



## PMTs in LUX, 'over floor' in MJD

The shift from outfitting the Davis Campus to installing the experiments was in full swing last week for both science collaborations—the Large Underground Xenon (LUX) detector and the MAJORANA DEMONSTRATOR experiment.

Researchers installed 16 photo-multiplier tubes (PMTs) in the LUX detector's large water tank. The PMTs will detect faint, telltale flashes of light, called Cherenkov radiation, left by the few muons hardy enough to penetrate nearly a mile of rock to LUX. Nothing travels faster than the speed of light in a vacuum, Science Liaison Director Jaret Heise reminds us, but light slows

down in water. Charged particles such as muons, can exceed the speed of photons in water, leaving a sort of photonic shock wave that is named for Nobel Laureate [Pavel Alekseyevich Cherenkov](#).

In the nearby Transition Area, MAJORANA collaboration members and SDSTA staff were working on a number of projects, including the installation of the "over floor" base that will support the MAJORANA

DEMONSTRATOR detector and its heavy lead shielding. Plastic scintillators inserted between the beams of the over floor will provide a "veto" signal similar to the veto signals from the PMTs in the LUX tank—that is, they will warn researchers to ignore signals generated by bogus events.



Photo by Jaret Heise

Science Laboratory Custodian Robyn Varland, who is new to the Sanford Lab, cleans the MAJORANA assembly area, near the just-installed "over floor." "She's got a lot of energy," Science Liaison Director Jaret Heise says. "She's hard to keep up with."



Photo by Jaret Heise

LUX collaboration members John Bower (left) of Lawrence Livermore National Laboratory and Sergey Uvarov of UC Davis work on a string of four photomultipliers in the LUX tank.

### Safety

## Emergency Response Guides available

The new tabular Emergency Response Guides are being distributed, and each one comes with four homework assignments, says EHS Technical Assistant Jeri Mykelby. The guides will be posted throughout the Sanford Lab, underground and on the surface.

Here are your assignments:

1. Flip to the tab marked "Surface Response Location Map." Above the map, you'll find a chart marked "Resource" and "Location." Locations of resources—fire alarms, defibrillators, disaster shelters and the like—will be different for each work location. Fill in the appropriate locations for your site. Print clearly.
2. Flip through all six pages of the Emergency Response Guide. It won't take long, and there is valuable information on every page. Know what's in the guide so that in an emergency you can find the information you need quickly.
3. Post the guides in common locations so everyone has quick access to them.
4. If you have questions, comments or suggestions send them to [jmykelby@sanfordlab.org](mailto:jmykelby@sanfordlab.org). Help us make the Emergency Response Guide even more effective.

Emergency Numbers		Additional Phone Numbers	
9-911		Cell	Other
Police / Sheriff	9-911	605-254-1111	605-254-1111
Ambulance	9-911	605-254-1111	605-254-1111
Fire Department	9-911	605-254-1111	605-254-1111
Hospital (Lead-Overhead)	(605) 722-6000	605-254-1111	605-254-1111
Police Control	(605) 722-6000	605-254-1111	605-254-1111
Weather Station	(605) 722-6000	605-254-1111	605-254-1111