

Abstract Submitted
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Towards a Noble Gas Oscillator ANNA KORVER, THAD WALKER,
Univ of Wisconsin, Madison — Noble gas NMR detected by alkali co-magnetometers
has the potential for measurement of precession frequencies at the pHz level. This
is done by eliminating the dominant known sources of systematic errors: alkali
frequency shifts and quadrupole shifts. We present results of successful synchronous
pumping of noble gas nuclei and measurements of alkali co-magnetometer sensitivity
levels that project a ^{131}Xe noise level of $100 \text{ nHz}/\sqrt{\text{Hz}}$. Future dual noble-gas co-
magnetometry promises to improve the noise level by a factor of 10 or more. This
research is supported by the NSF and Northrop-Grumman Corp.

Anna Korver
Univ of Wisconsin, Madison

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