

Abstract Submitted  
for the DAMOP14 Meeting of  
The American Physical Society

**The Global Network of Optical Magnetometers to search for Exotic physics (GNOME)**<sup>1</sup> DEREK JACKSON KIMBALL, California State University - East Bay, SZYMON PUSTELNY, Jagiellonian University, MAXIM POSPELOV, University of Victoria and the Perimeter Institute for Theoretical Physics, MICAH LEDBETTER, AOSense, Inc., NATHAN LEEFER, University of California at Berkeley, PRZEMYSŁAW WŁODARCZYK, AGH University of Science and Technology, PIOTR WCISŁO, Jagiellonian University and Nicolaus Copernicus University, WOJCIECH GAWLIK, Jagiellonian University, JOSHUA SMITH, JOCELYN READ, California State University - Fullerton, CHRIS PANKOW, University of Wisconsin - Milwaukee, DMITRY BUDKER, University of California at Berkeley and Helmholtz Institute Mainz, GNOME COLLABORATION — Construction of a network of geographically separated, time-synchronized ultrasensitive atomic comagnetometers to search for correlated transient signals heralding new physics is underway [S. Pustelny et al., *Annalen der Physik* 525(8-9), 659-670 (2013)]. The **G**lobal **N**etwork of **O**ptical **M**agnetometers to search for **E**xotic physics (GNOME) would be sensitive to nuclear and electron spin couplings to various exotic fields generated by astrophysical sources. To date, no such search has ever been carried out, making the GNOME a novel experimental window on new physics. A specific example of new physics detectable with the GNOME, presently unconstrained by astrophysical observations and laboratory experiments, is a network of domain walls of light pseudoscalar fields [M. Pospelov et al., *Phys. Rev. Lett.* 110, 021803 (2013)].

<sup>1</sup>This work was supported by the National Science Foundation.

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Date submitted: 31 Jan 2014

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