

**Dr. Jakob Hinney**

**Squeezed light from an ensemble of nanofiber trapped atoms**

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**ABSTRACT:**

In a new project I am setting up an experiment aiming at trapping laser-cooled Cesium atoms in a magic-wavelength dipole trap formed in the evanescent field of a nanofiber. Manufacturing such nanofibers is a key ability in our research group, where several projects explore the properties of these waveguides, the most important of which are the strong evanescent field at the fiber surface and the coupling of the guided light's spin to the propagation direction, referred to as Chirality. Our setup aims at trapping an unprecedented number of atoms around the nanofiber and thus achieving high ODs of a few hundred, a key ingredient for efficient and strong light-matter coupling. So far, we have designed and constructed a vacuum system, the laser systems required as well as the optical systems needed for coupling several light fields to the nanofiber and creating a magneto-optical trap around the nanofiber. In addition we have designed and implemented experimental control periphery. We hope to trap the first atoms around a nanofiber within the next months.