## Seminar/Talk

# Optical manipulation of ferromagnet

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Host: Mikhail Lemeshko

YIG (Yttrium Iron Garnet) is a material known for its excellent magnetic quality and magnons therein are expected to have long coherence time. But studies on quantum properties of magnons are scarce due to lack of a coherent interface to manipulate them. We theoretically argue that optical (infrared or visible) photons couple coherently and sufficiently strongly with magnons. We derive an upper limit of the coupling for a given material and discuss a geometry which nearly achieves that limit. We show that the thermal fluctuations of the magnons can be suppressed optically, analogous to laser cooling of atoms. Additionally, we can induce a large coherent component of the magnons, leading to a mesoscopic Bose-Einstein condensate.

**Tuesday, May 28, 2019 11:00am - 12:00pm**
Mondi Seminar Room 2, Central Building

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