

The Global Network of Optical Magnetometers for Exotic physics searches (GNOME)

Tuesday, January 16, 2024 10:40 AM (20 minutes)

Not only optical magnetometers are the most sensitive magnetic-field sensors, but they may also be used to search for non-magnetic spin couplings, including those associated with hypothetical dark-matter interactions. The performance of the sensors will be discussed in the context of searches for exotic spin couplings using a network of synchronized magnetometers [1], which extends the searching possibilities to transient and spatially correlated perturbations. Search targets and developed dark-matter detection schemes [2] will be discussed.

[1] Szymon Pustelny et al. “The Global Network of Optical Magnetometers for Exotic physics (GNOME): A novel scheme to search for physics beyond the Standard Model”. In: *Ann. der Physik* 525.8-9 (2013), p. 659.

[2] Samer Afach et al. “What Can a GNOME Do? Search Targets for the Global Network of Optical Magnetometers for Exotic Physics Searches”. In: *Ann. der Physik* (2023), p. 2300083.

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Session Classification: Interplay of the diverse cosmic rays detectors and standardisation of sharing and processing data