

DEPARTMENT OF PHYSICS & ASTRONOMY  
CONDENSED MATTER SEMINAR

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**ATOM-PHOTON INTERACTION IN A  
STRONG FOCUSING REGIME**

**Abstract**

In many quantum information processing scenarios, exchange of information between stationary quantum systems like atoms and single photons suitable for information transport over some distance will be necessary. To increase the relatively weak coupling between atoms and photons, the electric field of photons is often enhanced with optical cavities, which opened the field of cavity quantum electrodynamics in the last decades. Here, an alternative way of enhancing the atom-light interaction is considered, namely by strongly focusing the light onto a single quantum system (atom, color center, molecule etc). We report on our experimental work both a with simple lens approach, and with optical cavities in an unusual regime with a very small optical focus.

**TUESDAY, SEPTEMBER 17<sup>TH</sup>, 2019**  
**JFB 334**  
**4PM**

REFRESHMENTS WILL BE SERVED IN JFB 334 AT 3:45PM