

# From Classical to Quantum Gravity

# Institute colloquium



12.07.2017

Campus  
Golm

Building 9

Room 2.22

16:00



15:00 **Kristina GIESEL (Erlangen)**

" Loop Quantum Gravity: From Classical to Quantum Gravity "

Loop quantum gravity is a candidate for a theory of quantum gravity, which takes general relativity as its classical starting point. The quantum theory is obtained by applying canonical quantization to general relativity. For this purpose, the techniques known from quantum field theory need to be generalized. After a brief introduction to the framework of loop quantum gravity, we will discuss the current status of the dynamics and present further research directions currently addressed in loop quantum gravity.

16:30 **Benjamin BAHR (Hamburg)**

" Spin networks and spin foam models "

Spin foam models are useful to tackle the difficult dynamical question in loop quantum gravity. While spin networks describe quantum versions of 3-geometries, spin foam models are proposals for transition amplitudes between spin networks, prescribing a tentative quantum dynamics. In my talk, I will briefly describe a geometric interpretation of spin networks in terms of coherent polyhedra, after which I will talk about a specific spin foam model and its connection to (discrete) general relativity.