

Abstract Submitted  
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**Static temperature gradient monitor at ProtoDUNE-SP<sup>1</sup>**

MIGUEL GARCA-PERIS, Instituto de Física Corpuscular (IFIC), DUNE COLLABORATION — Temperature sensors have proven invaluable in monitoring and understanding liquid argon experiments at all stages: from filling the cryostat to the energy calibration of the detector during data taking. In ProtoDUNE-SP, the largest DUNE prototype and liquid argon TPC built to date, an 8 m vertical array of 48 high precision temperature sensors were installed to monitor the temperature gradient with a relative precision better than 3 mK. Their performance at ProtoDUNE-SP is reviewed and potential future upgrades are discussed.

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