Detector R and D

Detector R&D

CCDs for Dark Energy Studies

Charge-coupled devices (CCD's) are the imagers of choice in astronomy. The conventional thinned rear-illuminated n-channel CCD's have limitations which are overcome by the innovative LBNL "shocking red" design.

Visit the CCDs site
Learn More
CMB Polarization Detectors

Detector R&D

CMB Polarization Detectors

The envisioned next-generation CMB experiment, the so-called CMB S4, requires a large number of detectors (500,000) to achieve the necessary sensitivity, orthogonal to the development aiming the increase of the number of channels.

Visit the CMB Polarization Detectors site
Learn More
Dark Matter

Detector R&D

Dark Matter

Learn More
Integrated Carbon Composites Structures

Detector R&D

Integrated Carbon Composites Structures

The program relies heavily on the Carbon Composites Fabrication Facility of the LBNL Engineering Division and its expert technical staff, and on collaboration with the Nuclear Science Division, Accelerator Technology, Materials Science and Molecular Foundry, Advanced Light source, and industry.

Visit the Integrated Carbon Composites Structures site
Learn More
Integrated Circuit Development

Detector R&D

Integrated Circuit Development

The IC group has been a critical contributor to the DOE HEP program since the 1980's including readout ICs for CDF and D0 vertex detectors (SVX, SVX', SVX-II, SVX3, SVX4), the BaBar vertex detector (AToM) and drift chamber, Kamland and IceCube PMTs, the FE-I3 integrated circuit used in the ATLAS pixel detector.

Visit the Integrated Circuit Development site
Learn More
Neutrino Detectors

Detector R&D
Neutrino Detectors

Rare event searches requires detailed understanding of detector behavior, and as sensitivity increases, previously unobserved instrumental effects become important.

Visit the Neutrino Detectors site

Learn More