

Sanford Underground Research Facility

SURF Status Update

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SDSTA Executive Director
SURF Lab Director



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Sanford Underground Research Facility

Dedicated facility for underground scientific research

Open Cut

Visitor Center

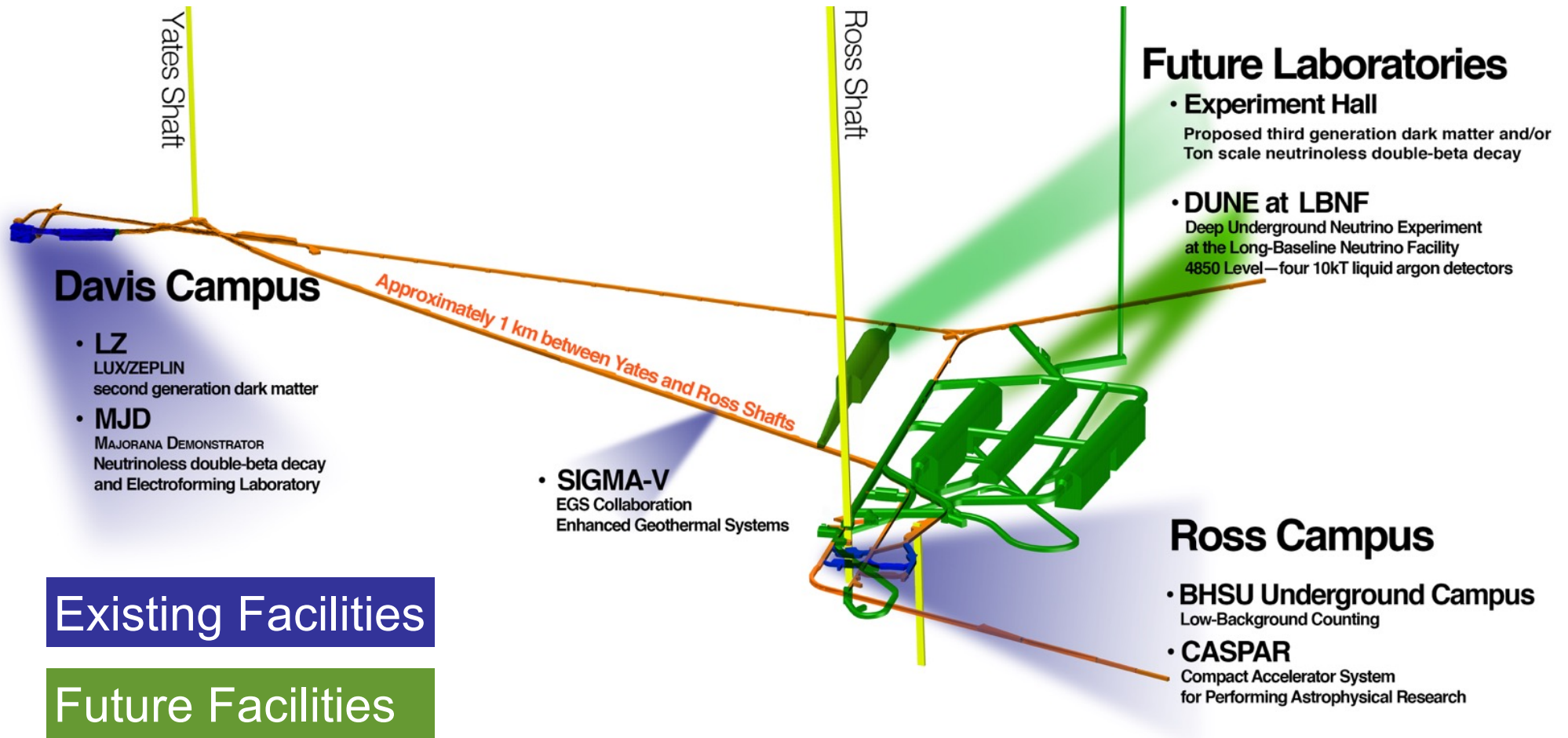
Yates Complex

Ross Complex

223 acres (surface)
7700 acres (underground)

- Created by the State of South Dakota with major philanthropic donations from Barrick (property) and T. Denny Sanford (\$70M).
- Strong S. Dakota support (\$93M).
- Operations funded by US Department of Energy (\$21.75M in FY2020).

4850L Science Facilities



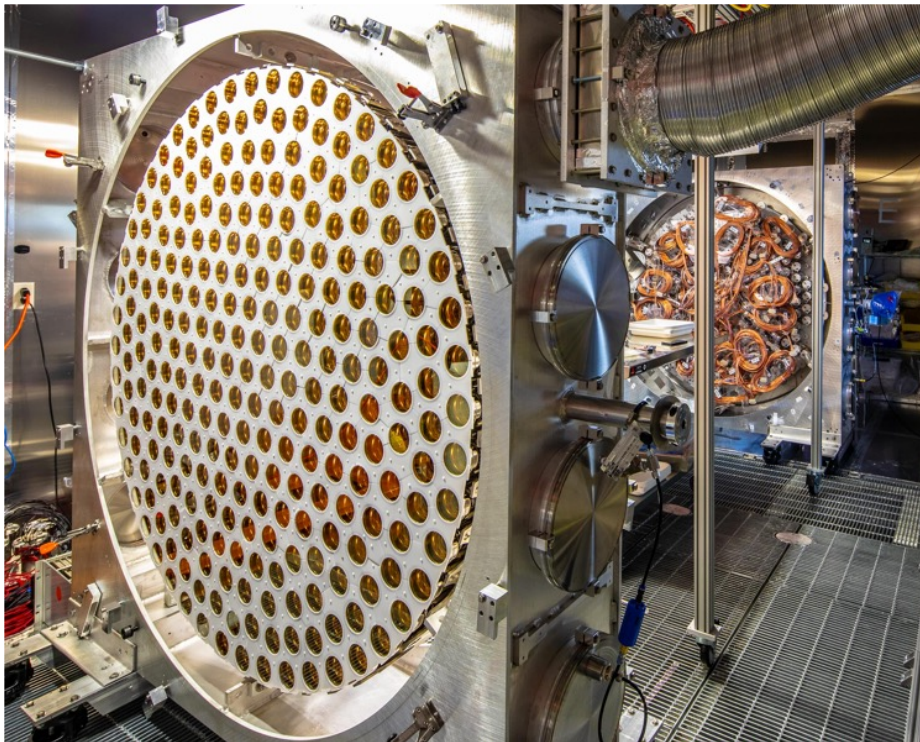
Current Science: LUX-ZEPLIN (LZ)



- Direct detection of Dark Matter using 10,000 kg of liquid Xe (3,500 gallons).
- 30x increase in mass. Projecting 100x increase in sensitivity than previous generation LUX experiment.
- LZ collaboration includes over 250 members at 38 institutions.
- Experiment installation underway in 4850L Davis Cavern.
- Inner cryostat deployed from surface to the 4850L completed on Oct 21.
- LZ to operate for 5 years starting in mid-2020.

Current Science: LZ Detector Assembly

Photomultiplier Tube Installation



Current Science: LZ Detector Assembly

Time Projection Chamber Assembled



Transport from Surface Lab to Yates Headframe



Transport from Surface Lab to Yates Headframe



Preparation to Sling Cryostat Under Yates Cage





LZ Cryostat Slung Under Yates Cage



Cryostat Offloaded from Shaft on 4850L



LZ Arrives at the 4850L Davis Campus



New Maintenance Support Facility Planned

Final Design Started. 25,000 ft². Expected completion late 2020.



Maintenance Support Facility Design



Additional News

- SDSTA completed 18 months of “injury free” operations in October.
- Continue to have strong bipartisan funding support in Washington.
- A new SURF Foundation has been established.
- SDSTA developing plans for a SURF STEM Institute.