

# Program (CEST)

**Wednesday, 25 August 2021**

09:00 – 09:15     Janik Wolters     **Welcome**  
                         Anna Pappa

*Chair: Daniel Brunner*

09:15 – 09:55     Ulrik L. Andersen     **Continuous Variable Optical Quantum Computing**

09:55 – 10:35     Heike Riel     **The Future of Computing – Bits & Neurons & Qubits**

10:35 – 10:50     *BREAK*

10:50 – 12:10     *MINGLING (speed networking) on the MeetAnyWay platform*

12:10 – 13:10     *LUNCH BREAK*

*Chair: Ulrik L. Andersen*

13:10 – 13:50     Michael Kues     **Photonic Frequency-Domain Circuits for Quantum State Generation and Processing**

13:50 – 14:30     Benjamin Brecht     **Time-Frequency Quantum Walks**

14:30 – 14:40     *BREAK*

*Chair: Janik Wolters*

14:40 – 15:00     Nora Tischler  
(Contributed Talk)     **Provable Accuracy Advantage in Machine-Learned Quantum Models of Classical Stochastic Processes**

15:00 – 15:20     Markus Gräfe  
(Contributed Talk)     **Quantum Sensing With Undetected Light**

15:20 – 15:40     Stefan Jorda     **About the Wilhelm and Else Heraeus Foundation**

15:40 – 15:50     *BREAK*

*Chair: Pascale Senellart*

15:50 – 16:30     Hui Cao     **Massive-Parallel Ultrafast Random Bit Generation with a Semiconductor Laser**

16:30 – 17:10     Kai Müller     **Dynamics of Generation and Detection of Single Photons**

17:10                 Poster 1 & Networking (bring your own beer & snacks)

# Program (CEST)

Thursday, 26 August 2021

*Chair: Anna Pappa*

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|---------------|----------------|---|
| 09:15 – 09:55 | Jens Eisert    | <b>Rigorous Approaches to Quantum-Assisted Machine Learning</b>             |
| 09:55 – 10:35 | Daniel Brunner | <b>Towards Autonomous Optical Neural Networks Leveraging 3D Integration</b> |
| 10:35 – 10:50 | <i>BREAK</i>   |   |

*Chair: Kai Müller*

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|---------------|---|--|
| 10:50 – 11:10 | Oleksandr Kyriienko<br>(Contributed Talk) | <b>Differentiable Quantum Circuits for Solving Nonlinear Differential Equations</b>  |
| 11:10 – 11:30 | Felix Bussieres<br>(Contributed Talk)     | <b>Photon-Number Resolving Superconducting Nano-Strip Single-Photon Detectors for Quantum Optical Information Processing</b> |
| 11:30 – 12:10 | Pascale Senellart                         | <b>Efficient Photon Sources for Optical Quantum Computing</b>  |
| 12:10 – 13:10 | <i>LUNCH BREAK</i>                        |  |

*Chair: Christoph Becher*

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|---------------|-------------------|--|
| 13:10 – 13:50 | Alexander Szameit | <b>Laser-Written Photonic Quantum Circuits</b> |
| 13:50 – 14:30 | Elham Kashefi     | <b>QML-based Cryptanalysis</b>                 |
| 14:30 – 14:40 | <i>BREAK</i>      |  |

*Chair: Janik Wolters*

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|---------------|--|--|
| 14:40 – 15:00 | Tobias Stollenwerk<br>(Contributed Talk) | <b>Quantum Approximate Optimization for Real-World Planning Problems</b> |
| 15:00 – 15:20 | Gerd Leuchs<br>(Contributed Talk)        | <b>Towards a Free Space Atomic Quantum Gate</b>                          |
| 15:20 – 15:50 | <i>BREAK</i>                             |  |

*Chair: Vedran Dunjko*

## Program (CEST)

15:50 – 16:30	Stefanie Barz	<b>Networked Communication and Hybrid Computing with GHZ States</b>
16:30 – 17:10	Wolfram Pernice	<b>Towards Brain-Inspired Photonic Computing</b>
17:10	Poster 2 & Networking (bring your own beer & snacks)	

# Program (CEST)

**Friday, 27 August 2021**

*Chair: Anna Pappa*

09:15 – 09:55      Vedran Dunjko      **Toward Quantum Advantages for Reinforcement Learning**

09:55 – 10:35      Anthony Laing      **The First Photonic Quantum Computers and their Applications**

10:35 – 10:50      *BREAK*

*Chair: Stefanie Barz*

10:50 – 11:10      Jelmer Renema  
(Contributed Talk)      **A 12-mode Universal Photonic Processor for Quantum Information Processing**

11:10 – 11:50      Christoph Becher      **Towards Generation of Cluster States with Color Centers in Diamond for Photonic Quantum Computing**

11:50              Janik Wolters  
Anna Pappa      **Closing comments and best poster award**