

## The T2K Near Detector Upgrade: Super Fine Grained Detector

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The T2K long-baseline neutrino oscillation experiment has measured a first indication of leptonic CP violation. Reducing the systematic uncertainty on predicted events at the far site is an urgent priority for the collaboration. In 2022, the T2K near detector will be upgraded to reduce systematic uncertainties to enable higher precision measurements of neutrino oscillation phenomena. The primary neutrino target of the upgraded detector is the Super Fine Grained Detector (SFGD) - a two-ton solid scintillator detector comprised of optically isolated cubes 1 cm on a side. The SFGD is flanked by high-angle time-projection chambers and time-of-flight panels that provide for full polar angle coverage of outgoing muons produced in charged current interactions. These detector systems have improved timing resolution, 3D tracking capability and the ability to measure the energy of neutrons emerging from neutrino interactions with time-of-flight techniques. In the talk, we discuss the motivation and capabilities of this new detector system as well as the current status of its design and construction.

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Yes

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