Superradiation of chromophores confined at rare gas clusters

Superradiance initially predicted in 1954 [1] is a phenomena where systems of excited, weakly interacting particles emit collective, coherent radiation. In contrast to normal radiation, superradiance has several interesting properties dependent on the number, N, emitters such as an N² dependence on the emitted radiation and a radiative lifetime shortening by a factor of N. In this talk, I will describe a new system for observing superradiance where organic semiconductors embedded on the surface of rare gas clusters show the initial signature of collective radiation.