



# NSF/DOE Programs

AAAC

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# Astroparticle Physics Projects

(MPS/PHY Division Activities)

- Gravitational Waves: LIGO/AdvLIGO (GEO, VIRGO, TAMA, 11 countries): GWIC Roadmap at [https://gwic.ligo.org/roadmap/Roadmap\\_050609.pdf](https://gwic.ligo.org/roadmap/Roadmap_050609.pdf).
- Cosmological Neutrinos: IceCube (OPP- Germany, Sweden, Belgium)
- Underground Physics: DUSEL & Underground R&D projects (DOE-HEP, NP)
- Dark Matter: S-CDMS, XENON, WARP, LUX, DRIFT, COUPP, PICASSO, CoGeNT (DOE-HEP, INFN, UK, Germany, Poland)
- Cosmic Rays: S. AUGER, TA, VERITAS (DOE-HEP, Japan, Korea, Canada, Ireland, Smithsonian, 17 more countries)
- Neutrino Properties: Double Chooz, Daya Bay, CUORE, EXO, NEMO-3 (DOE-NP, INFN, France, Germany, Brazil, Japan, Russia, Spain, UK)
- Solar Neutrinos: Borexino, SNO+
- Structure of the Universe: ACT, SPT
- B-Mode Polarization of CMB: QUIET
- Origin of the Elements: NSCL, JINA-PFC (DOE-NP)
- Dark Energy: PI support for a few groups on LSST

# AST-DOE Activities

- Dark Energy Survey – Details of MOU under discussion. Legal issues of property transfer remain.
- BOSS and Sloan.
- LSST – awaiting Decadal Survey. Design and Development proposal under review.
- VERITAS – site rehabilitation under discussion with Smithsonian.

# DOE OHEP and NSF-PHY

## Pierre Auger – South (Argentina)

Status: operating

Program managers talk regularly and attend the international finance board meeting and reviews.

## VERITAS (also NSF-AST)

Status: operating

December 2009 – joint review of proposal for 3 more years of operations

Proposal for upgrade is being reviewed

Joint Oversight Group meets quarterly; joint reviews are held

→ Dark Matter – program managers meet and talk regularly; joint reviews are held when possible

SuperCDMS-Soudan      Status: Joint review held August 2009; final towers are being fabricated

LUX      Status: commissioning and getting ready to install at SUSEL

COUPP      Status: commissioning and getting ready to install in NuMI tunnel at Fermilab

→ Currently working on joint planning in response to PASAG

# DOE OHEP and NSF-AST

## Dark Energy Survey

Status: Fabrication through 2011; project is going well

Stage III dark energy project

DOE responsibility: Dark Energy Camera (DECam) – Total Project Cost ~ \$35M.

NSF responsible for the Data Management system (DESDM) and CTIO involvement and telescope time

Agency-level Joint Oversight Group has monthly telecoms and joint project reviews (last one was July 2009)

## Baryon Oscillation Spectroscopic Survey – the main survey on SDSS-III

Status: First light in Sept. 2009 & now operating

DOE participation: BOSS fabrication & operations

Agency program managers talk regularly and a joint operations review is scheduled for spring 2010.

## Large Synoptic Survey Telescope (LSST) – future possibility

NSF review of LSST in December 2009. DOE attended as an observer.

Agencies are looking to Astro2010 for a coordinated, national ground and space dark energy program.

Agency program managers are talking regularly & coordinating plans forward.

Note that these experiments will do other measurements besides dark energy but DOE OHEP involvement is for the dark energy results.