

# Photonics for Information Processing

811. WE-Heraeus-Seminar

02 – 05 June 2024

at the Physikzentrum Bad Honnef, Germany

**WILHELM UND ELSE  
HERAEUS-STIFTUNG**



# Program

**Sunday, 02 June 2024**

16:30 – 21:00    Registration

18:30            *BUFFET SUPPER and informal get-together*

**Monday, 03 June 2024**

08:00            *BREAKFAST*

08:55            Scientific organizers    **Welcome**

09:00 – 10:00    Isabelle Staude        **Active Dielectric Metasurfaces for  
Diffractive Deep Neural Networks**

10:00 – 11:00    Peter Bienstman        **Optical Computing with Silicon  
Photonic Reservoirs**

11:00 – 11:30    *COFFEE BREAK*

11:30 – 11:45    Gabriele Cavicchioli    **Recursive Integrated Photonic Pro-  
cessor for All-optical Matrix Inversion**

11:45 – 12:00    Nikolay Lukin            **Volume Holographic Optical Elements  
for Applications in Optical Computing**

12:00 – 12:15    Fiodar Marozka        **Optoelectronic Reservoir Computer  
with In-situ-optimized Digital Delayed  
Feedback**

12:15 – 12:30    Josefine Bjørndal  
Robl                    **Clustering Using Gaussian Boson  
Sampling**

12:30 – 14:00    *LUNCH BREAK*

# Program

**Monday, 03 June 2024**

14:00 – 15:00	Alina Karabchevsky	<b>Integrated Photonics for On-chip Computing</b>
15:00 – 16:00	Daniel Brunner	<b>Towards Autonomous Optical Neural Networks Leveraging 3D Integration</b>
16:00 – 16:15	Stefan Jorda	<b>About the Wilhelm and Else Heraeus Foundation</b>
16:15 – 16:45	<i>COFFEE BREAK</i>	
16:45 – 17:15	<b>Poster Pitches</b> (first half)	
17:15 – 18:45	<b>Poster Session 1 &amp; Networking</b>	
18:45	<i>DINNER</i>	

# Program

**Tuesday, 04 June 2024**

08:00	<i>BREAKFAST</i>	
09:00 – 10:00	Clivia M. Sotomayor Torres	<b>Coupled Photons-phonons for Information Processing</b>
10:00 – 11:00	Birgit Stiller	<b>Photonic Computation with Sound Waves</b>
11:00 – 11:30	<i>COFFEE BREAK</i>	
11:30 – 12:30	Bhavin J. Shastri	<b>Neuromorphic Photonic Computing: Applications, Classical to Quantum</b>
12:30 – 14:00	<i>LUNCH BREAK</i>	
14:00 – 15:00	Rachel Grange	<b>Integrated or Random Nonlinear Optical Generator for Machine Learning</b>
15:00 – 15:15	Shreya Kumar	<b>Multiphoton Interference and Entanglement Using Multiport Beam Splitters</b>
15:15 – 15:30	Yannik Mahlau	<b>Efficient Inverse Design for Photonic Integrated Circuits</b>
15:30 – 15:45	Frederik Kofoed Marqvorsen	<b>Impact of Finite Squeezing on Measurement-based Quantum Computations Using GKP Qubits</b>
15:45 – 16:00	Sina Saravi	<b>Towards Truly Deep All-optical Diffractive Neural Networks</b>
16:00 – 16:30	<i>COFFEE BREAK</i>	
16:30 – 17:00	<b>Poster Pitches</b> (second half)	
17:00 – 18:30	<b>Poster Session 2 &amp; Networking</b>	
18:30	<i>HERAEUS DINNER</i> (social event with cold & warm buffet with complimentary drinks)	

# Program

Wednesday, 05 June 2024

08:00	<i>BREAKFAST</i>	
09:00 – 10:00	Henning Menzel	<b>Orientalional Order of Photoactive Colloidal 2D Nanoplatelets in Polymer Fibers</b>
10:00 – 11:00	Maurizio Burla	<b>Integrated Photonics Processing for Phased Array Antenna Beamforming</b>
11:00 – 11:30	<i>COFFEE BREAK</i>	
11:30 – 11:45	Maira Pérez Sosa	<b>Nanophotonic Metasurfaces for Optical Wireless Communication</b>
11:45 – 12:00	Ilker Oguz	<b>Programming Optical Propagation in Multimode Fibers for High Speed, Ultra-Low Power Computing</b>
12:00 – 12:15	Fan Tongmiao	<b>Biphoton Polarization Bell States from an InGaP Nonlinear Metasurface</b>
12:15 – 12:30	Frank Brückerohoff-Plückelmann	<b>Photonic Probabilistic Computing</b>
12:30 – 12:40	Scientific Organizers	<b>Closing</b>
12:40	<i>LUNCH BREAK</i>	

**End of the seminar and departure**