

[QPS2024] Oct. 8-10 2024
Paderborn, Germany

QUANTUM PHOTONICS SPOTLIGHT 2024

Interdisciplinary Conference on
Photonic Quantum Systems

INTRODUCTION

Quantum Photonics Spotlight 2024 unites international experts from various fields of quantum photonics ranging from fundamental quantum theory to photonic quantum applications.

With exchange on modelling, system design and technology as well as on quantum information and simulation, QPS2024 features highlights along the entire development chain of photonic quantum technologies.

„We want to establish a new conference with the highest scientific standards. Here in Paderborn, where quantum photonics research is at the cutting edge. Join us for the first Quantum Photonics Spotlight Conference and be part of our quantum photonics community meeting in Paderborn!“



PROF. DR. CHRISTINE SILBERHORN

Spokesperson of the Institute for Photonic Quantum Systems (PhoQS)

WHEN	Oct. 8-10 2024
WHERE	Congress centre of the Heinz Nixdorf MuseumsForum (HNF) 33102 Paderborn
REGISTRATION	on conference website: go.upb.de/qps2024

► SCIENTIFIC COMMITTEE

DR. BENJAMIN BRECHT
Group Leader „Quantum Networks“

DR. BENJAMIN HINRICHS
Junior Research Group Leader „Mathematical Physics of Complex Quantum Systems“

DR. ZAHRA RAISSI
Junior Research Group Leader „Quantum Information“

PROF. DR. ING. J. CHRISTOPH SCHEYTT
Section Owner „System and Circuit Technology“, Heinz Nixdorf Institut
Deputy Spokesperson of the Institute for Photonic Quantum Systems

PROF. DR. CHRISTINE SILBERHORN
Group Leader „Integrated Quantum-Optics“ Spokesperson of the Institute for Photonic Quantum Systems

PROF. DR. JAN SPERLING
Group Leader „Theoretical Quantum Science

► ORGANIZING INSTITUTION

The Institute for Photonic Quantum Systems (PhoQS) combines expertise and competencies in photonics and quantum research at Paderborn University – an important location for pioneering photonic quantum research. Thanks to proven experts in the fields of physics, mathematics, computer science, and electrical engineering, the required expertise to conduct fundamental research and put it into application are available.

Dr. Jennifer Krüger
Dirk Waldhoff
Dr. Christina Alpmann
Maximilian Picker

Daniela Gerdes
Brigitte Krawinkel
Dr. Christof Eigner
Martin Ratz

 qps@upb.de

SPEAKERS

PLENARY

Barbara Kraus	Technical University of Munich, Germany
Michal Lipson	Columbia University, USA
Marko Loncar	Harvard University, USA
Ian Walmsley	Imperial College London, England

KEYNOTE

Valentina Parigi	Sorbonne Université, France
Philip Walther	University of Vienna, Austria
Andrew White	University of Queensland, Australia
Roberta Zambrini	University of the Balearic Islands, Spain
Karol Życzkowski	Jagiellonian University, Poland

INVITED

Arnab Adhikary	Leibniz University Hannover, Germany
Elisabeth Agudelo	TU Wien, Austria
Ulrik Andersen	DTU, Denmark
Mark Aßmann	TU Dortmund, Germany
Konrad Banaszek	University of Warsaw, Poland
Stephen Barnett	University of Glasgow, Scotland
Stefanie Barz	University of Stuttgart, Germany
Manfred Bayer	TU Dortmund, Germany
Christoph Becher	Saarland University, Germany
Simon Becker	ETH Zurich, Switzerland
Almut Beige	University of Leeds, England
Ileana-Cristina Benea-Chelms	EPFL, Switzerland
Oliver Benson	HU Berlin, Germany
Aranya Bhattacharya	Jagiellonian University, Poland
Dagmar Bruß	HHU Düsseldorf, Germany
Christopher Cedzich	Heinrich Heine University Düsseldorf, Germany
Animesh Datta	University of Warwick, England
Stephan de Bièvre	Université de Lille, France

INVITED

Eleni Diamanti	Sorbonne Université, France
Giulia Ferrini	Chalmers University of Technology, Sweden
Jonathan Finley	TU München, Germany
Alex Gaeta	Columbia University, USA
Thomas Gerrits	NIST, USA
Markus Grassl	University of Gdańsk, Poland
David Gross	University of Cologne, Germany
Otfried Gühne	University of Siegen, Germany
Craig Hamilton	Czech Technical University, Czech Republic
Sven Höfling	University of Würzburg, Germany
Zdenek Hradil	Palacký University, Czech Republic
David Hunger	KIT, Germany
Igor Jex	Czech Technical University, Czech Republic
Michal Karpinski	University of Warsaw, Poland
Natalia Korolkova	University of St Andrews, Scotland
Patrick Ledingham	University of Southampton, England
Davide Lonigro	FAU Erlangen-Nürnberg, Germany
Chiara Macchiavello	University of Pavia, Italy
Mehul Malik	Heriot-Watt University, Scotland
Jasmin Meinecke	TU Berlin, Germany
Uwe Morgner	Leibniz Universität Hannover, Germany
Saverio Pascazio	University of Bari, Italy
Giuseppe Patera	University of Lille, France
Avi Pe'er	Bar-Ilan University, Israel
Ulf Peschel	Friedrich-Schiller-Universität Jena, Germany
Julien Pinske	University of Copenhagen, Denmark
Martin Plenio	Universität Ulm, Germany
Stephan Reitzenstein	TU Berlin, Germany
Katarzyna Roszak	Czech Academy of Sciences, Czech Republic
Lukasz Rudnicki	University of Gdansk, Poland
Luis Sanchez-Soto	University of Madrid, Spain
Frank Schlawin	University of Hamburg, Germany
Fabio Sciarrino	Sapienza Università di Roma, Italy
Pascale Sennelart	Université Paris-Saclay, France
Frank Setzpfand	Friedrich-Schiller-Universität Jena, Germany
Fabian Steinlechner	Fraunhofer IOF, Germany
Birgit Stiller	MPI for the Science of Light, Germany
Rob Thew	University of Geneva, Switzerland
Costanza Toninelli	LENS, Italy
Jordi Tura Brugués	Leiden University, Netherlands
Ramona Wolf	University of Siegen, Germany

[QPS2024]
PROGRAM

Detailed Program:



Tuesday	
08:15	Arrival & Conference Registration
08:30	
09:15	opening
09:30	KEYNOTE Karol Życzkowski 09:30 - 10:15
9:45	
10:00	
10:15	Coffee break
10:30	
10:45	KEYNOTE Robertra Zambrini 10:45 - 11:30
11:30	Lunch 11:30 - 13:00
11:45	
13:00	Photonics Sessions I-II & Industry Session & Fundamentals Session I 13:00 - 15:00
15:00	Coffee break
15:30	Photonics Sessions III-V & Fundamentals Session II 15:30 - 17:30
17:30	Setup Poster Session
18:00	Poster Session w/ beer and pretzels 18:00 - 21:00 Sponsored by TRR 142
19:00	
21:00	

Wednesday	
arrival	
PLENARY Michal Lipson 08:30-09:30	
Coffee break	
KEYNOTE Philip Walther 09:45 - 10:30	
PLENARY Barbara Kraus 10:30 - 11:30	
Lunch 11:30 - 13:00	
Photonics Sessions VI-VIII & Fundamentals Session III 13:00 - 15:00	
Coffee break	
Dedicated Exhibition Time 15:30 - 17:00	Fundamentals Session IV
Coffee break	
PLENARY Ian Walmsley 18:00-19:00	
Conference Dinner 19:00 - 22:00	

Thursday	
arrival	
PLENARY Marko Lončar 08:30-09:30	
Coffee break	
KEYNOTE Andrew White 10:00 - 10:45	
KEYNOTE Valentina Parigi 10:45 - 11:30	
Conference closing	
Lunch 11:45 - 13:00	
Photonics Sessions IX-XI & Fundamentals Session V 13:00 - 15:00	
Coffee break	
Photonics Sessions XII-XIV & Fundamentals Session VI 15:30 - 17:00	
End of Conference	

- Keynotes & Plenaries
at the Auditorium
- Parallel Sessions
at seminar rooms A-D

► SPOTLIGHTS

- Focus on interdisciplinarity as a key element for pioneering photonic quantum research
- Highest level of scientific excellence through invited-only talks
- High proportion of female scientists among the invited speakers
- Industry exhibition and presentations for efficient dialogue between science and industry
- Pre-conference workshop and school for young researchers
- Networking opportunity for young scientists including poster sessions and plenty of time for discussions
- Three full days of scientific exchange in the facilities of the world's largest computer museum with first insights into the new exhibition on Quantum Computing

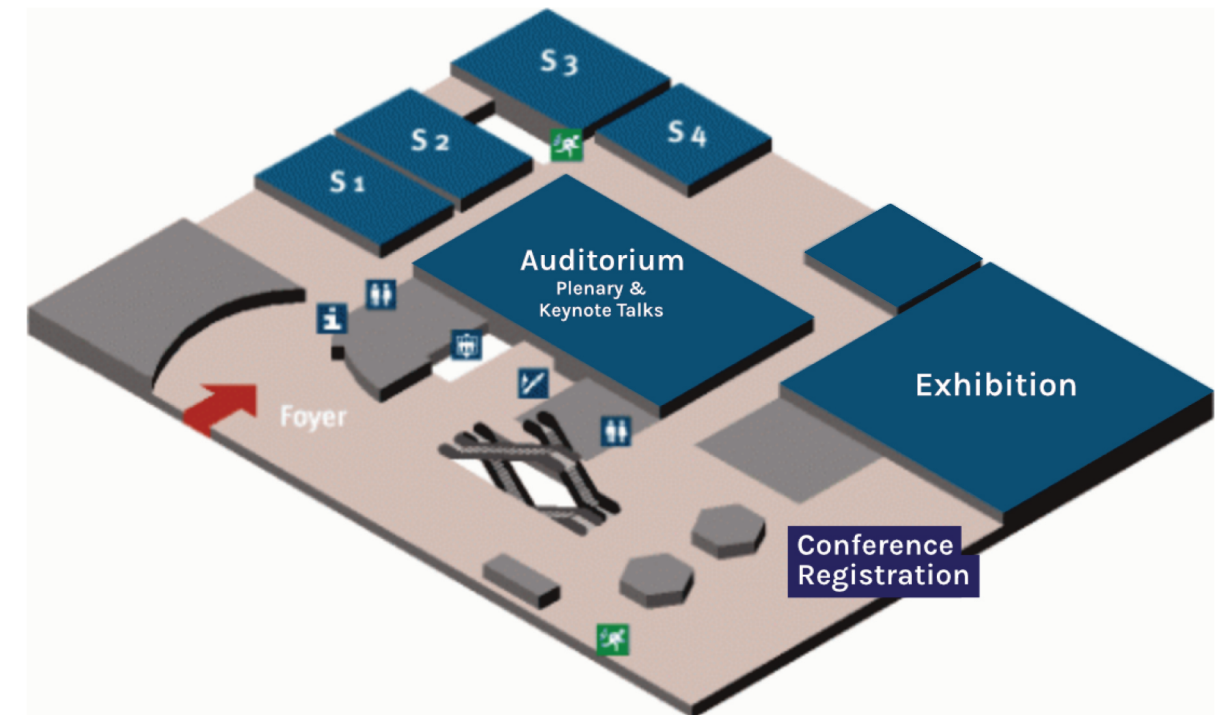
WIFI OPTIONS

1. „NetzwerkForum“
Password: „04Forum24“
2. eduroam
(certificate only)



CONFERENCE LOCATION

HEINZ NIXDORF MUSEUMSFORUM (HNF)



- Conference Dinner will take place at the basement Bistro.
- Museum Visit is Included in your Conference Registration.
- Guided tours take place during lunch breaks. Please register at the registration desk.

ORGANIZING INSTITUTION

PhoQS in Paderborn



Building upon a long-standing tradition of lithium niobate photonics and electro-optics at Paderborn University, the PhoQSLab opens up new horizons for quantum research.

Our new research building unites the expertise of groups working in different fields, enabling groundbreaking advancements in the development of integrated quantum devices. In a 990 m² ISO class 5 and 6 cleanroom, specifically equipped for the production of thin film lithium niobate devices, we will develop and manufacture novel quantum devices. The heart of this facility consists of two electro-magnetically shielded and vibration-isolated rooms, enabling high-precision micro- and nanofabrication.



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The building offers 1200 m² of quantum optics laboratories, which, in addition to a highly stable, vibration-optimized foundation, provide extreme temperature stability, offering an ideal environment for long-term stable experiments.

With 1300 square meters of office space, the PhoQSLab fosters interdisciplinary collaboration, with interaction areas crucial for facilitating interdisciplinary research.

- State-of-the-art cleanroom: 990 m² for the production of novel devices
- Highly stable quantum optics laboratories: 1280 m² for large-scale experiments
- Synergy effects: Bundling of expertise for innovative solutions

PhoQS - PADERBORN'S INTERDISCIPLINARY INSTITUTE FOR PHOTONIC QUANTUM SYSTEMS

EXPERIMENTAL PHYSICS:



Prof. Dr. Christine Silberhorn



Prof. Dr. Thomas Zentgraf



Prof. Dr. Klaus Jöns



Prof. Dr. Tim Bartley



Prof. Dr. Dirk Reuter

THEORETICAL PHYSICS:



Prof. Dr. Stefan Schumacher



Prof. Dr. Jan Sperling



Prof. Dr. Torsten Meier

MATHEMATICS:



Prof. Dr. Tobias Weich



Prof. Dr. Martin Kolb



Dr. Benjamin Hinrichs

COMPUTER SCIENCE:



Prof. Dr. Johannes Blömer



Prof. Dr. Sevag Gharibian



Dr. Zahra Raissi

ELECTRICAL ENGINEERING:



Prof. Dr. Christoph Scheytt



Prof. Dr. Jens Förstner

OUR EXPERTISE:

ENGINEERING & FABRICATION
SYSTEM AND APPLICATION
DESIGN
ALGORITHM DEVELOPMENT

FUNDAMENTAL RESEARCH
QUANTUM COMMUNICATION
QUANTUM METROLOGY

QUANTUM SIMULATION
QUANTUM COMPUTING
QUANTUM EDUCATION



PhoQS
INSTITUTE FOR PHOTONIC
QUANTUM SYSTEMS

OTHER EVENTS

Public lecture in german language SCIENCE TALK WITH PROF. DR. GERD LEUCHS

A Journey to the wonderful world of
quantum computing



Prof. Dr. Gerd Leuchs
„On the way to the
quantum Computer“
| Speaker



Ina Brandes
„The big questions of
quantum technologies“
| Panelist



Prof. Dr. C. Silberhorn
„The big questions of
quantum technologies“
| Panelist



Dr. Jochen Viehoff
„The big questions of
quantum technologies“
| Panelist



Julia Ures
„The big questions of
quantum technologies“
| Moderator

07. Oktober 2024, 19.00 Uhr
Heinz Nixdorf MuseumsForum (HNF), Paderborn

SCIENCE TALK MIT PROF. DR. GERD LEUCHS

WENN DIE QUANTEN IM COMPUTER TANZEN

Eine Reise in die wunderbare Welt des Quantencomputing
Vortrag und Diskussion

7. Oktober 2024, 19:00
im Heinz Nixdorf MuseumsForum Paderborn

Eintritt frei:



Design: Maximilian Picker

September, 2nd - 4th | 2024
Paderborn, Germany

Arcticque PhoQS 2024 Summer School

Quantum Physics, Water skiing and Volleyball -
It was a pleasure to welcome you here in
Paderborn!



Oct. 5-7, 2024 | Paderborn University (Lecture Hall 01)

TheoQS Autumn School

- ▶ Current research topics in the theoretical description of quantum systems
- ▶ Aimed at PhD students, master students and young postdocs

Confirmed Speakers:

- ▶ Aranya Bhattacharya (Krakow)
- ▶ Angela Capel Cuevas (Cambridge)
- ▶ Michael Wolf (Munich)
- ▶ Ramona Wolf (Siegen)

More
Information:

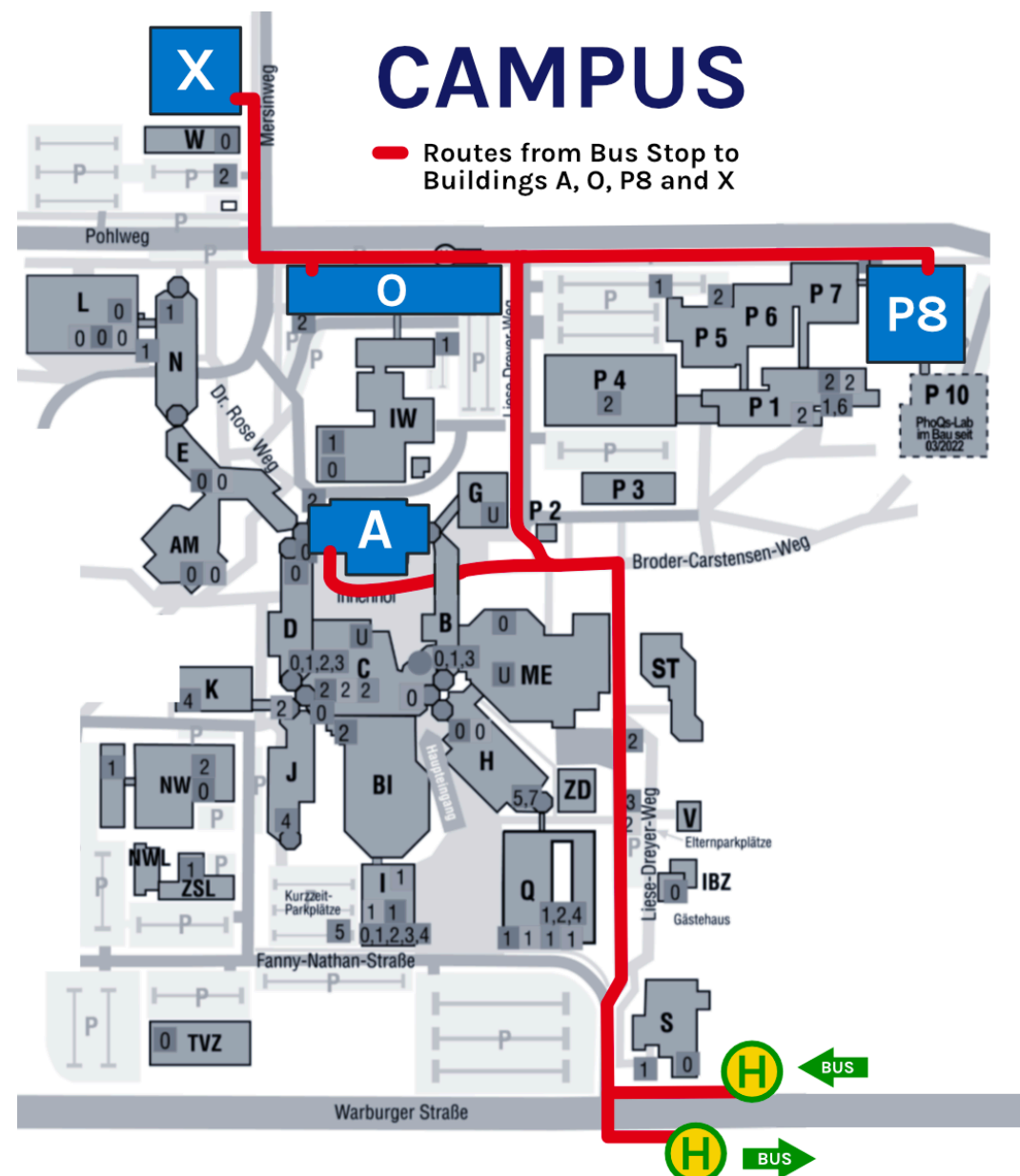


No participation fee.
Registration until September 30, 2024

Campus & Lab Tour:

@ Tuesday & Thursday afternoon: 3 pm – 6 pm (via public transport)

- 1) Clean Room (Gallery) & Quantum Optics Labs | Facilities operated by PhoQS, MBE by Reuters group & quantum optics labs Silberhorn group | P8 building
- 2) Theory tour & PC² | Presentations by groups of Z. Raissi, S. Gharibian, J. Blömer, J. Sperling, B. Hinrichs & High-Performance Computing Paderborn | O & X building
- 3) Cryogenic Quantum Optics Laboratories | Bartley group and Jöns group | P8 & A building
- 4) System and Circuit Technology | Facilities of C. Scheytt's group | Heinz Nixdorf Institute (walking distance from HNF)



Bus Line 14:

From HNF to Campus:
Departure Time at
"MuseumsForum"
at 3:15 PM

Back to HNF:
Departure Time at
"Uni/Schöne Aussicht"
at 5:30 PM



- Registration for Campus Tours and further information at the registration desk!

[QPS2024] Partners

Quantum Photonics Spotlight 2024 provides the unique opportunity of an intimate exchange with leading scientists from various fields of quantum photonics. Take the chance to network with exhibitors as well as technology experts and benefit in the areas of sales, market research and product development.



Ministerium für
Kultur und Wissenschaft
des Landes Nordrhein-Westfalen



Institute for
Photonic Quantum Systems (PhoQS)
<https://phoqs.uni-paderborn.de/>

Dr. Christina Alpmann
Managing Director

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33098 Paderborn