15 minutes prior to the start of the session from a

USB-stick in PDF format. Speakers of invited talks, plenary talks, introductory talks, and focus talks are also invited to follow this procedure, alternatively they may connect their own laptop via VGA or HDMI ports (for all other ports, please provide an appropriate adapter).

However, we kindly ask these speakers to ensure the laptops handshake with the projectors at least 15 minutes prior to the start of the session. In the case of complications, please additionally provide a PDF version of the talk on a USB-stick. Service staff will be available in all lecture halls to assist with the uploading of presentations. For any other other presentation needs and facilities, please ask for availability at the information desk immediately upon arrival at the conference.

Poster Presentations

Poster sessions will take place in the exhibition tents at the "Platz der Alten Synagoge" from 16:30 to 18:30.

Each poster should be no larger than 85 cm x 120 cm (A0, portrait). The poster boards will be marked with the number according to the scientific programme. Authors are asked to mount their poster before their assigned session. Each poster should display the number specified in the scientific programme. For the mounting of the poster please use the provided "power strips" or pins at the poster frame or contact the available student staff.

Authors are requested to be available at their poster for at least half of the length of their poster session. Authors will have the opportunity to provide information about when they will be available during the session.

The posters have to be removed latest at 12:00 on the day following the poster session. Any poster remaining on display walls will be removed and disposed of without notice.

The conference management accepts no liability for the posters.

Wilhelm and Else Heraeus Communication Programme

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

At the beginning of the conference you will receive an identification form at the conference office. The participation in the conference must be certified by the conference desk. You have the possibility to leave this certificate with the staff members of the DPG (recommended!) in the conference office or submit it to the DPG head office (DPG-

Geschäftsstelle, Hauptstr. 5, 53604 Bad Honnef, Germany)
by 11 October 2019 at the latest.

For more detailed information refer to

<http://freiburg19.dpg-tagungen.de>.

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

Communication / Internet Access

Eduroam access via your home university is available in all buildings, as well as the conference WiFi which you have received details with your registration documents. Printing of documents is possible at the information desk in the conference office. There is a PC pool available for use, further details can be obtained from the conference office.

Catering

Coffee and tea will be served all day free of charge for participants at four locations, the entrance hall of Kollegiengebäude II (KG II), Tent B (only Tuesday – Thursday), Prometheushalle in Kollegiengebäude I (KG I), as well as in Peterhofkeller.

Lunch will be offered at Mensa Rempartstraße between 11:30 and 14:00. Note that vouchers need to be purchased for the Mensa as cash or credit card payment is not accepted. Vouchers are available at the information desk.

An alternative option is to buy a guest card at the Service Point of the Mensa which costs 7 Euros. The card can be topped up with the desired amount at the Service Point or using the top-up machines. At the end of the meeting the card can be returned during service hours. The deposit fee and the balance will be refunded.

In addition, many restaurants, bakeries and take-aways can be found close to the conference venue. A map of some of these will be included as handout in your conference bag.

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Cloakroom

You will find a secured cloakroom in Kollegiengebäude II, Level 0 (EG) by the entrance to the Audimax. Please note that the conference cloakroom will close at 19:00 on Monday, Tuesday and Wednesday, 22:00 on Thursday and 14:00 on Friday.

Lost and found property

You can bring found items to the information desk in the Kollegiengebäude I. There you can also get your lost property back.

Liability Exclusion

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

SAY CHEESE!

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

Social Events

Opening

Monday, 23 September, 08:15, Audi Max (Kollegiengebäude II)

With the opening, the conference will be open officially. All participants are kindly invited.

Welcome Evening

Monday, 23 September, 20:00 (doors open 19:30)

On Monday, the Welcome Evening will be held in the Mensa Rempartstraße, to which all registered participants are kindly invited. Small food, beer and soft drinks will be served. Do not miss the opportunity to register before the official beginning and meet people in an informal atmosphere. Please wear your name tag which you received at the registration. Please note that the conference cloak-room will close at 19:00.

It is possible to reach the Cafeteria by tram (station: Stadttheater) or within a few minutes walk from the main station.

Exhibition of Scientific Instruments and Literature

From Tuesday, 24 September, to Thursday, 26 September, there will be an exhibition of scientific instruments and literature in the exhibition tents on the "Platz der Alten Synagoge". Several companies (see index of exhibitors at the end of this booklet) will present their products. Opening hours are from 10:30 to 18:30. All conference participants are welcome to attend the exhibition. The entrance is free.

Networking Event

Tuesday, 24 September, 18:30, Aula

Networking event of the Working Group on Industry and Business (AIW) with free beer and pretzels, including the BMBF award ceremony of the "Quantum Futur Award 2019".

EinsteinSlam (in German language)

Tuesday, 24 September, 20:00, Audi Max

EinsteinSlam is the art of making complex science accessible to a wider audience in an entertaining and comprehensive way. Selected researchers present complex issues, state-of-the-art research, emerging technologies, and up-to-date topics in a series of 10-minutes talks on stage. At this event we proudly present intriguing and engaging talks with a focus on the interplay of quantum technologies and information science. At the end, the audience's applause evaluates the presentations and determines a favorite. All Einstein-Slam-Presentations will be given in German. For more information please see www.einstein-slam.de.

jDPG Pub Crawl

The jDPG offers a pub crawl on Tuesday, 24 September. Meeting Point: 21:00 in front of the Audi Max. Participants need to register beforehand. You can find the sign-up sheets at the information desk.

Outreach: Public Panel Discussion (fishbowl format, in German language)

Wednesday, 25 September, 19:30, Audi Max

Forschung zwischen Hype und Hope – Welche Bedingungen braucht gute Wissenschaft?

Welche Rolle soll Wissenschaft in einer offenen Gesellschaft haben? Darüber sind sich Wissenschaft, Politik und Gesellschaft zunehmend uneins. Das Grundgesetz garantiert einerseits Wissenschaftsfreiheit. Andererseits steigen die Erwartungen an die Forschung, vor allem in Hinsicht auf wirtschaftliche Verwertbarkeit. Universitäten sollen außerdem immer größere Studentenzahlen bewältigen und sind doch chronisch unterfinanziert. Die Wissenschaftspolitik fördert lieber Projekte statt Köpfe, was kurzlebige Trends und Gewissheiten mehr begünstigt als mühsam errungene und schwer kommunizierbare Einsichten. Pointierte Behauptungen versprechen Wettbewerbsvorteile, kritische Rückfragen und Zweifel dagegen – obwohl Kernelement der wissenschaftlichen Methode – sind wenig werbewirksam und mit kurzen Zeithorizonten schwer vereinbar. So stehen Wissenschaftler zunehmend in der Gefahr, zu Lobbyisten ihrer partikularen Forscherinteressen zu werden – statt für Wahrhaftigkeit als wichtigster Voraussetzung für die Glaubwürdigkeit des Wissenschaftsbetriebs einzustehen. In einem von Jeanne Rubner moderierten Gespräch werden Jürgen Kaube, Joachim Ullrich und Reinhard Werner Bedingungen für und Erwartungen an gute Wissenschaft untereinander, sowie im Austausch mit dem Publikum erörtern.

Outreach: Public Science Evening (in German language)

Thursday, 26 September, 19:30, Audi Max

Revolution in der Quantenwelt?

In der Halbleiter- oder auch in der Lasertechnologie ist die Entwicklung immer neuer Komponenten und Anwendungen ohne ein gutes Verständnis der Quantenphysik seit langem undenkbar. Die technologischen Fortschritte der letzten Jahrzehnte bringen nun aber eine völlig neue Generation von Methoden und Komponenten. Das neue Gebiet der Quanteninformation brachte nicht nur Konzepte für sichere Kommunikation, Quantenteleportation und den Quantencomputer. Es brachte auch ein deutlich besseres Verständnis der Quantenphysik sowie neue Techniken für die experimentelle Umsetzung. Ottfried Gühne (Universität Siegen), Oliver Benson (Humboldt Universität zu Berlin) und Oliver Ambacher (Fraunhofer Institut und Universität Freiburg) geben in Impulsvorträgen einen Überblick über die neuen Konzepte, neue nichtklassische Lichtquellen, den Einsatz von Nanophotonik, sowie die Entwicklung neuer Quantensensoren für die Vermessung von Magnetfeldern mit atomarer Auflösung und beantworten in einer Podiumsdiskussion Ihre Fragen.

Acknowledgement

The Deutsche Physikalische Gesellschaft (DPG) and the local organisers would like to thank the following institutions for supporting the conference:

- Wilhelm and Else Heraeus Foundation, Hanau
- Albert-Ludwigs-Universität Freiburg
- all industrial sponsors and supporters (please refer to page 10)

and all staff, who made the conference possible.

Deutsche Physikalische Gesellschaft  DPG

DER VORTRAGSWETTBEWERB:

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PHYSIK IN 10 MINUTEN!

auf der
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24. September 2019

20:00 Uhr

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Synopsis of the Daily Programme

Mon

Monday, September 23, 2019

Opening

08:15 – 08:30 Audi Max

DPG Fall Meeting (FM)

**Plenary Talk, Introductory Talk, Focus Talk,
Invited Talks**

- FM 1.1 08:30 – 09:30 Audi Max
Tensor Networks for Classical and Quantum Machine Learning
•*Miles Stoudenmire*
- FM 2.1 09:30 – 10:30 Audi Max
Quantum Algorithms
•*Ronald de Wolf*
- FM 3.1 11:00 – 11:30 Aula
Wann, wie und wozu sollte Quantenphysik an der Schule vermittelt werden?
•*Stefan Heusler*
- FM 3.2 11:30 – 12:00 Aula
Neue Entwicklungen in der Quantenphysik – Neue Chancen für die Lehre
•*Martin Wilkens*
- FM 3.3 12:00 – 12:30 Aula
Quanteninformation im Physikunterricht – eine neue Möglichkeit?
•*Gesche Pospiech*
- FM 3.4 12:30 – 13:00 Aula
Quantenmechanik für Lehramtsstudierende
•*Thomas Filk*
- FM 4.1 11:00 – 12:00 2004
Quantum simulation with ultracold atoms in optical lattices
•*Monika Aidelsburger*

- FM 7.4 14:45 – 15:15 1009
Certification and estimation of quantum randomness
•*Stefano Pironio*
- FM 8.1 14:00 – 14:30 1010
Quantum dots as sources for quantum light
•*Peter Michler*
- FM 10.1 14:00 – 14:30 1199
Engineered electronic states in atomic lattices and hybrid 2D systems
•*Peter Liljeroth*
- FM 11.1 14:00 – 14:30 2004
Correlations in many-body states: The simplest constraints for their distribution
•*Jens Siewert*
- FM 12.1 14:00 – 14:30 2006
Quantum sensors with matter waves: geodesy, navigation and general relativity
•*Philippe Bouyer*
- FM 13.1 14:00 – 14:30 3042
Quantum Information Concepts in Open Systems
•*Bassano Vacchini*
- FM 14.1 14:00 – 14:30 3044
Quantum simulation and computation with spins in quantum dots
•*Uditendu Mukhopadhyay, Juan P Dehollain, Vincent P. Michal, Yao Wang, Bernhard Wunsch, Christian Reichl, Werner Wegscheider, Mark S. Rudner, Eugene Demler, Lieven M. K. Vandersypen*
- FM 18.1 16:30 – 17:00 1015
Generation of strongly correlated photons using nanofiber-coupled atoms
Adarsh Prasad, Jakob Hinney, Clemens Hammerer, Sahand Mahmoodian, Samuel Rind, Philipp Schneeweiss, Anders S. Sørensen, Jürgen Volz, Arno Rauschenbeutel
- FM 19.1 16:30 – 17:00 1199
Topological superconductivity in full shell proximitized nanowires
•*Roman Lutchyn*

FM 21.1	16:30 – 17:00	2006	Generative training of quantum Boltzmann machines with hidden units • <i>Nathan Wiebe, Leonard Wossnig</i>
FM 22.1	16:30 – 17:00	3042	Control Engineering Taken to the Limits of Quantum Systems Theory • <i>Thomas Schulte-Herbrüggen, Ville Bergholm, Witold Wieczorek, Michael Keyl</i>
FM 23.1	16:30 – 17:00	3043	Learning to violate Bell inequality with reinforcement learning • <i>Alexey Melnikov, Pavel Sekatski, Nicolas Sangouard</i>
FM 23.2	17:00 – 17:30	3043	Quantum policy gradient methods for reinforcement learning • <i>Sofiene Jerbi, Hans Briegel, Vedran Dunjko</i>
Sessions			
FM 1	08:30 – 09:30	Audi Max	Plenary Talk: Quantum Machine Learning
FM 2	09:30 – 10:30	Audi Max	Introductory Talk: Quantum Algorithms
FM 3	11:00 – 13:00	Aula	Special Session: Teaching Quantum Science
FM 4	11:00 – 12:00	2004	Focus Talk: Quantum Simulation
FM 5	13:00 – 14:00	Aula	Lunch Talk: Experiments for Teaching QM
FM 6	14:00 – 16:00	Aula	Panel Discussion: Teaching Quantum Science
FM 7	14:00 – 16:00	1009	Secure Communication & Computation I
FM 8	14:00 – 16:00	1010	Enabling Technologies: Sources of Quantum States of Light I

FM 9	14:00 – 15:45	1098	Quantum Networks: Platforms and Components I
FM 10	14:00 – 15:45	1199	Topology: Artificial Systems
FM 11	14:00 – 16:00	2004	Entanglement: Many-Body States I
FM 12	14:00 – 16:00	2006	Quantum Sensing: Hardware Platforms
FM 13	14:00 – 16:00	3042	Open and Complex Quantum Systems I
FM 14	14:00 – 16:00	3044	Quantum Computation: Hardware Platforms I
FM 15	16:00 – 16:30	1114	Poster: Teaching Quantum Science
FM 16	16:30 – 18:30	Aula	Teaching Quantum Science
FM 17	16:30 – 18:00	1010	Quantum Computation: Simulation I
FM 18	16:30 – 18:30	1015	Quantum Networks: Interfaces & Hybrid Systems
FM 19	16:30 – 18:30	1199	Topology: Majoranas
FM 20	16:30 – 18:30	2004	Entanglement: Many-Body States II
FM 21	16:30 – 18:30	2006	Quantum Computation: Algorithms
FM 22	16:30 – 18:15	3042	Quantum Control
FM 23	16:30 – 18:30	3043	Quantum & Information Science: Neural Networks, Machine Learning, and Artificial Intelligence I

FM 24 16:30 – 18:30 3044
Quantum Sensing: Entanglement and Beyond
Shot Noise

Mon

Welcome Evening
(free entrance for registered participants)

20:00 Mensa Rempartstraße

Tuesday, September 24, 2019

DPG Fall Meeting (FM)

Plenary Talk, Introductory Talk, Focus Talk, Invited Talks

- FM 25.1 08:30 – 09:30 Audi Max
Scalable quantum computing with trapped ion qubits
•*Ferdinand Schmidt-Kaler*
- FM 26.1 09:30 – 10:30 Audi Max
Machine Learning
•*Katharina Morik*
- FM 27.1 11:00 – 11:30 Audi Max
Frontiers in quantum acoustics
•*Andrew Cleland*
- FM 27.2 11:30 – 12:00 Audi Max
The state of the art of quantum key distribution
•*Hugo Zbinden*
- FM 27.3 12:00 – 12:30 Audi Max
Towards Quantum Communication Networks
using Solid-State Quantum-Light Sources
•*Tobias Heindel*
- FM 27.4 12:30 – 13:00 Audi Max
Towards quantum networks based on single
trapped atoms
•*Benjamin Rosenfeld*
- FM 28.1 11:00 – 12:00 2004
An introduction to quantum spectroscopy
•*Frank Schlawin*
- FM 30.1 14:00 – 14:30 Aula
Quantum Sensors on the way to commercial
opportunities
•*Kai Bongs*
- FM 31.1 14:00 – 14:30 1009
Certifying randomness from quantum black-box
devices
•*Nicolas Brunner*

Tue

- FM 32.1 14:00 – 14:30 1010
Next-generation single-photon sources for satellite-based quantum communication
•*Tobias Vogl, Ruvi Lecamwasam, Ben C. Buchler, Yuerui Lu, Ping K. Lam, Falk Eilenberger*
- FM 33.1 14:00 – 14:30 1015
Quantum Networking, fully connected and international
•*Rupert Ursin*
- FM 34.1 14:00 – 14:30 1199
Understanding the Interplay between Magnetism and Topology
•*Matthew Gilbert*
- FM 36.1 14:00 – 14:30 2006
Building Trust
•*Elham Kashefi*
- FM 39.1 14:00 – 14:30 3044
Applications of Quantum Computing with Superconducting Qubits
•*Stefan Filipp*
- Sessions**
- FM 25 08:30 – 09:30 Audi Max
Plenary Talk: Ion Trap based Quantum Computing
- FM 26 09:30 – 10:30 Audi Max
Introductory Talk: Machine Learning
- FM 27 11:00 – 13:00 Audi Max
Special Session: Quantum Networks
- FM 28 11:00 – 12:00 2004
Focus Talk: Quantum Spectroscopy
- FM 29 12:30 – 13:45 2006
Lunch Talk: Funding for Quantum Projects
- FM 30 14:00 – 16:00 Aula
Quantum Sensing: Applications I
- FM 31 14:00 – 15:45 1009
Secure Communication & Computation II

FM 32	14:00 – 16:00	1010
Enabling Technologies: Sources of Quantum States of Light II		
FM 33	14:00 – 16:00	1015
Quantum Networks: Concepts & Applications		
FM 34	14:00 – 15:15	1199
Topology: Solid State Systems		
FM 35	14:00 – 16:00	2004
Entanglement: Many-Body Dynamics I		
FM 36	14:00 – 16:15	2006
Quantum Computation: Benchmarking and Certification		
FM 37	14:00 – 16:00	3042
Open and Complex Quantum Systems II		
FM 38	14:00 – 16:00	3043
Enabling Technologies: Quantum Dots, Quantum Wires, Point Contacts and Excitonic Systems		
FM 39	14:00 – 16:00	3044
Quantum Computation: Hardware Platforms II		
FM 40	16:30 – 18:30	Tents
Poster: Quantum Computation: Hardware Platforms		
FM 41	16:30 – 18:30	Tents
Poster: Quantum Sensing		
FM 42	16:30 – 18:30	Tents
Poster: Quantum Computation		

Exhibition of Scientific Instruments and Literature

10:30 – 18:30 Tents

Networking event of the Working Group on Industry and Business (AIW)

FM 43 18:30 – 20:00 Aula
with free beer and pretzels, including the BMBF award ceremony of the „Quantum Futur Award 2019“

EinsteinSlam

FM 44 20:00 – 21:00 Audi Max

jDPG Pub Crawl

21:00 Audi Max (in front of)

Tue

Wednesday, September 25, 2019

DPG Fall Meeting (FM)

Plenary Talk, Introductory Talk, Focus Talk, Invited Talks, Lunch Talks

- FM 45.1 08:30 – 09:30 Audi Max
Quantum Technologies – Challenges and Chances from an Industry Perspective
•*Jürgen Gross*
- FM 46.1 09:30 – 10:30 Audi Max
Quantum sensing enabled by diamond
•*Fedor Jelezko*
- FM 47.1 11:00 – 11:20 Aula
Enabling Industrial Quantum Technology
•*Michael Förtsch*
- FM 47.2 11:20 – 11:40 Aula
An industry perspective on Quantum Technologies
•*Nils Trautmann*
- FM 47.3 11:40 – 12:00 Aula
A proposal for a topological phase modulator with π Berry phase shift
•*Ulrich Gaubatz*
- FM 47.4 12:00 – 12:20 Aula
Quantum Technologies in Thales
•*Thierry Debuisschert*
- FM 47.5 12:20 – 12:40 Aula
Opticlock: Towards a transportable and user-friendly optical single-ion clock
•*Juergen Stuhler, opticlock Consortium*
- FM 47.6 12:40 – 13:00 Aula
Quantum-dot based single photon sources: Commercialization of near optimal solid-state sources for Quantum Applications
•*Valerian Giesz, Niccolo Somaschi*
- FM 48.1 11:00 – 12:00 2004
Photonic Quantum Memories and Interfaces
•*Hugues de Riedmatten*

Wed

- FM 50.1 13:15 – 13:45 Audi Max
ZEISS Quantum Sensing & Imaging Challenge
•*Michael Totzeck*
- FM 50.2 13:45 – 13:55 Audi Max
Announcement of the 2019 New Journal of Physics (NJP) Early Career Award
•*Antigoni Messaritaki*
- FM 51.1 14:00 – 14:20 Aula
Early-stage quantum computing in an industrial context
•*Florian Neukart*
- FM 51.2 14:20 – 14:40 Aula
Quantum communication and quantum sensing at Airbus
•*Friedhelm Serwane, Thierry Botter*
- FM 51.3 14:40 – 15:00 Aula
Quantum Computing in the Chemical Industry – First impressions and resource estimations for quantum chemistry on quantum computers
•*Michael Kuehn, Sebastian Zanker, Peter Deglmann, Michael Marthaler, Horst Weiss*
- FM 51.4 15:00 – 15:20 Aula
A Semiconductor Corporation View on Quantum Technologies
•*Sebastian M. Luber, Thomas Kurth*
- FM 51.5 15:20 – 15:40 Aula
Scalable instrumentation for quantum computing
•*Sadik Hafizovic*
- FM 51.6 15:40 – 16:00 Aula
Approach and use cases: When and where may we start to search for quantum applications?
•*Tim Leonhardt*
- FM 52.1 14:00 – 14:30 1009
Entanglement transport in the presence of noise
•*Clemens Gneiting*

FM 53.1 14:00 – 14:30 1010

Efficient single photon sources for quantum information science

- *Tobias Huber, Jan Donges, Simon Betzold, Magdalena Moczała-Dusanowska, Łukasz Dusanowski, Stefan Gerhardt, Jonathan Jurkat, Andreas Pfenning, Christian Schneider, Sven Höfling*

FM 54.1 14:00 – 14:30 1015

Quantum memories for photons

- *Mikael Afzelius*

FM 55.1 14:00 – 14:30 1098

Quantum Mean Embedding of Probability Distributions

- *Jonas M. Kübler, Krikamol Muandet, Bernhard Schölkopf*

FM 56.1 14:00 – 14:30 2004

New quantum many-body phases enabled by ergodicity breakdown

- *Dmitry Abanin*

FM 57.1 14:00 – 14:30 2006

Probing and manipulating Andreev Bound States

- *Cristian Urbina, Leandro Tosi, Cyril Metzger, Marcelo F. Goffman, Hugues Pothier, Sunghun Park, Alfredo Levy Yeyati, Jesper Nygård, Peter Krogstrup*

FM 58.1 14:00 – 14:30 3042

Thermodynamic uncertainty relations from exchange fluctuation theorems

- *John Goold*

FM 60.1 14:00 – 14:30 3044

Scalable Quantum Error Correction with the Bosonic GKP Code

- *Barbara Terhal*

Sessions

FM 45 08:30 – 09:30 Audi Max

Plenary Talk: Industry

FM 46 09:30 – 10:30 Audi Max

Introductory Talk: Quantum Sensing

FM 47	11:00 – 13:00	Aula Industry I: Photonics
FM 48	11:00 – 12:00	2004 Focus Talk: Quantum Memories & Interfaces
FM 49	12:30 – 13:45	2006 Lunch Talk: Centers of Quantum Information Science
FM 50	13:15 – 13:55	Audi Max Lunch Talk: Awards and Challenges
FM 51	14:00 – 16:00	Aula Industry II: Computing
FM 52	14:00 – 15:15	1009 Entanglement: Transport
FM 53	14:00 – 16:00	1010 Enabling Technologies: Sources of Quantum States of Light III
FM 54	14:00 – 16:00	1015 Quantum Networks: Quantum Memory and Gates
FM 55	14:00 – 15:30	1098 Quantum & Information Science: Neural Networks, Machine Learning, and Artificial Intelligence II
FM 56	14:00 – 16:00	2004 Entanglement: Many-Body Dynamics II
FM 57	14:00 – 16:00	2006 Quantum Sensing: Spectroscopy I
FM 58	14:00 – 16:00	3042 Quantum Information Concepts in Thermodynamics
FM 59	14:00 – 16:00	3043 Enabling Technologies: Quantum Dots and Superconductivity-based Systems
FM 60	14:00 – 16:00	3044 Quantum Computation: Fault Tolerance & Error Correction

- FM 61 16:30 – 18:30 Aula
Industry III: The Future of High Performance Computing (Presentations plus Panel Discussion)
- FM 62 16:30 – 18:30 Tents
Poster: Open and Complex Quantum Systems
- FM 63 16:30 – 18:30 Tents
Poster: Enabling Technologies: Quantum Materials, Quantum Dots, Quantum Wires, Point Contacts and Superconducting Systems
- FM 64 16:30 – 18:30 Tents
Poster: Topology
- FM 65 16:30 – 18:30 Tents
Poster: Quantum & Information Science
- FM 66 16:30 – 18:30 Tents
Poster: Entanglement

Exhibition of Scientific Instruments and Literature

10:30 – 18:30 Tents

Outreach: Public Panel Discussion (fishbowl format)

FM 67 19:30 – 21:00 Audi Max

Thursday, September 26, 2019

DPG Fall Meeting (FM)

Plenary Talk, Introductory Talk, Focus Talk, Invited Talks

FM 68.1 08:30 – 09:30 Audi Max

Silicon Based Quantum Computing

•*Michelle Simmons*

FM 69.1 09:30 – 10:30 Audi Max

Hybrid Spin-Superconducting Circuits for Spin-Sensing and Quantum Information

Bartolo Albanese, Jessica-Fernanda Da Silva Barbosa, Emanuele Albertinale, Marianne Le Dantec, Vishal Ranjan, Moonjoo Lee, Milos Rancic, Emmanuel Flurin, Denis Vion, Patrice Bertet, Daniel Esteve

FM 70.1 11:00 – 11:30 Audi Max

Hofstadter Topology

•*Bogdan A. Bernevig*

FM 70.2 11:30 – 12:00 Audi Max

Topological superconductors and Majorana fermions

•*Yoichi Ando*

FM 70.3 12:00 – 12:30 Audi Max

Majorana bound states in hybrid superconductor-semiconductor systems

•*Karsten Flensberg*

FM 70.4 12:30 – 13:00 Audi Max

Status of the search for Majorana zero modes in semiconductor nanowires

•*Sergey Frolov*

FM 71.1 11:00 – 12:00 2004

Optimal control of quantum systems

•*Steffen J. Glaser*

FM 74.1 14:00 – 14:30 1009

Quantum Computing and Cryptography

•*Nico Döttling*

Thu

- FM 76.1 14:00 – 14:30 1015
 Enhancing the precision of measurements with entanglement
 •*Manuel Gessner*
- FM 77.1 14:00 – 14:30 1098
 Integrating Quantum Key Distribution into Telecom Networks
 •*James Dynes*
- FM 78.1 14:00 – 14:30 1199
 Quantum Information Processing using Trapped Atomic Ions and MAGIC
Theeraphot Sriarunothai, Sabine Wölk, Gouri S. Giri, Nicolai Friis, Vedran Dunjko, Hans J. Briegel, Patrick Barthel, Patrick Huber, Christof Wunderlich
- FM 80.1 14:00 – 14:30 2006
 Photon-Qubit and Qubit-Qubit Interactions in Semiconductor Circuit Quantum Electrodynamics (QED)
 •*Andreas Wallraff*
- FM 81.1 14:00 – 14:30 3042
 Electrostatically defined quantum devices in bilayer graphene
 •*Christoph Stampfer*
- FM 82.1 14:00 – 14:30 3044
 Deep Learning Advances in Particle Physics
 •*Yannik Rath, Martin Erdmann, Benjamin Fischer, Erik Geiser, Jonas Glombitzka, Dennis Noll, Thorben Quast, Marcel Rieger*

Sessions

- FM 68 08:30 – 09:30 Audi Max
 Plenary Talk: Silicon Based Quantum Computing
- FM 69 09:30 – 10:30 Audi Max
 Introductory Talk: Hybrid Quantum Computation Platform
- FM 70 11:00 – 13:00 Audi Max
 Special Session: Topology
- FM 71 11:00 – 12:00 2004
 Focus Talk: Quantum Control

FM 72	12:30 – 13:45	2006
Lunch Talk: Start-ups		
FM 73	14:00 – 16:00	Aula
Quantum Sensing: Applications & Spectroscopy		
FM 74	14:00 – 15:30	1009
Secure Communication & Computation III		
FM 75	14:00 – 15:45	1010
Quantum Computation: Simulation II		
FM 76	14:00 – 15:30	1015
Entanglement: Spectroscopy		
FM 77	14:00 – 15:45	1098
Quantum Networks: Platforms and Components II		
FM 78	14:00 – 15:30	1199
Quantum Computation: Hardware Platform III		
FM 79	14:00 – 15:30	2004
Entanglement: Neural Networks for Many-Body Dynamics		
FM 80	14:00 – 16:00	2006
Enabling Technologies: Cavity QED		
FM 81	14:00 – 16:00	3042
Enabling Technologies: Quantum Materials		
FM 82	14:00 – 15:45	3044
Quantum & Information Science: Neural Net- works, Machine Learning, and Artificial Intelli- gence III		
FM 83	16:30 – 18:30	Tents
Poster: Enabling Technologies Sources of Quan- tum States of Light		
FM 84	16:30 – 18:30	Tents
Poster: Quantum Networks		
FM 85	16:30 – 18:30	Tents
Poster: Enabling Technologies: Cavity QED		
FM 86	16:30 – 18:30	Tents
Poster: Secure Communication & Computation		

Exhibition of Scientific Instruments and Literature

10:30 – 18:30 Tents

Outreach: Public Science Evening

FM 87 19:30 – 21:00 Audi Max

Thu

Friday, September 27, 2019

DPG Fall Meeting (FM)

Plenary Talk, Introductory Talk, Invited Talks

- FM 88.1 08:30 – 09:30 Audi Max
What can be done with extreme entanglement?
•*Richard Cleve*
- FM 89.1 09:30 – 10:30 Audi Max
Generation of pure quantum light in the solid-state
•*Pascale Senellart*
- FM 90.1 11:00 – 11:30 Audi Max
How to use quantum light to machine learn graph-structured data
•*Maria Schuld, Kamil Bradler, Robert Israel, Daiqin Su, Brajesh Gupt*
- FM 90.2 11:30 – 12:00 Audi Max
Ensuring safety for AI methods – from basic research to Bosch applications
•*David Reeb*
- FM 90.3 12:00 – 12:30 Audi Max
Boltzmann machines and tensor networks for simulating quantum many body systems
•*Frank Verstraete*
- FM 90.4 12:30 – 13:00 Audi Max
Response operators in Machine Learning: Response Properties in Chemical Space
•*Anders Christensen*
- FM 91.1 11:00 – 11:40 2004
Information Theoretic Methods in Inflationary Cosmology
•*Achim Kempf*
- FM 91.2 11:40 – 12:20 2004
Quantum Information and Cosmic Inflation
•*Jerome Martin*

FM 91.3 12:20 – 13:00 2004

Collective excitations as quantum sensors for
fundamental physics

•*Ivette Fuentes*

Sessions

FM 88 08:30 – 09:30 Audi Max

Plenary Talk: Extreme Entanglement

FM 89 09:30 – 10:30 Audi Max

Introductory Talk: Quantum Light Sources

FM 90 11:00 – 13:00 Audi Max

Special Session: Quantum Physics for AI & AI for
Quantum Physics

FM 91 11:00 – 13:00 2004

Special Session: Quantum Information Concepts
in Astrophysics

Fri

Index of Exhibitors Freiburg 2019

Location: Exhibition Tents A, B, C, Platz der Alten Synagoge,
79098 Freiburg

Opening hours exhibition:

Tuesday, 24 September	10:30 – 18:30
Wednesday, 25 September	10:30 – 18:30
Thursday, 26 September	10:30 – 18:30

Free entrance on all exhibition days.

Company	Stand No.
Allectra GmbH Traubeneichenstraße 62-66, 16567 Schönfließ <i>Vakuumkomponenten, el. Durchführungen, Kabel</i>	53
AMS Technologies AG Fraunhoferstraße 22, 82152 Martinsried <i>Optical Technologies</i>	21
Bittmann Applied Technologies Hirtenweg 54 a, 27356 Rotenburg <i>BITTMANN Applied Technologies is spezialized in recondition, refit and sales of used PVD, PE-CVD, DryEtch and Thermal Treatment. Upgrade obsolete controllers to NET-Solution. Development of PLC, GUI.</i>	08
Bluefors Oy Vojko Kunej Arinatie 10, 003700 Helsinki, Finland <i>Cryogen-free dilution refrigerator systems</i>	20
CAEN ELS S.R.L. AREA Science Park - SS14 km 163,5, 34149 Basovizza, Trieste, Italy <i>Precision Current Measurements, High Performance Power Supplies, Beamline Electronic Instrumentation, FMC + MicroTCA</i>	17

Carl Zeiss AG

18

Carl-Zeiss-Straße 22, 73447 Oberkochen

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Cryophysics GmbH

22

Dolivostraße 9, 64293 Darmstadt

Tieftemperaturtechnik

CryoVac GmbH & Co. KG

33

Heuserweg 14, 53842 Troisdorf

Helium-Bad und Verdampferkryostate, Temperaturmess- und Regelgeräte

Delft Circuits B.V.

52

Lorentweg 1, 2628 CJ Delft, The Netherlands

Hardware for quantum engineers

Focus GmbH

09

Neukirchner Straße 2, 65510 Hünstetten-Kesselbach

Verdampfer, Spin Detektoren, Ionenquellen, PEEM, TOF-PEEM

Fraunhofer IOF Department Strategy, Marketing, Communication

43

Albert-Einstein-Straße 7, 07745 Jena

Ausbildungs-, Forschungs- und Berufsmöglichkeiten im Bereich Photonik, Quantentechnologien (Bildgebung und Kommunikation), Graduiertenprogramm (Max Planck School of Photonics: M.Sc. + PhD)

Hamamatsu Photonics Deutschland GmbH	37
Arzbergerstraße 10, 82211 Herrsching	
<i>Photomultiplier Tubes & Modules, MCP, Hybriddetektoren, MPPC, MPPC Module und weitere Halbleiterdetektoren</i>	
Hositrad/Holland	04
De Wel 44, 3871 MV Hoevelaken, The Netherlands	
<i>CF, KF, ISO, UHV-Vakuumbauteile, Elektrische Durchführungen, Membranbalgen, Spezial Produkte</i>	
Hübner GmbH & Co. KG	14
Heinrich-Hertz-Straße 2, 34123 Kassel	
<i>Laser, DPSS-Laser, Asphärische Optiken, Optische Komponenten</i>	
Incianta Technologie GmbH	42
Pommernstraße 22, 63110 Rodgau-Weiskirchen	
<i>Cryostate</i>	
Institute of Physics Publishing	39
Temple Circus, Temple Way, Bristol, BS1 6BE, United Kingdom	
<i>Publishers of journals, magazines, community websites</i>	
kiutra GmbH	
– Aerospace Technology Park Oberpfaffenhofen	34
Friedrichshafener Straße 1, 82205 Gilching	
<i>Cryogen-free research cryostats for the Kelvin and sub-Kelvin temperature range: Closed-cycle cryocoolers, ADR, and Continuous ADR</i>	
LOT-QuantumDesign GmbH	24
Im Tiefen See 58, 64293 Darmstadt	
<i>Magnetometer, supral. Magnetsysteme, Elektronik-Komp., CCD-ICCD, EMCCD-Detektoren, Spektrographen</i>	
Lumibird	03
2 rue Paul Sabatier, 22300 Lannion, France	
<i>Faserlaser, Festkörperlaser, Laserdioden</i>	
Menlo Systems GmbH	48
Am Klopferspitz 19a, 82152 Martinsried	
<i>Frequency Combs, Femtosecond Lasers, Phase Stabilization of Few-Cycle Pulses, Ultrafast Detectors</i>	

MOG Labs Europe	06
Goethepark 9, 10627 Berlin	
<i>Fizeau Wavemeter, AOM-Driver, Cateye-ECDL, Fast Servo Controller, Equipment for PDH</i>	
MRC Systems GmbH Medizintechnische Systeme	40
Hans-Bunte-Straße 10, 69123 Heidelberg	
<i>Laserstrahlstabilisierung</i>	
M Squared Lasers Ltd	51
West of Scotland Science Park, Maryhill Road, Glasgow, G20 0SP, United Kingdom	
<i>Award winning photonics technology company developing advanced laser platforms (DUV - THz and CW - fs) to further scientific research. M Squared also collaborates with leading universities, institutions and industries globally</i>	
NKT Photonics Technology GmbH Bldg. D9-D13	50
Schanzenstraße 39, 51063 Köln	
<i>Ultra-schmalbandige Faserlaser, Superkontinuum, SuperK, Weißlichtquelle, Laserdiodenmodule</i>	
Oxford Instruments Nanoscience	46
Tubney Woods, Abingdon, Oxon OX13 5QX, United Kingdom	
<i>Dilution Refrigerators, Cryofree Cryostats, Superconducting Magnets</i>	
Qlibri – Ludwig-Maximilians-Universität München – Prof. Alexander Högele	31
Geschwister-Scholl-Platz 1, 80539 München	
<i>Cavity-based microscopes for absorption microscopy and quantum optics at ambient and cryogenic temperatures</i>	
qutools GmbH	05
Kistlerhofstraße 70 Geb. 88, 81379 München	
<i>Produkte zur Quanteninformationsverarbeitung, z. B. verschrankte Photonenpaarquellen</i>	
Radiant Dyes Laser Acc. GmbH	27
Friedrichstraße 58, 42929 Wermelskirchen	
<i>Dye Laser gepulst, Ti:Sa Laser cw & gepulst, Diode-laser, Optomechanik, Laserzubehör</i>	

Schäfter + Kirchhoff GmbH Optics, Metrology and Photonics	16
Kieler Straße 212, 22525 Hamburg, <i>Faseroptik-Komponenten, Polarisations-Analysatoren, Laserquellen</i>	
 SEKELS GmbH	41
Dieselstraße 6, 61239 Ober-Mörlen <i>Weichmagnetische Halbzeuge, Abschirmungen und Magnetsysteme</i>	
 Single Quantum B.V.	13
Delfgauwseweg 271, 2628ER Delft, The Netherlands <i>Single Quantum SNSPD (superconducting nanowire single photon detector) system</i>	
 Sirah Lasertechnik GmbH	47
Heinrich-Hertz-Straße 11, 41516 Grevenbroich <i>Durchstimmbare Lasersysteme: gepulste ns-/ps Farbstoff-Lasersysteme, cw-Farbstoff-Lasersysteme, gepulste ns- und cw-Ti:Saphir-Lasersysteme, cw-Frequenzverdoppler, Farbstoffe, Optik</i>	
 SmarAct GmbH	54
Schütte-Lanz-Straße 9, 26135 Oldenburg <i>Piezopositioners, Interferometer</i>	
 Springer-Verlag GmbH	26
Tiergartenstraße 17, 69121 Heidelberg <i>Wissenschaftliche Bücher und Zeitschriften</i>	
 Stable Laser Systems Inc.	25
4946 63 rd St, Boulder, CO 80301, USA <i>Stable Laser Systems sells hardware and systems for laser frequency stabilization</i>	
 Swabian Instruments GmbH	23
Frankenstraße 39, 71701 Schwieberdingen <i>Time Tagger Series, streaming time-to-digital converter, resolution down to 3 ps, Pulse Streamer 8/2, synchronous digital pattern and arbitrary waveform generator</i>	

THORLABS GmbH 38

Hans-Boeckler-Straße 6, 85221 Dachau

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Lochhamer Schlag 19, 82166 Gräfelfing / München

Lasersysteme

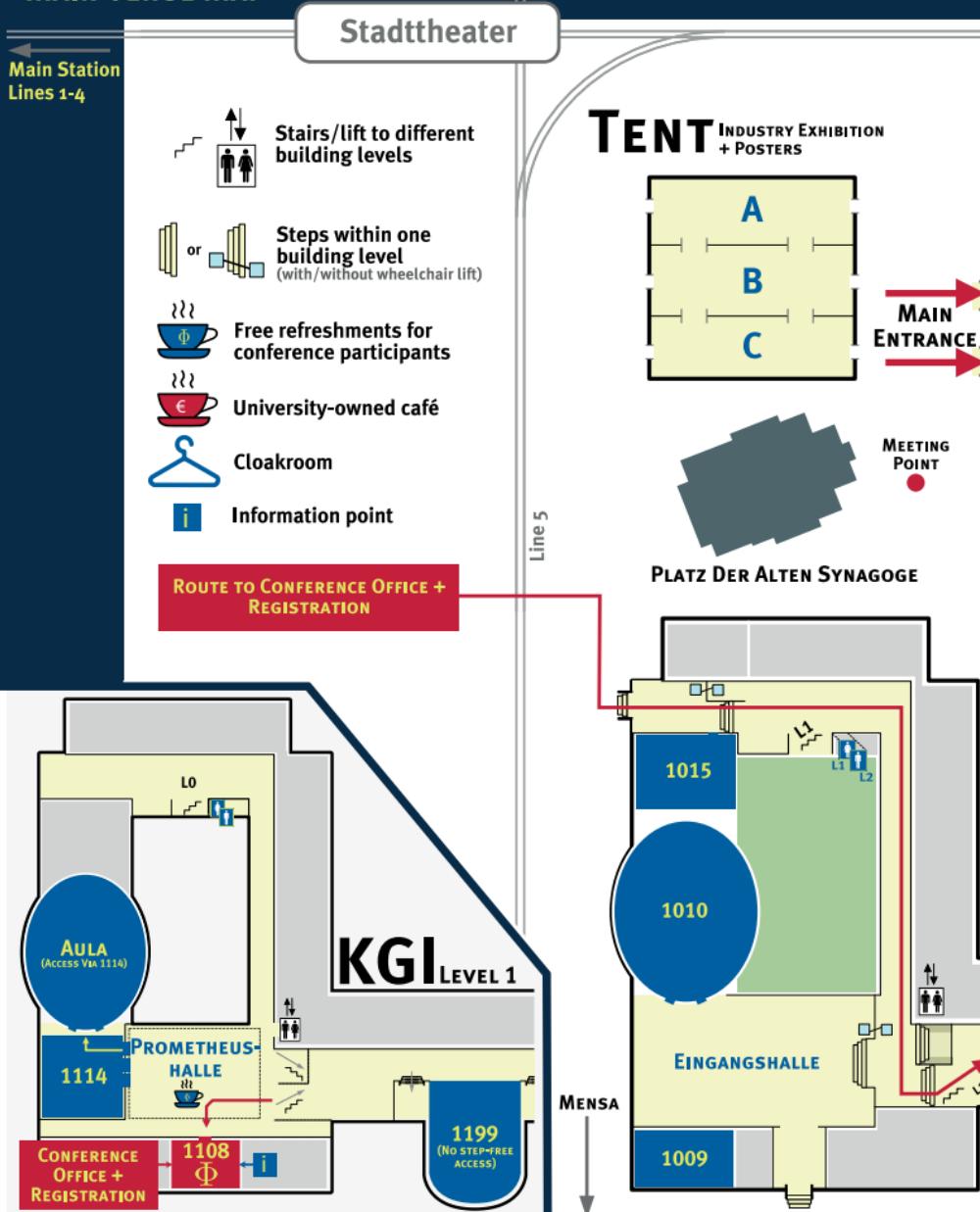
Zurich Instruments AG Marketing and Sales 32

Technoparkstr. 1, 8005 Zurich, Switzerland

Lock-in amplifiers, phase-locked loops, arbitrary waveform generators, impedance analyzers, digitizers, boxcar averagers

DPG FALL MEETING 20

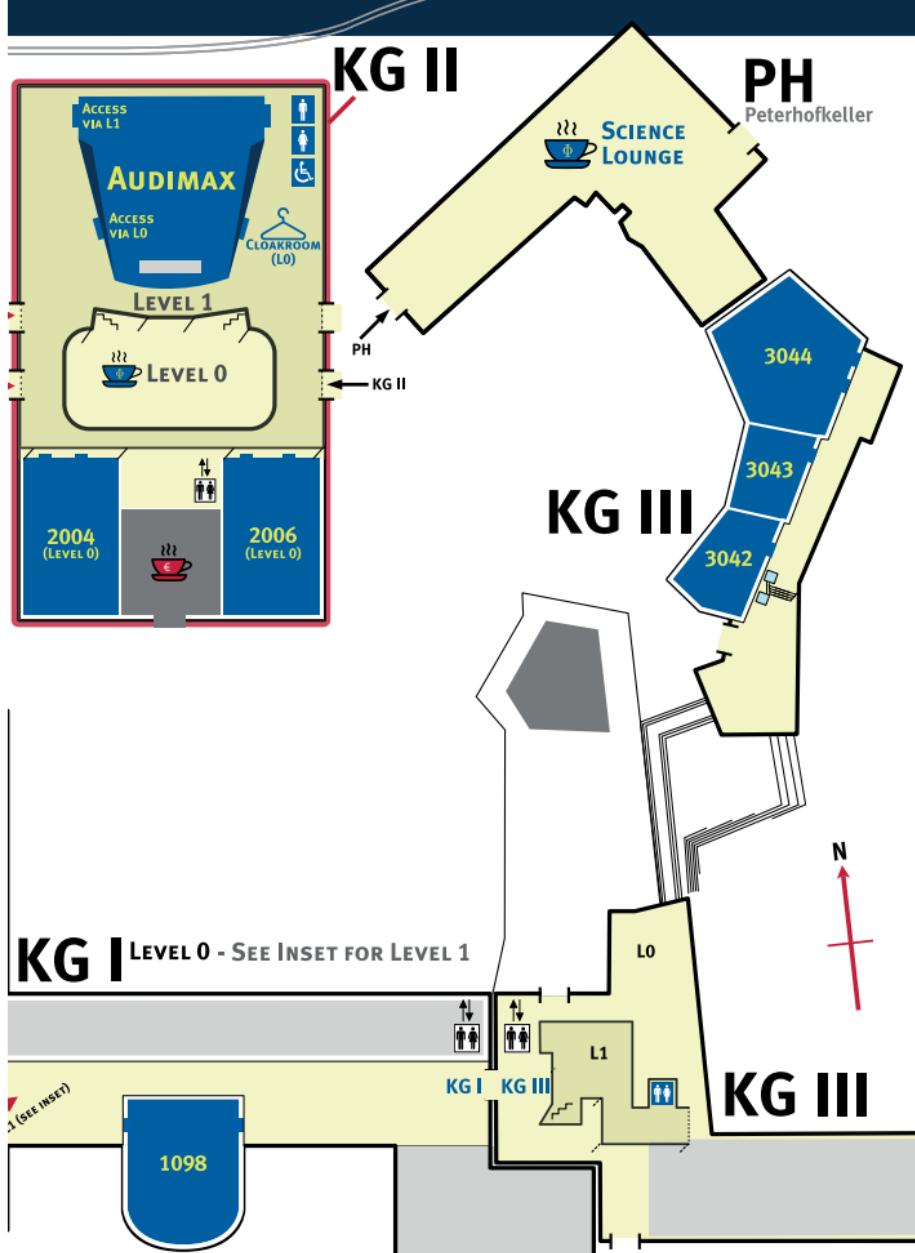
MAIN VENUE MAP



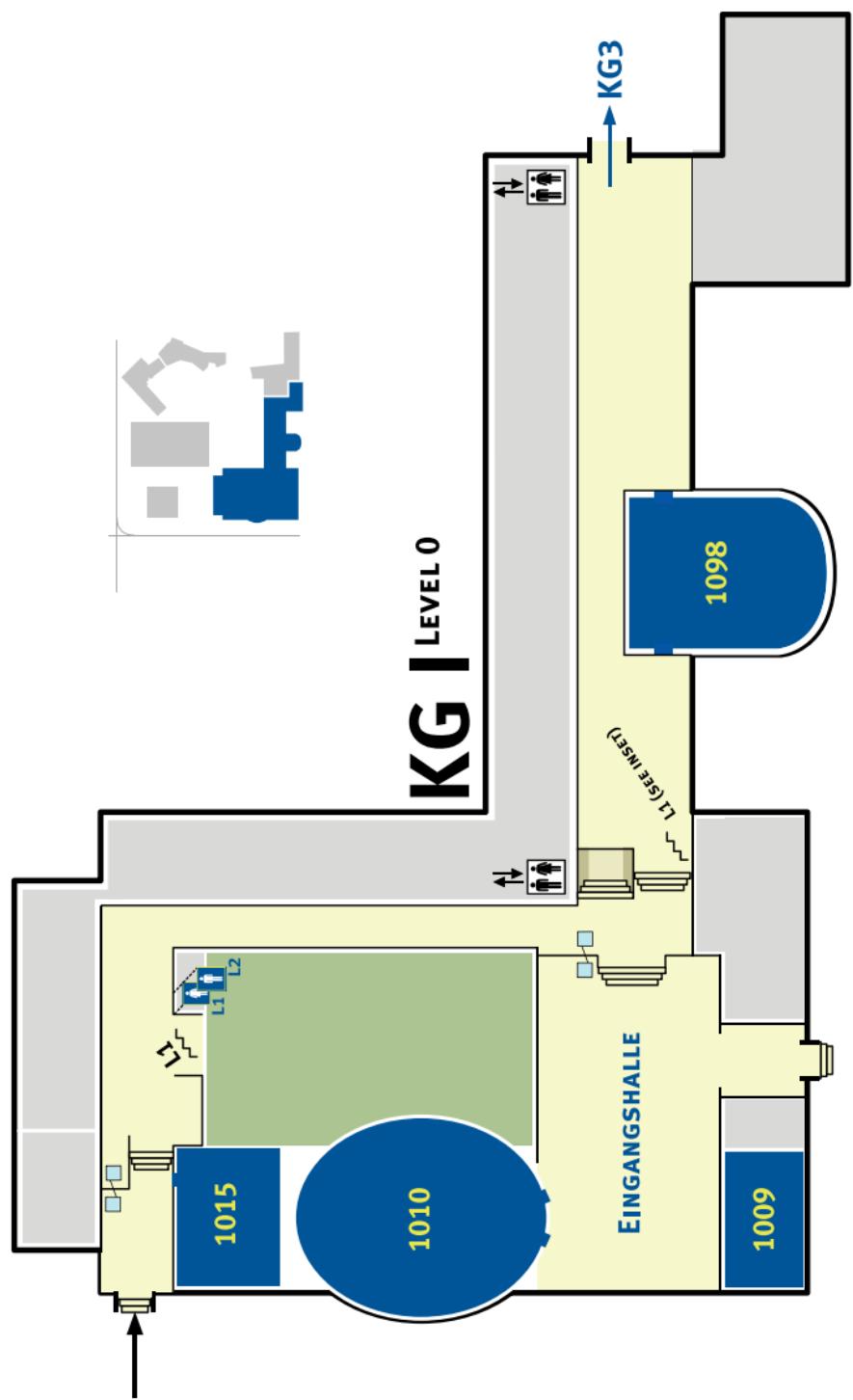
019

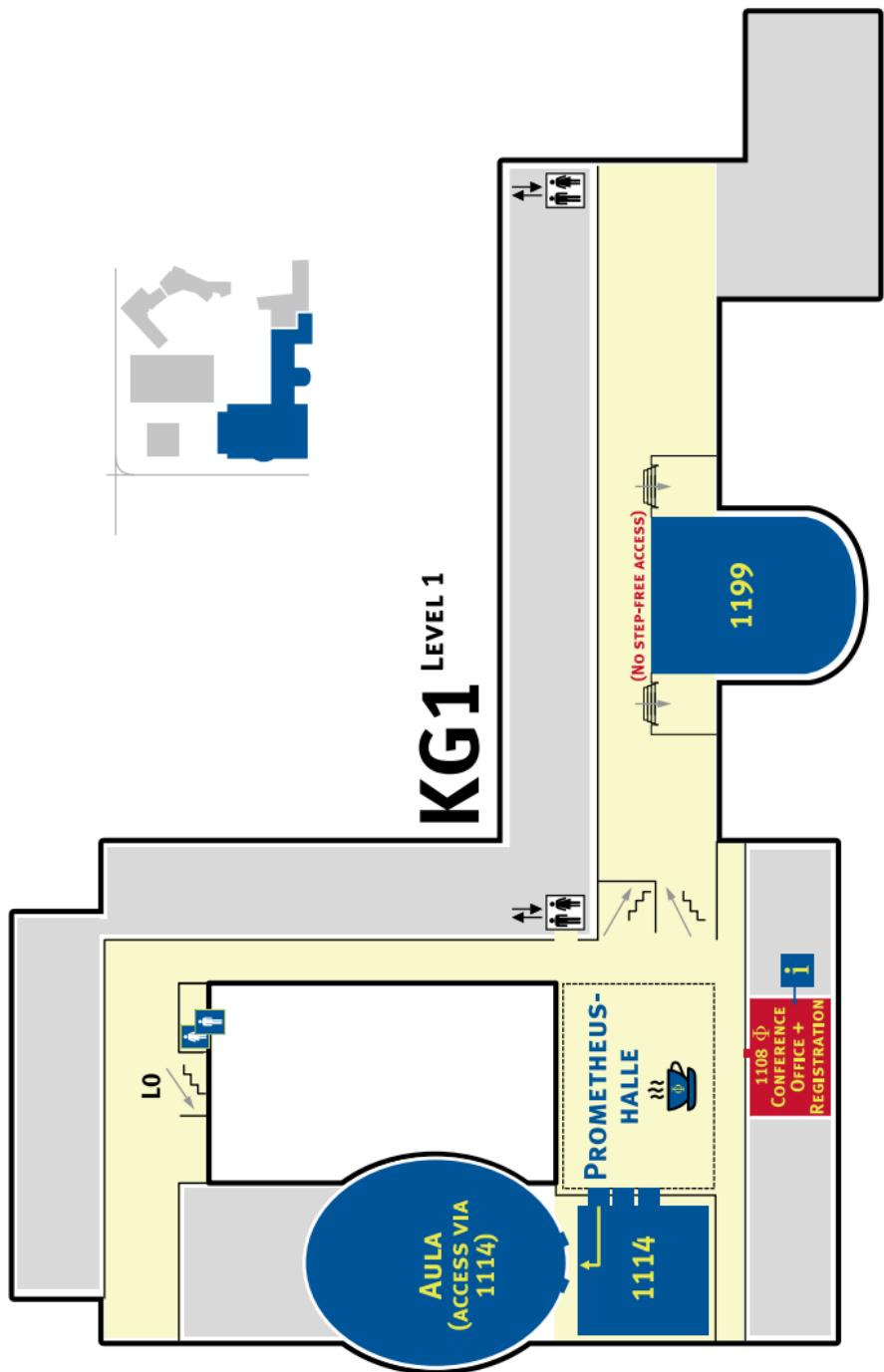
City Centre

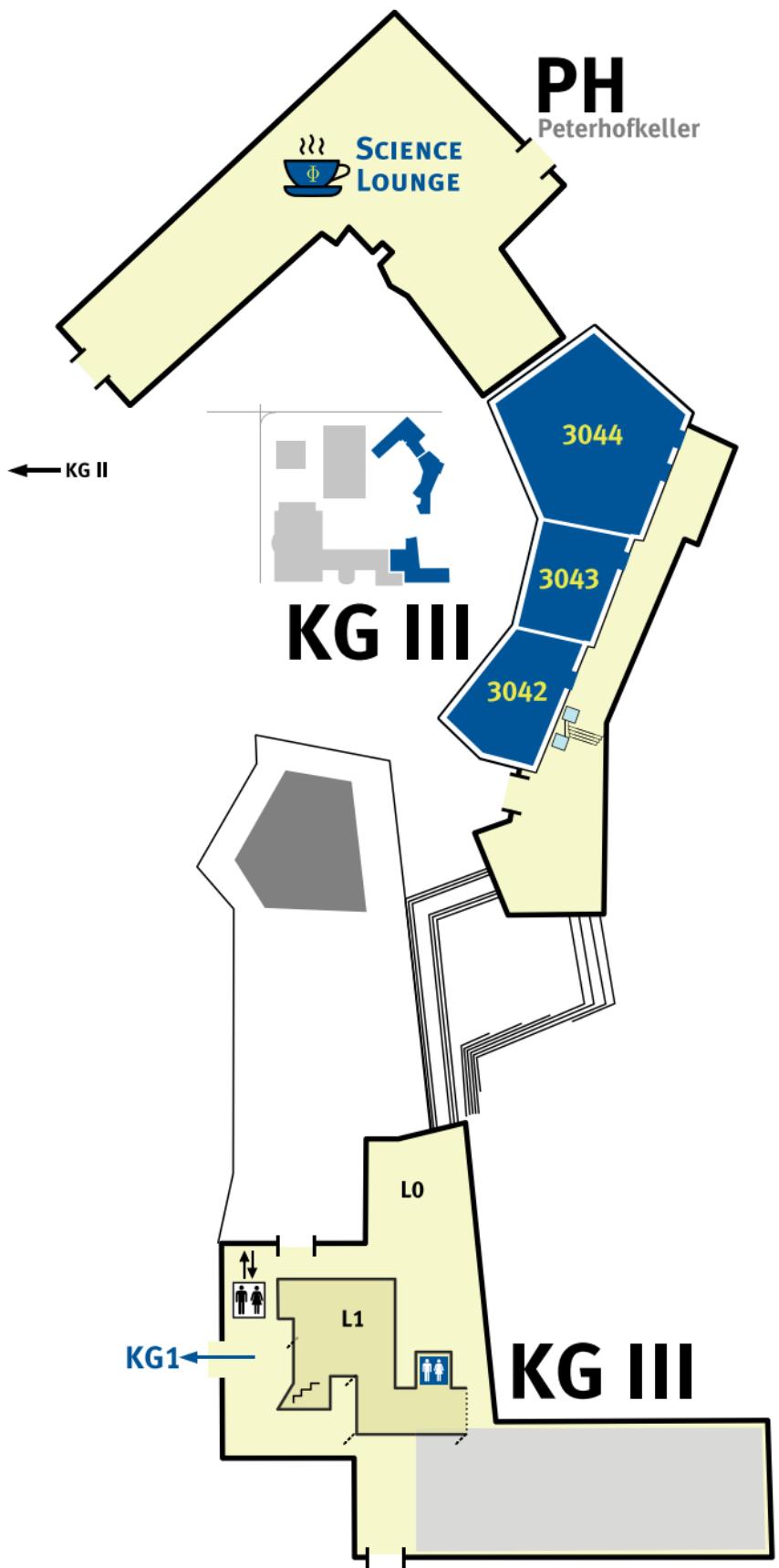
Lines 1-4



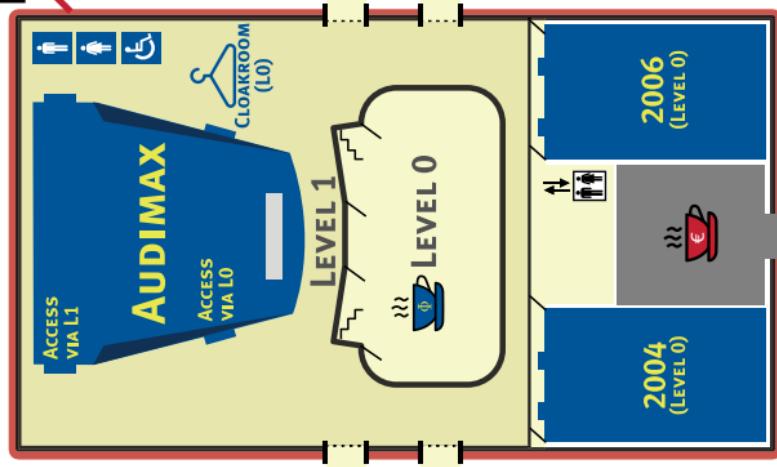
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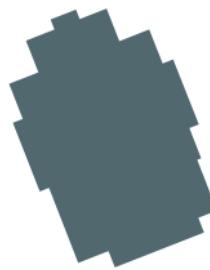
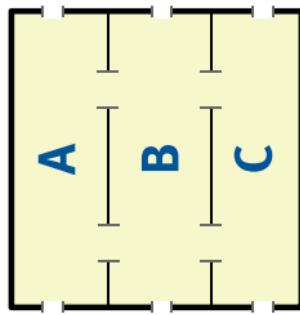




KG II



TENT INDUSTRY EXHIBITION + POSTERS



PLATZ DER ALten SYNAGOGE

- Stairs/lift to different building levels
- Steps within one building level (with/without wheelchair lift)
 - or
- Free refreshments for conference participants
- University-owned café
- Cloakroom
- Information point

Programme Structure

	Monday 08:15 Opening	Tuesday	Wednesday	Thursday	Friday
08:30 - 09:30 E. Miles Stoudenmire	Quantum Machine Learning (Plenary) Ferdinand Schmidt-Kaler	Ion Trap Based Quantum Computing (Plenary) Jürgen Groß	Challenges and Chances from an Industry Perspective Sciences (Plenary) Michelle Simmons	Silicon Based Quantum Computing (Plenary)	Extreme Entanglement (Plenary) Richard Cleve
09:30 - 10:30	Quantum Algorithms (Introductory) Ronald de Wolf	Machine Learning (Introductory) Katharina Morik	Quantum Sensing (Introductory) Fedor Jelezko	Hybrid Quantum Computing Platform (Introductory) Daniel Estève	Quantum Light Sources (Introductory) Pascale Senellart
11:00 - 12:00 Monika Aidelsburger	Quantum Simulations (Focus) Teaching Quantum Science	Quantum Spectroscopy (Focus) Frank Schlawin	Quantum Memories & Interfaces (Focus) Hugues de Riedmatten	Quantum Control (Focus) Steffen Glaser	Quantum Information Concepts in Astrophysics (Special Session) 71:00-73:00
11:00 - 13:00 (Special Session)	Quantum Networks (Special Session)	Industry (Special Session)	Topology (Special Session)	Quantum Physics for AI & AI for Quantum Physics (Special Session)	
12:30 - 14:00	Lunch Talks	Thematic Sessions	Poster Sessions		
14:00 - 16:00					
16:30 - 18:30 Welcome Evening	Industry Evening	Outreach: EinsteinSlam	Outreach: Fishbowl Panel	Outreach: Science Evening	
18:30					
19:30					
20:00					
21:00					

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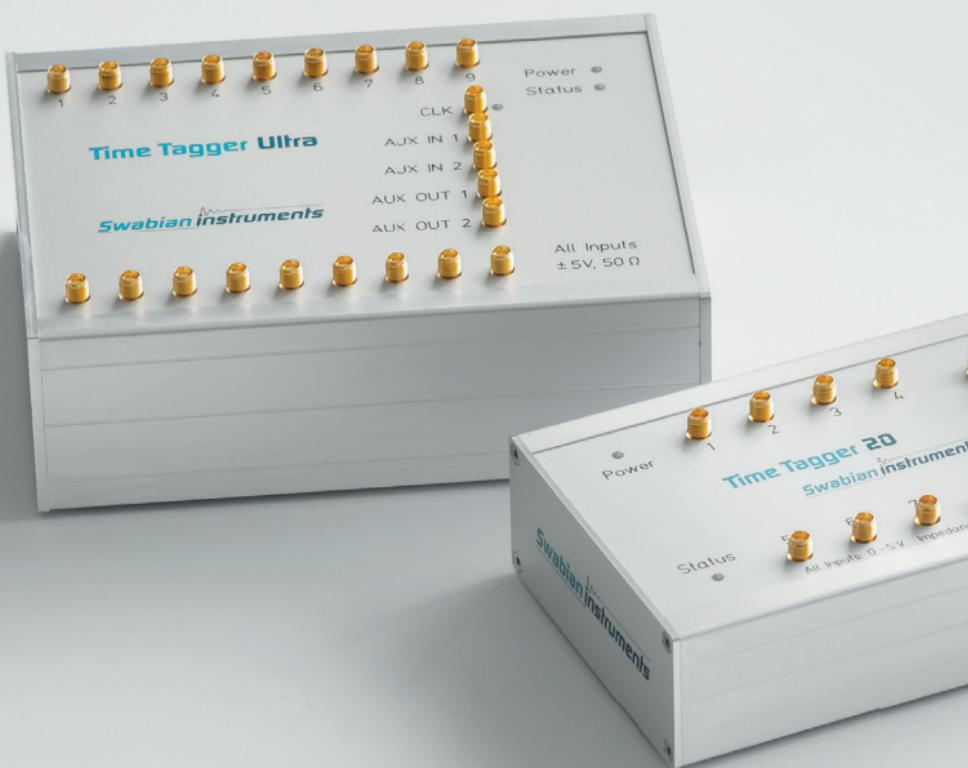
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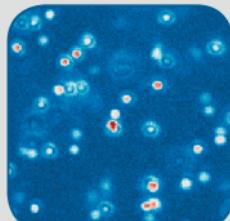
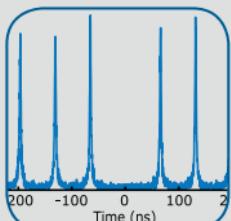
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