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Global Network of Clocks and Magnetometers as Exotic Light Field Telescopes IBRAHIM SULAI, Bucknell University, CONNER DAILEY, GEOFF BLEWITT, ANDREI DEREVIANKO, University of Nevada, Reno, DEREK JACKSON KIMBALL, California State University, East Bay, GNOME COLLABORATION, GPS.DM COLLABORATION — Exotic bosonic fields are features of many extensions of the standard Model. These hypothetical fields are typically predicted to feebly interact with standard model particles, and thus can both be generated in astrophysical processes and detected with atomic clocks and magnetometers. We consider the sensitivity of existing global clock and magnetometer networks to bursts of such exotic light fields (ELFs). As a proof-of-principle, we analyze data from the clock network comprising the global positioning system and a worldwide network of shielded atomic magnetometers for signals coincident with recently observed binary black hole mergers, neutron star mergers, and fast radio bursts.

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