**Towards hybrid atom-photonics for quantum sensing and information processing**

Shayne Bennetts

Institute of Atomic and Molecular Science, Academia Sinica

The marriage of neutral atoms with photonics offers a powerful platform for quantum technology. I will begin by describing past work where we demonstrated a way to **continuously** laser cool atoms to degeneracy to maintain a Bose Einstein Condensate of strontium in steady state indefinitely. The techniques we developed opened the door for creating a new generation of continuous optical clocks. By coupling a cloud of strontium atoms in the strong collective coupling regime it should be possible to make a superradiant laser on even a **mHz** linewidth transition. I will describe two approaches to creating active optical clocks that we have implemented. I will finish by describing the ongoing developments at IAMS which aim to create a hybrid atom-nanophotonic platform for quantum information processing and sensing.