SUMMER LECTURE: Quantum Information Without Trust

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12:00 to 13:00
Yellow Lecture Room

Quantum technologies promise new ways of communicating and processing information that are impossible using classical devices. But how can we trust quantum devices if they are so hard to simulate classically? Device-independent quantum information processing offers the answer: instead of trusting how a device is built, we can verify its behaviour purely from the statistics of its outputs.
The talk introduces the basic ideas behind the device-independent framework, focusing on how i¿½quantum correlationsi¿½ - patterns of outcomes that cannot be explained by class cal physics - can serve as a guarantee of correct and secure operation. Protocols for se ure randomness generation and key distribution are presented. Finally, it is discussed how concepts and tools initially derived for device-independent quantum informa ion applications open new perspectives for the understanding of quantum many-body systems.
Hosted by: Academic Affairs