Abstract Submitted
for the DAMOP16 Meeting of
The American Physical Society

Fetal MCG with Atomic Magnetometer Array ZACK DELAND, MICHAEL D. BULATOWICZ, IBRAHIM A. SULAI, COLIN P. WAHL, RONALD T. WAKAI, THAD G. WALKER, University of Wisconsin-Madison — We present results on the development of ^{87}Rb atomic magnetometers for the detection of a fetal magnetocardiogram (fMCG). Operating in the spin-exchange relaxation free (SERF) regime, the magnetometers' sensitivities are reported at the $\sim$ 1fT/ $\sqrt{\text{Hz}}$ level. Environmental common-mode noise, including the field from the maternal heart, can be suppressed by operating the magnetometers in a gradiometric configuration. We report on schemes from implementing such gradiometers along with recent fMCG measurements. This work is supported by the National Institutes of Health.

Zack DeLand
University of Wisconsin-Madison

Date submitted: 08 Apr 2016 Electronic form version 1.4