

UCLA Department of Physics & Astronomy

# COLLOQUIUM

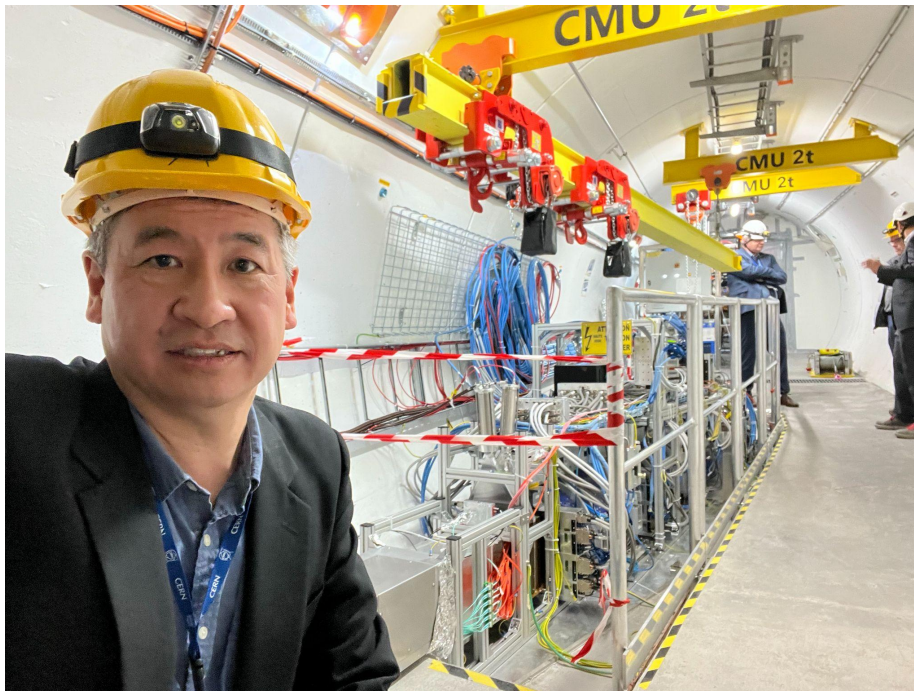
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PAB 1-434

## FASER and the Future of Particle Physics

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Particle physics is at a critical juncture. All the particles of the Standard Model have been discovered, but no new ones have appeared, and there are still many outstanding questions. In recent years, it has become clear that the physics potential of the Large Hadron Collider at CERN has not been fully explored. In particular, forward collisions, which produce particles along the beamline with enormous rates, have been almost completely ignored. It turns out that these collisions are a treasure trove of physics, containing the highest-energy neutrinos ever produced by humans, possible evidence for dark matter, milli-charged particles, and new forces, and a wealth of other valuable information. This talk will describe FASER, the Forward Search Experiment, which was constructed in 18 months and has just released its first physics results, as well as the Forward Physics Facility, a proposal to fully realize the potential of forward physics in the High Luminosity LHC era.