From Dicke Subradiance to Anderson localisation: a classical many body problem

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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. The goal of our research is to study coherent transport of photons in dense samples. One important aspect is the quest of Anderson localization of light with cold atoms and its relation to Dicke super- or subradiance and possibly to many body physics with long range interactions. In this talk, I will give present results on past and present results on cooperative scattering of light by cold atoms.