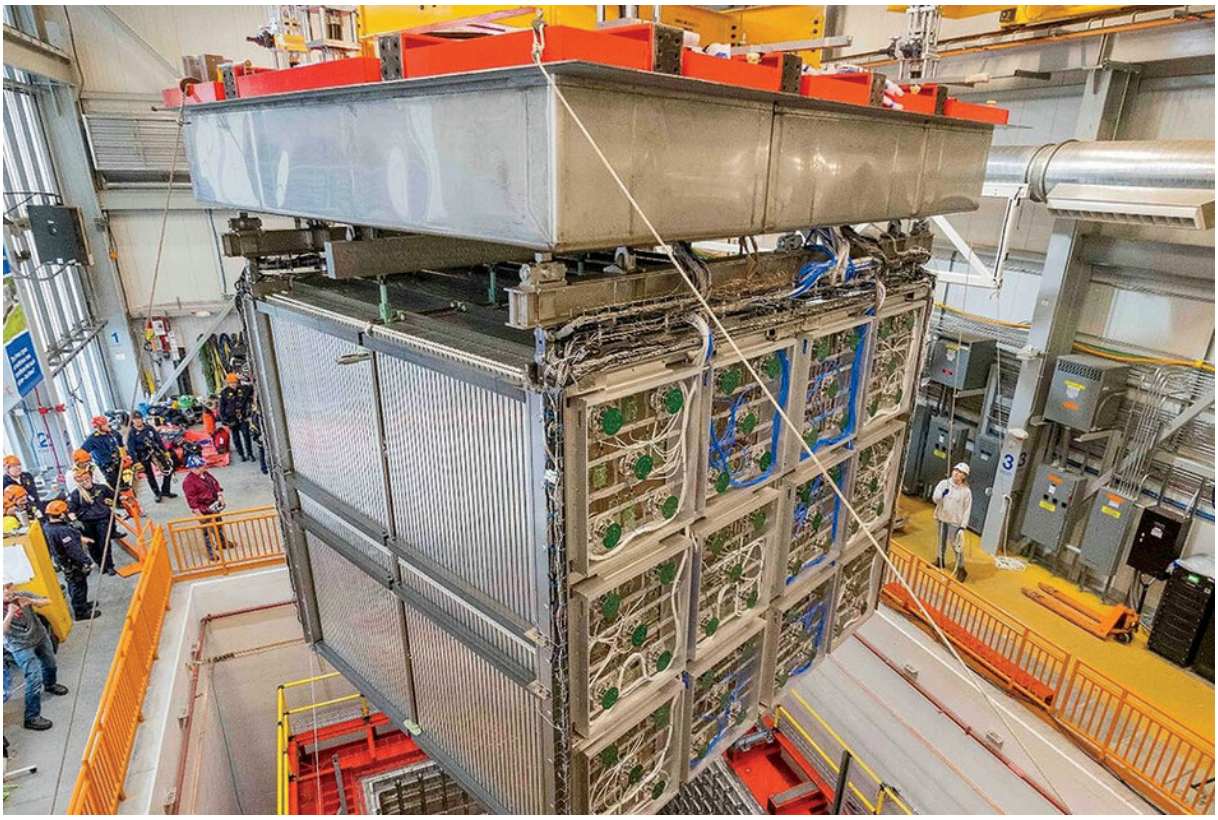
Science & Technology

A Big Step Forward for Particle Physics

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The Short-Baseline Near Detector is lowered into place in 2023. (Ryan Postel / Fermilab)

After nearly a decade of planning, a new particle detector that Columbia physicists helped to design and build was recently activated at the Fermi National Accelerator Laboratory (or Fermilab) in Illinois. The highly sensitive instrument, called the Short-Baseline Near Detector, can spot ghostly particles called neutrinos, which are ubiquitous yet notoriously difficult to observe. The team is particularly focused on uncovering new types of neutrinos, which could provide clues to understanding the universe's birth, its current expansion, and dark matter. "We are about to look where no one has ever looked before," says Columbia professor and

team leader Georgia Karagiorgi ’08GSAS. “Opportunities for new discoveries abound.”



Fermilab scientists celebrate the activation of a new particle detector. (Dan Svoboda / Fermilab)

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