

Current Status and Projected Sensitivity of COSINE-100

COSINE-100, a direct detection WIMP dark matter search, is using 106 kg of NaI(Tl) crystals to definitively test the DAMA collaboration's claim of WIMP discovery. Despite astrophysical considerations indicating that dark matter constitutes approximately 27% of the energy content of the universe, only the DAMA collaboration claims to have observed dark matter. This observation is in the form of a dark matter-induced annually-modulating event rate within NaI(Tl) crystals, which they observe to a significance of 9.3σ . However, this result is in conflict with other experiments in the field within most models of WIMP dark matter. To resolve the tension in the field, COSINE-100 seeks to independently observe this annual modulation using the same detector material, definitively confirming or refuting DAMA's claim of WIMP discovery. Here, I present the current status and projected sensitivity of COSINE-100, along with the projected sensitivity of the next phase of the experiment, COSINE-200.

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Session Classification: Poster Session

Track Classification: Dark Matter