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Progress on the Global Network of Optical Magnetometers to search for Exotic physics (GNOME) D.F. JACKSON KIMBALL, G. DECAMP, S. THULASI, D. FUENTES, I. VIEGAS, California State University - East Bay, S. PUSTELNY, P. WLODARCZYK, W. GAWLIK, Institute of Physics, Jagiellonian University, Poland, D. BUDKER, Helmholtz Institute Mainz, Johannes Gutenberg University and University of California, Berkeley, N. LEEFER, A. WICKENBROCK, S. AFACH, Helmholtz Institute Mainz, Johannes Gutenberg University, L. ZHIVUN, University of California, Berkeley, C. PANKOW, Center for Gravitation, Cosmology, and Astrophysics, University of Wisconsin-Milwaukee, J. SMITH, J. READ, Gravitational-Wave Physics and Astronomy Center, California State University Fullerton, R. FOLMAN, Ben-Gurion University of the Negev, Israel, M.P. LEDBETTER, AOSense, Inc., M. POSPELOV, University of Victoria and Perimeter Institute for Theoretical Physics, Y.K. SEMERTZIDIS, Center for Axion and Precision Physics, IBS and KAIST, Y. SHIN, Center for Axion and Precision Physics, IBS, T.W. KORNACK, TwinLeaf Inc., J. STALNAKER, Oberlin College — We discuss progress on the design and construction of a network of geographically separated, time-synchronized ultrasensitive atomic comagnetometers to search for correlated transient signals heralding new physics. 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.

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