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Type: Oral Presentation

## Magnetic Imaging with Optically-Pumped Magnetometers

*Tuesday, 4 July 2017 09:00 (1 hour)*

Several miniaturized Quantum Sensors use laser spectroscopy of atoms to achieve very good performance. Optically-Pumped magnetometers (OPMs), also called atomic magnetometers, use light to polarize atomic spins of atoms. The spins precess in a magnetic field and the precession frequency is a measure of the magnetic field. Our effort focusses on miniaturizing these OPMs with sensitivities approaching those of superconducting quantum interference device (SQUID) magnetometers. These magnetometers are used for magnetic imaging applications in applications ranging from biomagnetic imaging of the heart and brain, to geophysical imaging and magnetic anomaly detection.

The highest sensitivities are required in magnetoencephalography (MEG), where the magnetic fields are recorded with a sensor array arranged around the head of a subject. It allows to image the neural activity inside the head with high spatial and temporal resolution. Sensor designs and performance will be presented as well as their characterization in several applications.

**Apply to be considered for a student award (Yes / No)?**

No

**Level for award (Hons, MSc, PhD, N/A)?**

N/A

**Would you like to submit a short paper for the Conference Proceedings (Yes / No)?**

No

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**Session Classification:** Plenary 1

**Track Classification:** Track H - Plenaries