Abstract Submitted
for the SES10 Meeting of
The American Physical Society

Generation of vacuum squeezing fields via self-roration in Rb vapor KEBEI JIANG, ROBINJEET SINGH, PETR ANISIMOV, Louisiana State University — As the first part of our "Sub-shot noise limited quantum atomic magnetometer" program, this paper proposes a theoretical method of generating the source for the fore-mentioned magnetometer–vacuum squeezing field induced by self-rotation in Rb vapor. We derives a full quantum mechanical description, in contrast with previous semi-classical work, for such a field-atom system. Finally, considering self-rotation as a classical phenomenon, we explains its relation with vacuum squeezing in detail.

Kebei Jiang
Louisiana State University

Date submitted: 20 Aug 2010 Electronic form version 1.4