



Quantum Information Group Seminars

Speaker: Mohammadsadegh Khazali
Aarhus University, Aarhus, Denmark.

TITLE: Atomic giants under a new light: Quantum engineering with Rydberg atoms and photons

ABSTRACT:

Since their discovery more than a century ago, excited Rydberg atoms have played a central role in the development of quantum theory and atomic physics. Lately, the advent of cold gases has ushered in a renaissance of Rydberg atom physics, permitting to create, probe, manipulate and utilize extreme atomic states with unprecedented precision. The combination of ultra-low temperatures, high densities and strong atomic interactions leads to rich physical behaviour with promising applications in optical and information science. In this talk, I will outline different ideas to turn laser-driven Rydberg gases into a versatile platform for generating many-body entangled states and for engineering quantum states of light. The former case is desired in metrology and test of collapse models while in the latter I discuss different schemes for the generation of photonic gates and sources with the applications in quantum information processing.

Place: Council Room

Date: Tuesday 18th of Ordibehesht, 3:00 pm.

