

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

## Seminar Talk

by

**Sougato Bose**

*University College London*

### ***From Macroscopic Superpositions to Quantum Gravity***

We will start by justifying the importance of creating ever more macroscopic quantum superpositions and the great progress already made in this arena (much of which have been made in Vienna). I will then highlight the convenience of a method were a bonafide ancillary quantum system is coupled to a much more macroscopic system to achieve the above. In particular, I will describe how Ramsey interferometry on a spin degree of freedom can be used to create and verify such a superposition and how the scale can be enhanced by using freely propagating (untrapped) objects. Finally, we will show how two such interferometers interacting purely gravitationally can enable one to test whether gravity is fundamentally a "quantum" entity.

**Monday, 30 October 2017,  
16:30h get-together with coffee and snacks!**

Lise Meitner Hörsaal, Strudlhofgasse 4, 1<sup>st</sup> floor, Vienna

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

**Daniele DeBernardis**

*TU Wien*

*"Cavity QED in the non-perturbative regime"*

Hosted by: Caslav Brukner