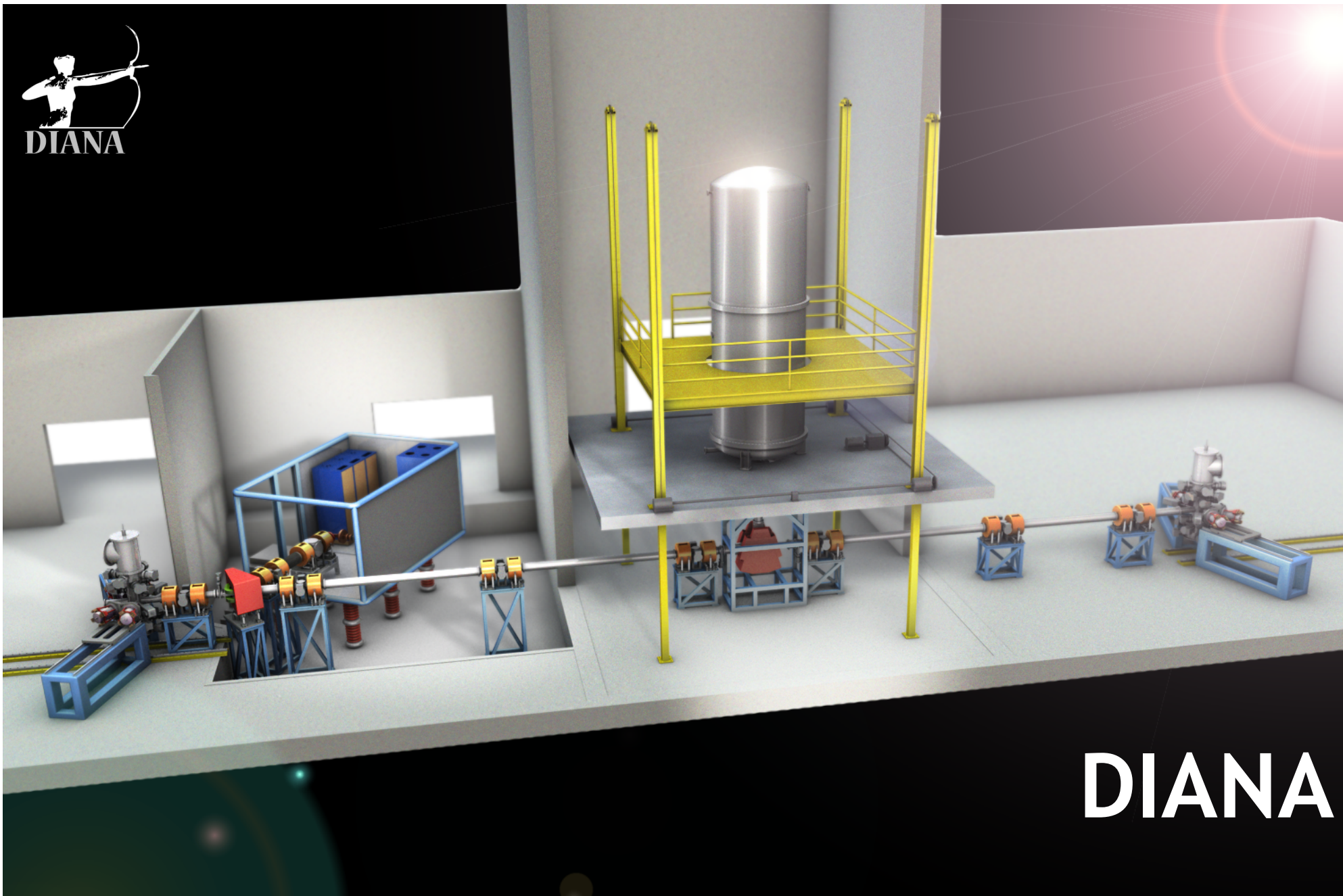


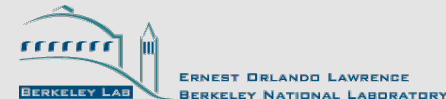
# DIANA

A NOVEL NUCLEAR ASTROPHYSICS  
UNDERGROUND ACCELERATOR FACILITY



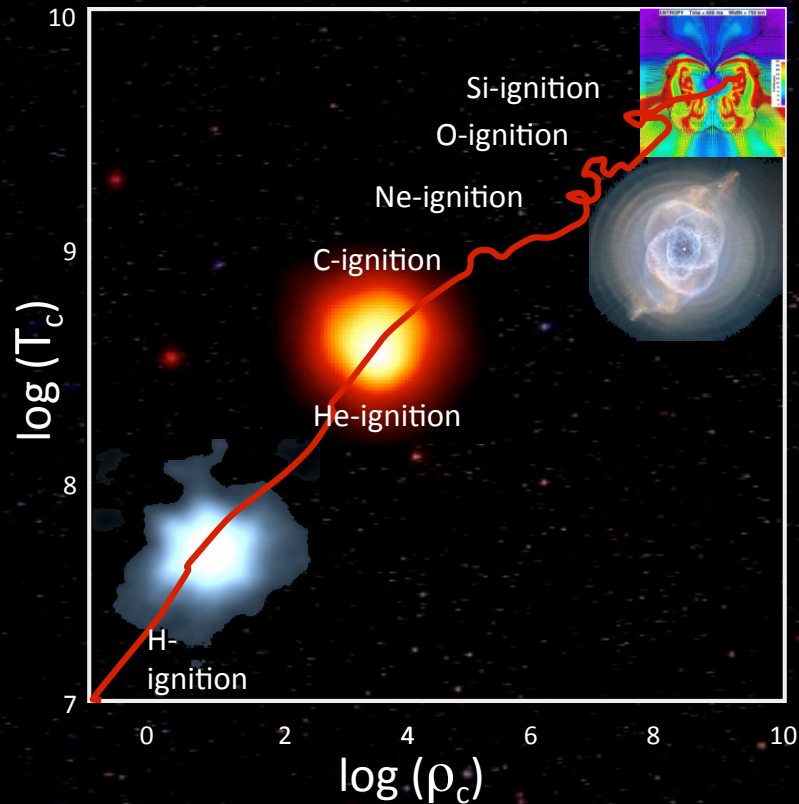


# DIANA





# DIANA will address three fundamental scientific questions



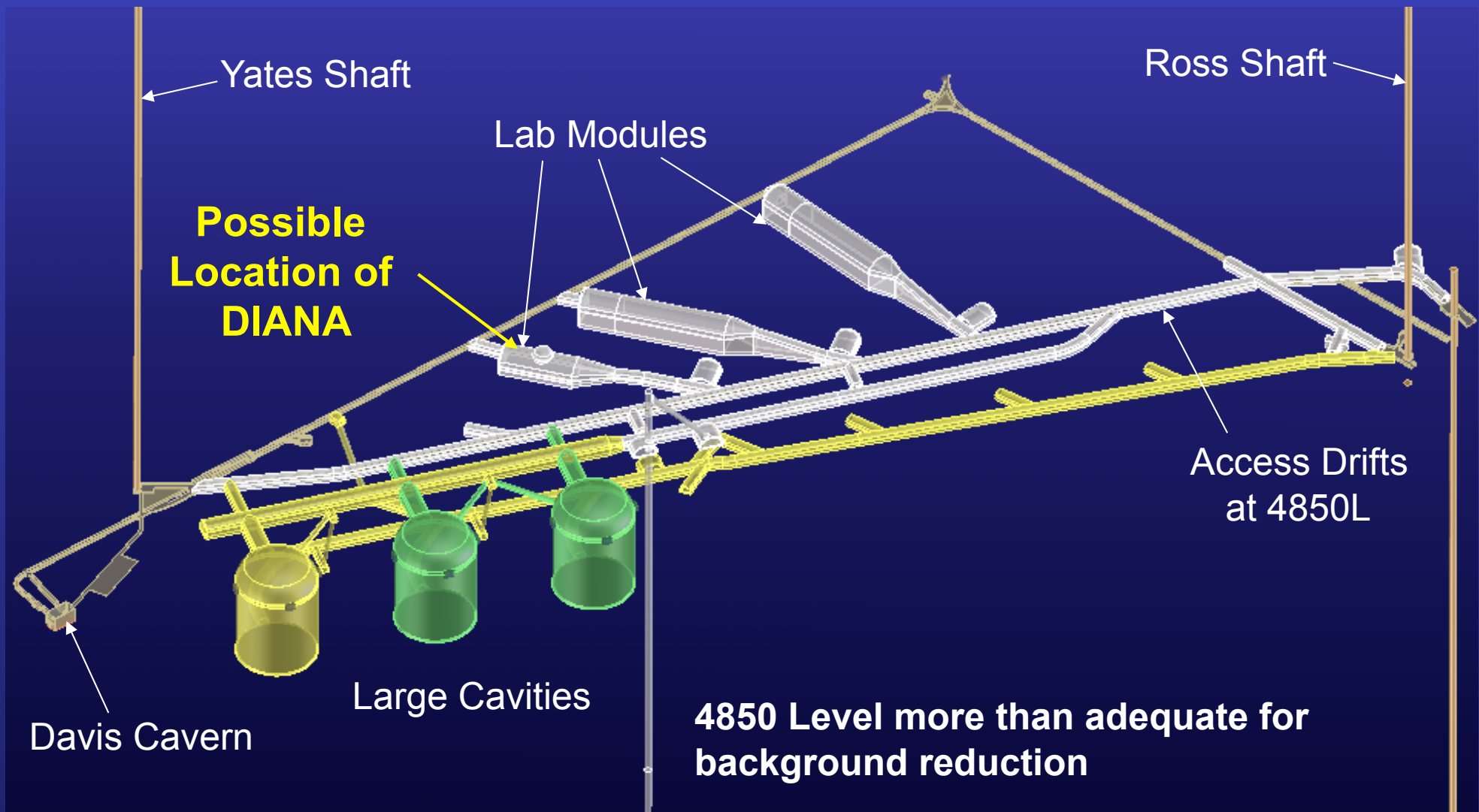
- Solar neutrino sources and the metallicity of the sun
- Carbon-based nucleosynthesis
- Neutron sources for the production of trans Fe elements

Versatility of the facility will enable a long science and vibrant program > 10 years

Occupancy can start as soon as the facility is available, a construction and development time of 2(3) years is expected



# Location: 4850 Campus



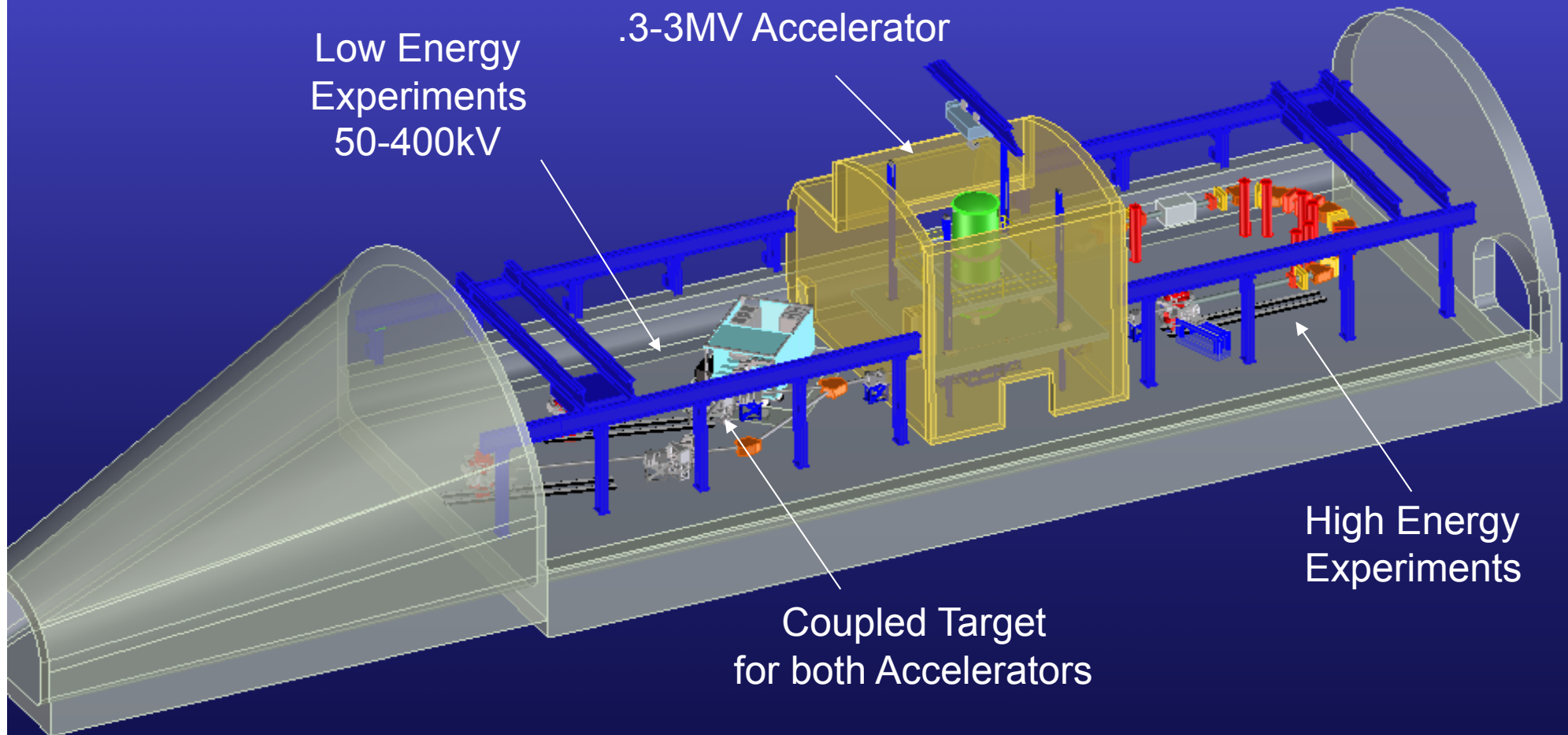
From Dave Plate, DUSEL Facility Team





# Underground Vault Design

Integration with the facility has started  
Accelerator Lab Module 20m x 12m x 50 m

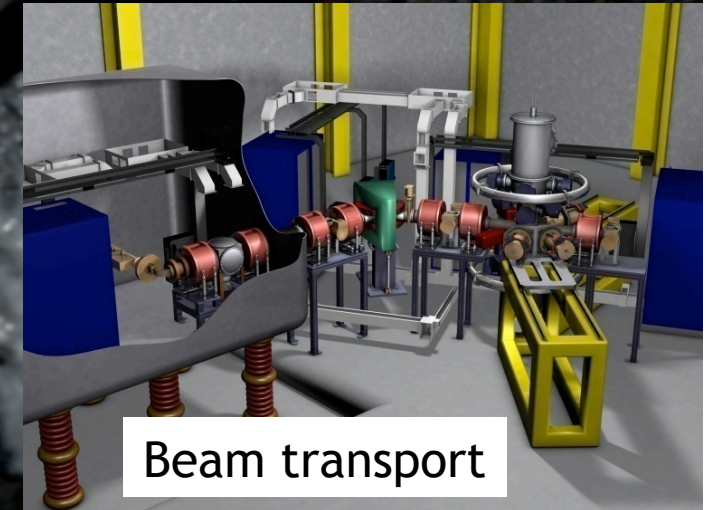


From Dave Plate, DUSEL Facility Team

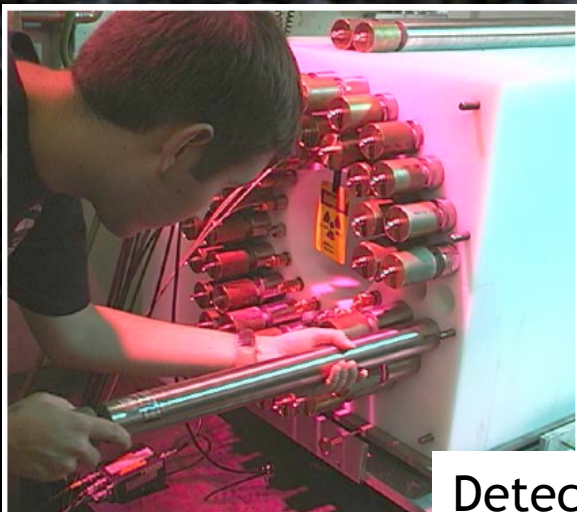


# R&D items/ Challenges

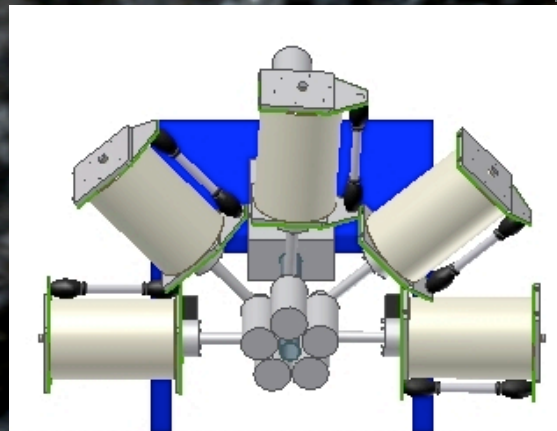
- High intensity beam and wide energy and intensity range
- Focal spot size and target integration, target power
- Integration of a ECR ion source into a Dynamitron
- Target and detector development



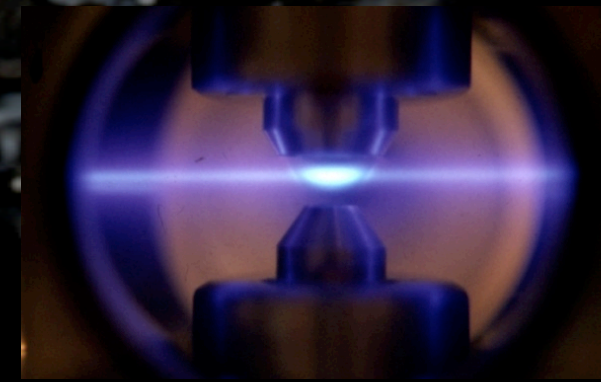
Beam transport



Detector Development



Target development and integration







## WS progress



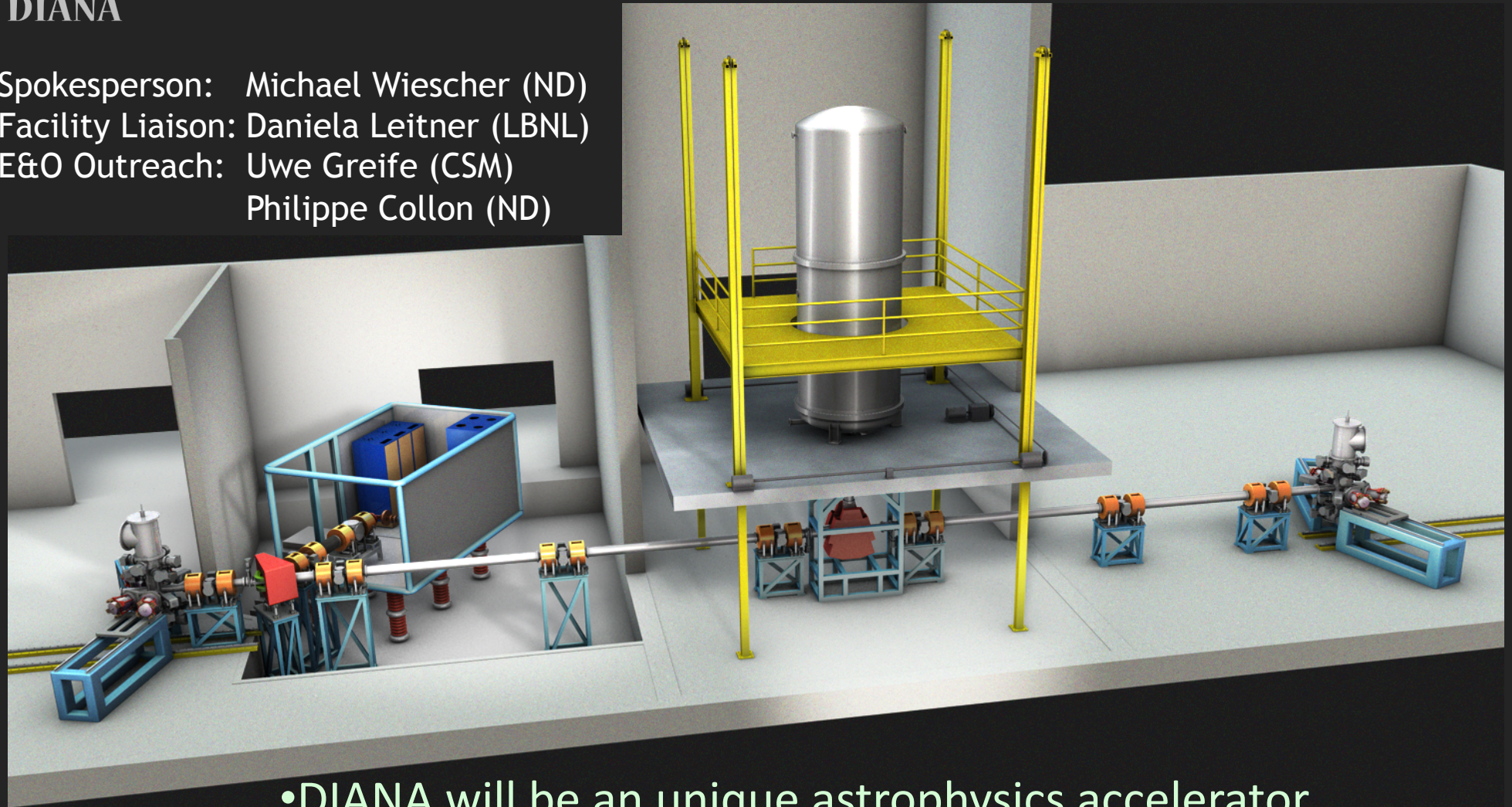
- **Integration with the facility has started**
- **Points of contact with the facility team has been established/ biweekly joint planning and design meetings**
- **Work plan and schedule for the S-4 project within the collaboration has been discussed (monthly planning and design meetings)**
- **Requirements and specifications for the facility design have been refined**
- **Interface requirements have been discussed (needs further refinement)**
- **Dialog with other WGs (common needs have been identified)**
- **E&O contact with the Sanford Lab/DUSEL has been established/ possible exploratory experiments have been identified**





# DIANA will support a broad low energy nuclear astrophysics program

Spokesperson: Michael Wiescher (ND)  
Facility Liaison: Daniela Leitner (LBNL)  
E&O Outreach: Uwe Greife (CSM)  
Philippe Collon (ND)



- DIANA will be an unique astrophysics accelerator
  - Broad range of energies
  - Significantly higher beam currents than currently achievable
  - Target stations can be operated with overlapping beam energies