Contribution ID: **12** Type: **not specified**

Quantum Network Correlations

Wednesday 17 April 2024 20:30 (45 minutes)

Quantum networks are promising tools for the implementation of long-range quantum communication. The characterization of quantum correlations in networks and their usefulness for information processing is therefore central for the progress of the field, but so far only results for small basic network structures or pure quantum states are known.

In my talk I will discuss two topics related to quantum networks. First, I will introduce notions of network entanglement and study their properties. Specifically, I will provide an analytical approach to characterize correlations in large network structures with arbitrary topologies. Second, I will present an efficient method to characterize the network topology from few measurement data.

References:
K. Hansenne et al., arXiv:2108.02732
L. Weinbrenner et al., arXiv:2309.12907

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Session Classification: Talks