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Updates on the ZAIGA project

Thursday, 11 July 2024 17:00 (30 minutes)

ZAIGA (the Zhaoshan long-baseline Atom Interferometer Gravitation Antenna) is a proposed underground long-baseline atom interferometer (AI) facility, aiming for experimental research on gravitation and related problems. It includes gravitational wave detection (ZAIGA-GW), dark matter detection (ZAIGA-DM), high-precision test of the equivalence principle of micro-particles (ZAIGA-EP), clock-based gravitational red-shift measurement (ZAIGA-CE-R), rotation measurement and gravitomagnetic effect (ZAIGA-RM and ZAIGA-GG).

In this talk, we will report the current status of the ZAIGA project, including the brief overview, the environment and infrastructure design, and the development on key unit technologies.

References:
[1] Mingsheng Zhan et al., ZAIGA: Zhaoshan Long-baseline Atom Interferometer Gravitation Antenna, Int. J. Mod. Phys. D 29, 1940005 (2020)
[2] Wei Zhao, Xitong Mei, Dongfeng Gao, Jin Wang, and Mingsheng Zhan, Ultralight scalar dark matter detection with ZAIGA, Int. J. Mod. Phys. D 31, 2250037 (2022).
[3] Pre-research report of the ZAIGA project, not published.

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Session Classification: Mid-frequency gravitational waves (0.1-10 Hz): sources and detection methods

Track Classification: Gravitational Waves (GW): Mid-frequency gravitational waves (0.1-10 Hz): sources and detection methods