

The Vienna Doctoral Programme on Complex Quantum Systems
invites you to a

Seminar Talk

by

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"A second-quantised Shannon theory"

Shannon's theory of information was built on the assumption that the information carriers were classical systems, carrying classical messages and moving along well-defined trajectories in spacetime. Its quantum counterpart, quantum Shannon theory, explores scenarios in which the messages can be quantum, but their trajectories in spacetime are still classical. Quantum Shannon theory can be regarded as a first quantisation of Shannon's information theory, where the internal state of the information carriers is quantised, but the motional degrees of freedom are treated as classical. In this talk I will discuss a second level of quantisation, where not only the information carriers, but also the path along which information travels can be in a quantum superposition. I will present several examples of this extended scenario, discussing different ways in which second-quantised communication protocols can achieve tasks that are impossible in conventional quantum Shannon theory.

**Monday, 4 March 2019,
16:30h get-together with coffee and snacks!**

Main Lecture Hall at TU Wien, Atominstitut, Stadionallee 2, 1020 Vienna

The seminar talk will be preceded by a CoQuS Student talk at 17:00h
by

Marius Krumm

University of Vienna

"Opening the black box: Angles as measurement settings in Bell experiments"

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Hosted by: Philip Walther