
Contribution ID: **38** Type: **Poster**

# Cesium magnetometers for field and gradient control in the neutron EDM search.

*Tuesday, 12 October 2010 17:00 (0 minutes)*

Laser optically-pumped Cs magnetometers (OPMs) have a sensitivity which rivals that of the SQUID, without requiring cryogenic infrastructure. Advances in size reduction, digital signal processing, and single-to-multi laser beam splitting methods have made it possible to assemble arrays of Cs magnetometers. We have successfully operated a 25 sensor array for biomagnetic measurements [1], and are adapting the technology to the demanding task of spatial and temporal field control for the PSI nEDM experiment. In this poster we present the OPM technology, and evaluate and show solutions to some of the nEDM-specific challenges (vacuum and high voltage compatibility). We present first results on using the OPMs to detect the free precession of 3He nuclear magnetization.

[1] G. Bison, et al., Appl. Phys. Lett. 95, 173701 (2009).

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**Session Classification:** Poster Session