

Dr. Robin Kaiser

Institut de Physique de Nice
Université Côte d'Azur et CNRS

**„Resonant dipole-dipole interactions: Dicke subradiance
and Anderson localisation”**

The quest for Anderson localization of light is at the center of many experimental and theoretical activities. Cold atoms have emerged as interesting quantum system to study coherent transport properties of light. Initial experiments have established that dilute samples with large optical thickness allow studying weak localization of light, which has been well described by a mesoscopic model. Recent experiments on light scattering with cold atoms have shown that Dicke super- or subradiance occurs in the same samples, a feature not captured by the traditional mesoscopic models. The use of a long range microscopic coupled dipole model allows to capture both the mesoscopic features of light scattering and Dicke super- and subradiance in the single photon limit. I will review experimental and theoretical state of the art on the possibility of Anderson localization of light by cold atoms.