

Programme on  
“Quantum Simulation - from Theory to Application”

September 2 – October 31, 2019

organized by

Tommaso Calarco (Forschungszentrum Jülich), Wolfgang Lechner (U Innsbruck, IQOQI), Jörg Schmiedmayer (TU Vienna), Philip Walther (U Vienna)

Conference “The Nature of Quantum Networks”

September 9 – 12, 2019

• **Monday, September 9, 2019**

09:00 – 10:00 **Shabir Barzanjeh**

*Entangled microwave radiation and its application in quantum illumination (radar)*

10:00 – 10:30 *Coffee / Tea break*

10:30 – 11:15 **Johannes Majer**

*Superradiant emission from colour centres in diamond*

11:15 – 12:00 **Marta Estarellas**

*Simulating complex quantum networks with time crystals*

12:00 – 14:30 *Lunch break*

14:30 – 15:30 **Istvan Kovacs**

*A scalable network architecture*

16:00 – 16:30 **Chikako Uchiyama**

*Quantum energy transport under environmental engineering*

• **Tuesday, September 10, 2019**

09:00 – 10:00 **Simone Montangero**

*Quantum Technologies using Rydberg Atoms*

10:00 – 10:30 *Coffee / Tea break*

10:30 – 11:15 **Michael Trupke**

*Quantum Network Module Technology with Spin Centres in Crystals*

11:15 – 12:00 **Yasser Omar**

*Quantum Link-Prediction in Complex Networks*

12:00 – 14:30 *Lunch break*

14:30 – 15:30 **Sumeet Kathri**

*Practical figures of merit and thresholds for entanglement distribution in quantum networks*

15:30 – 16:30 **Michael Scheucher**

*Nonreciprocal Quantum Devices*

16:30 – 17:00 **Zoltan Zimboras**  
*Short-time asymptotics of quantum walks on networks*

• **Wednesday, September 11, 2019**

09:00 – 10:00 **Jörg Schmiedmayer**  
*Quantum Nodes and Quantum Repeaters*

10:00 – 10:30 *Coffee / Tea break*

10:30 – 11:15 **Bill Munro**  
*From today's QKD links to tomorrow quantum internet*

11:15 – 12:00 **Bruno Coutinho**  
*On the robustness of a quantum internet*

free afternoon

18:00 **Conference Dinner**

• **Thursday, September 12, 2019**

09:00 – 10:00 **Miguel Navascues**  
*Connector tensor networks: a renormalization-type approach to quantum certification*

10:00 – 10:30 *Coffee / Tea break*

10:30 – 11:15 **Andrew Briggs**  
*Measuring and Tuning Quantum Devices by Machine Learning*

11:15 – 12:00 **Rupert Ursin**  
*Quantum communication in fiber and space*

12:00 – 14:30 *Lunch break*

**All talks take place at ESI, Boltzmann Lecture Hall!**