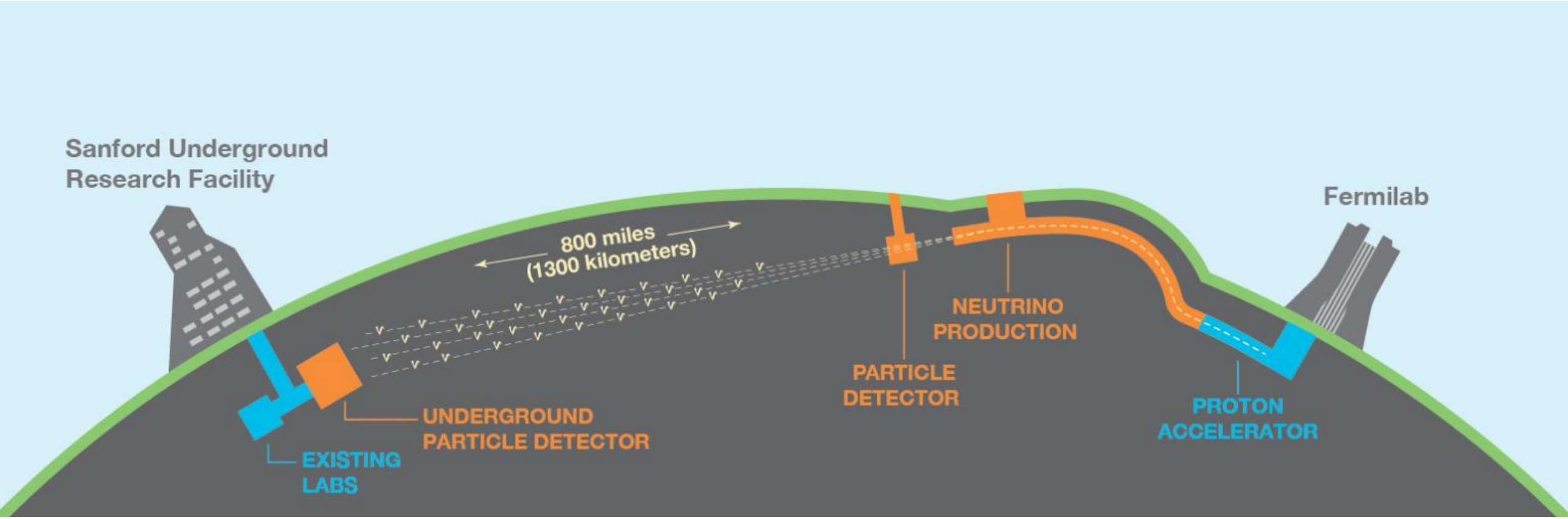
The DUNE near detector prototype

The Deep Underground Neutrino Experiment

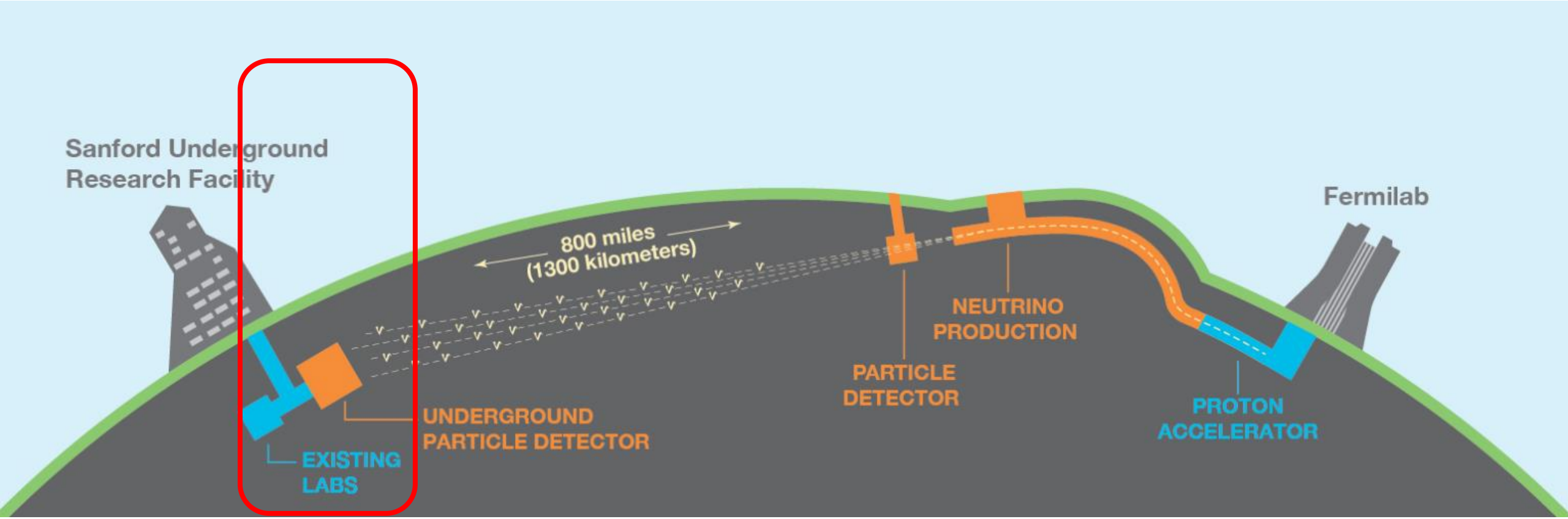
Physics goals of DUNE

- Make precise measurements of the oscillation parameters
- Determine whether CP is violated in neutrinos and measure δ_{CP}
- Resolve the neutrino mass hierarchy
- Check the unitarity of the PMNS matrix
- Be ready to detect low-energy neutrinos from a supernova
- Other beyond the standard model physics

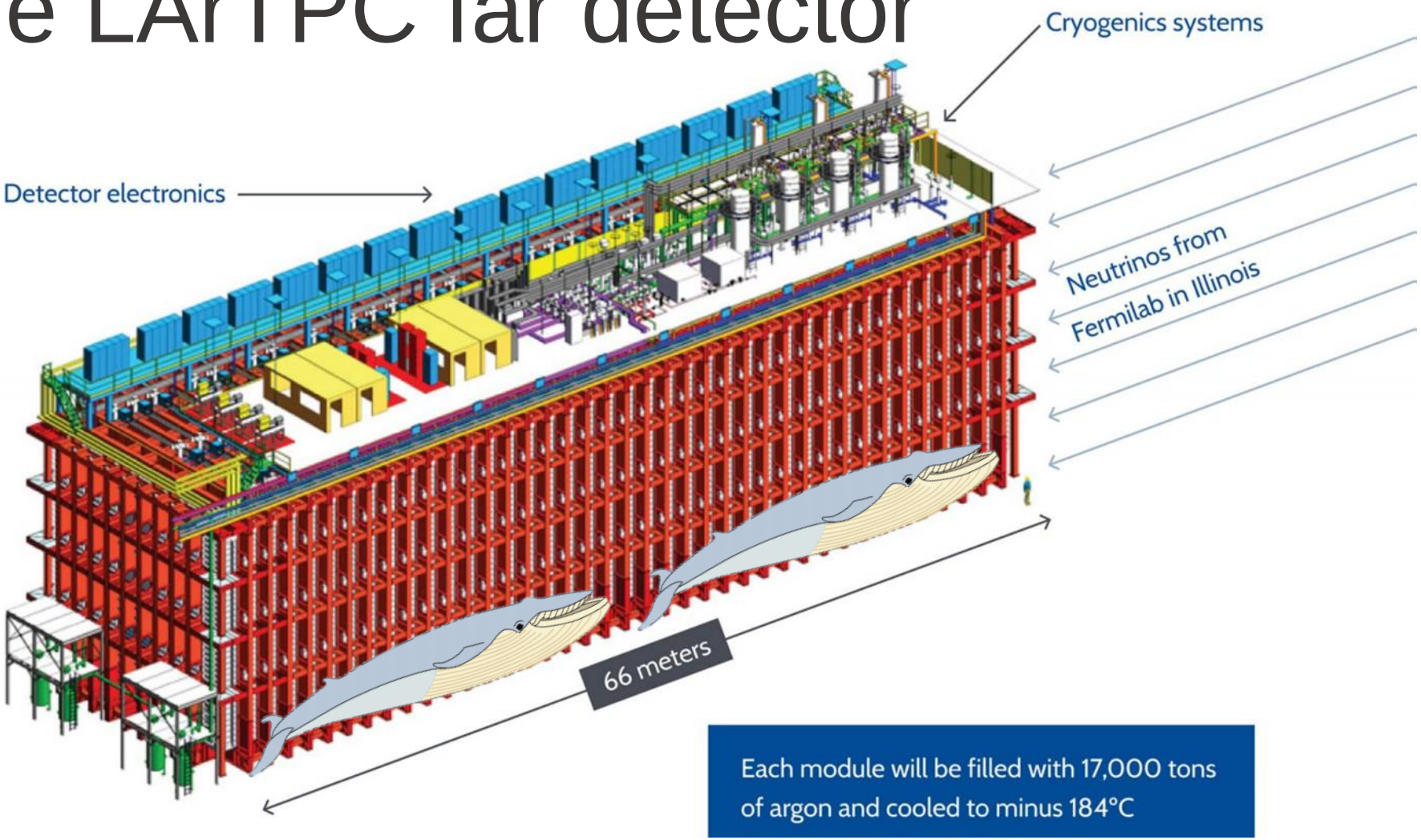
DUNE – a long baseline experiment



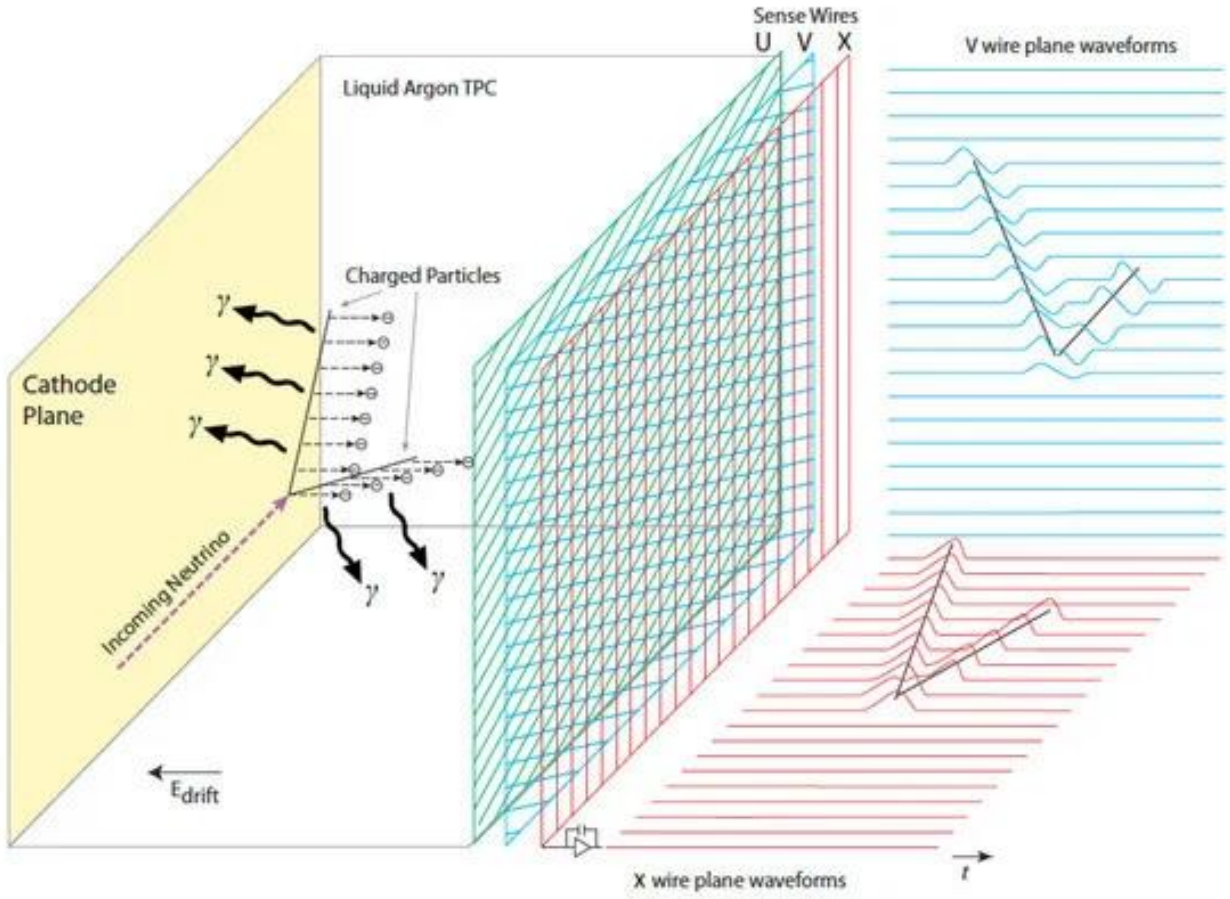
DUNE – a long baseline experiment

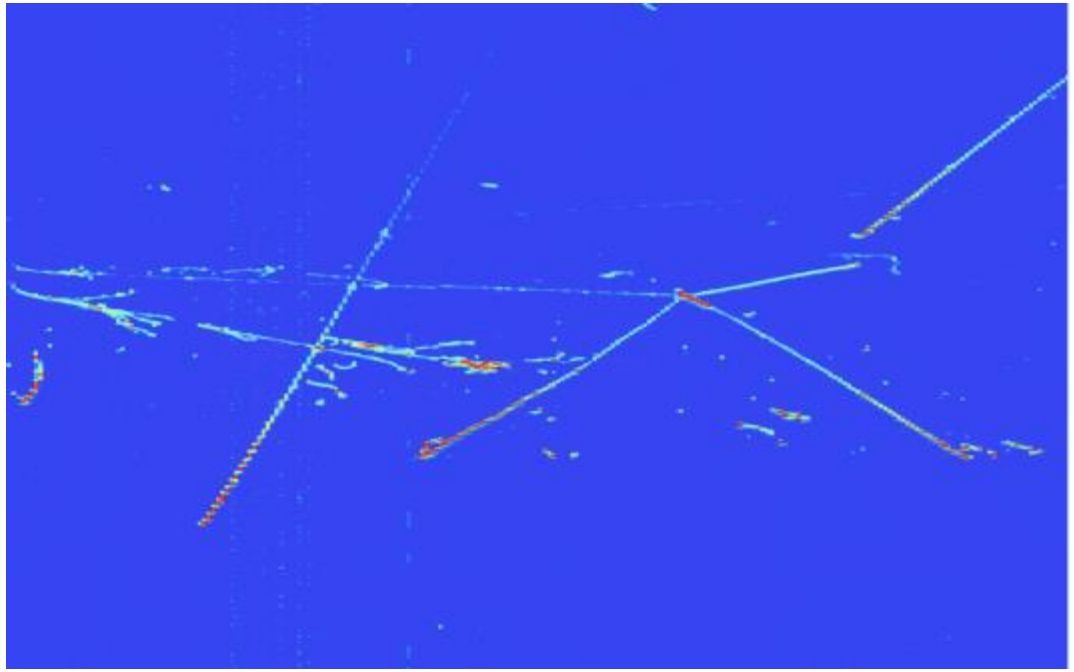


Huge LArTPC far detector

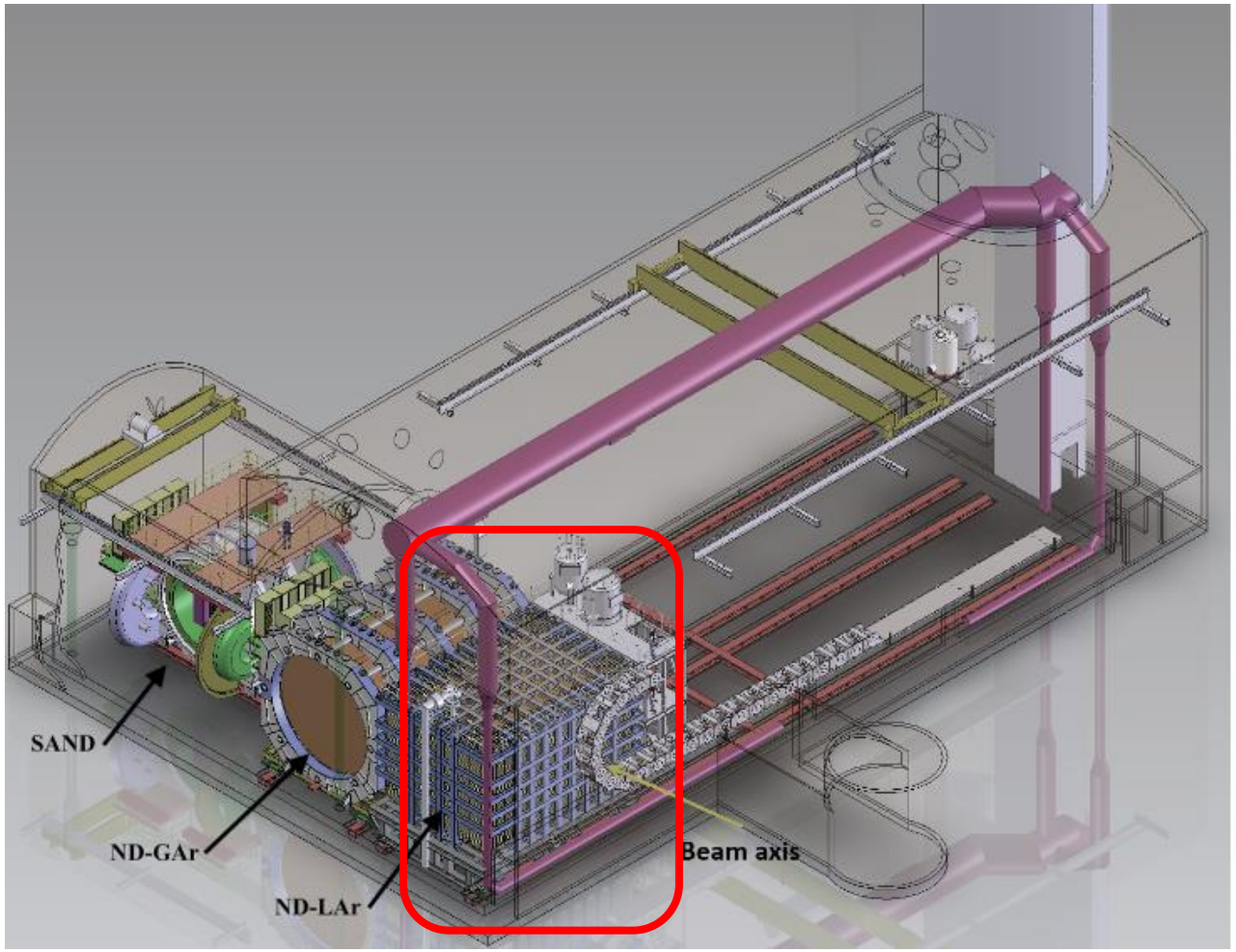


Liquid argon time projection chamber

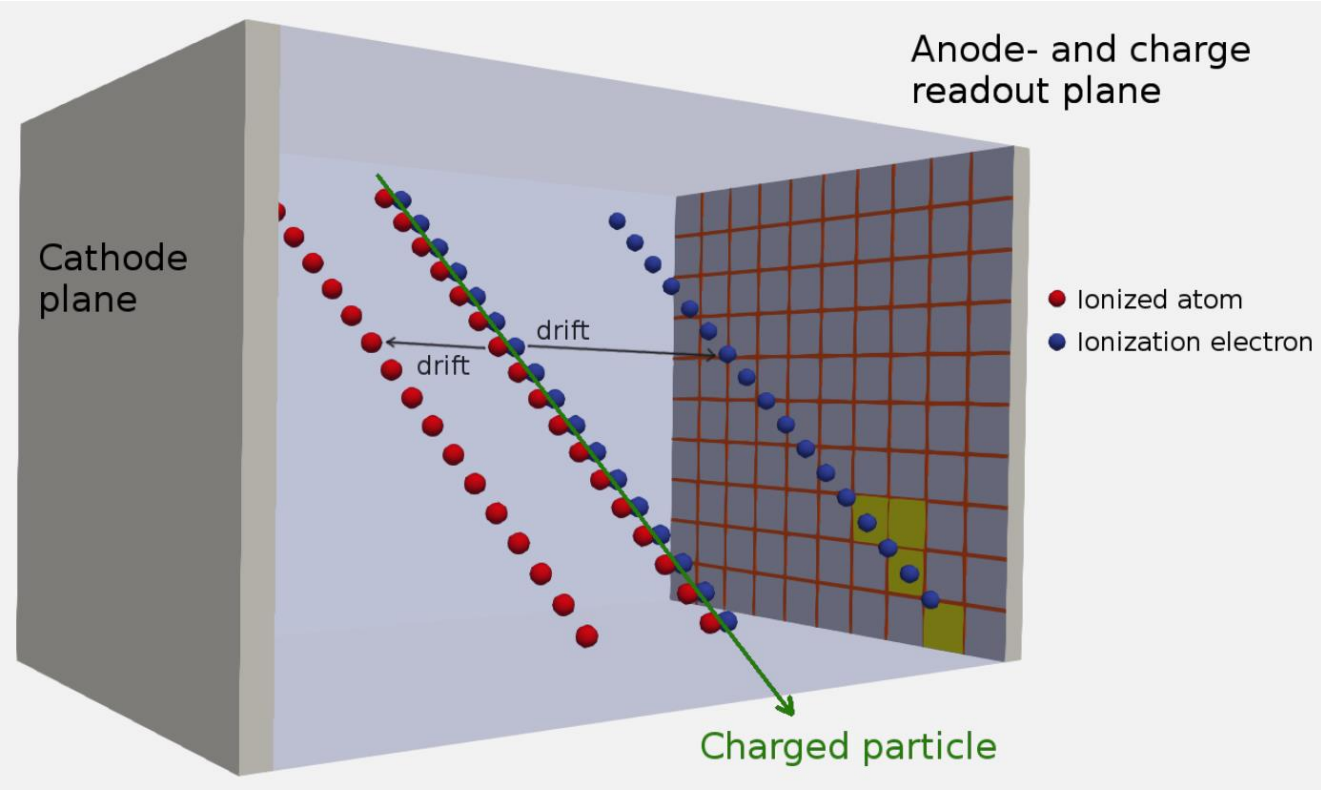


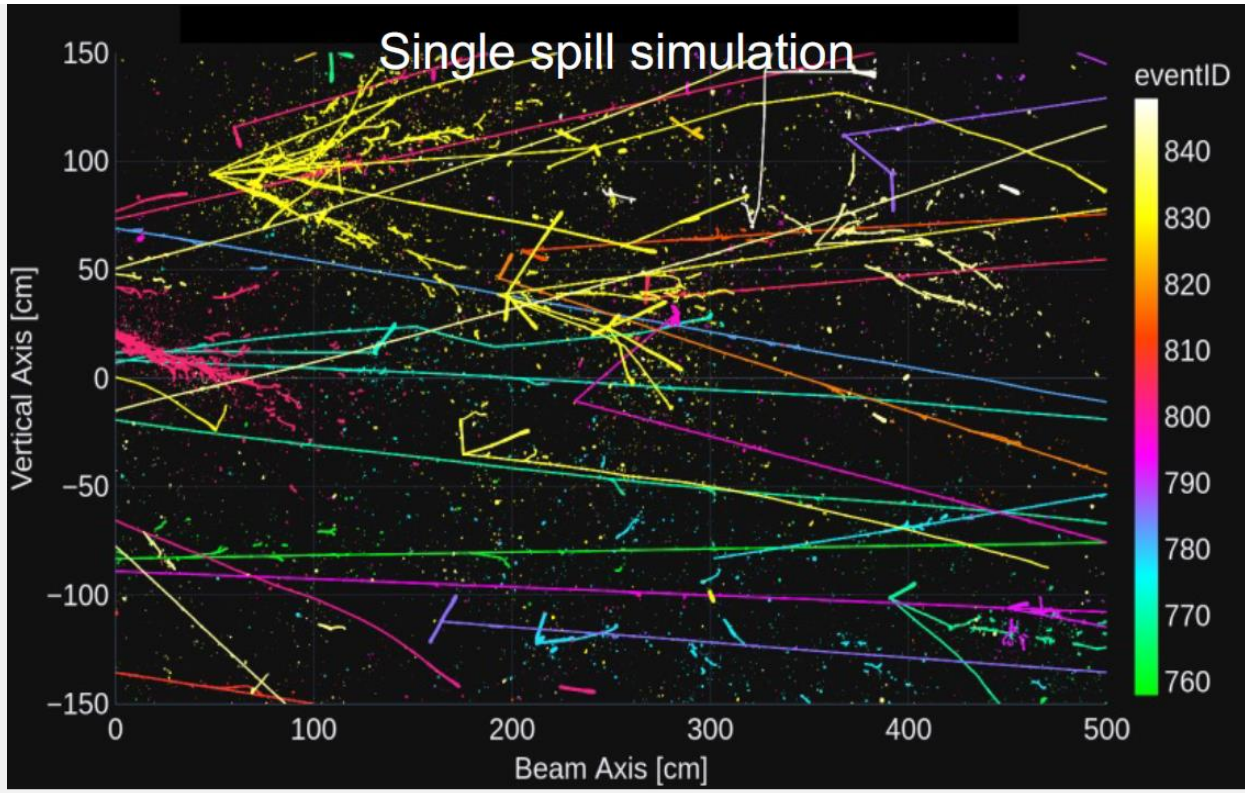


DUNE near detector complex



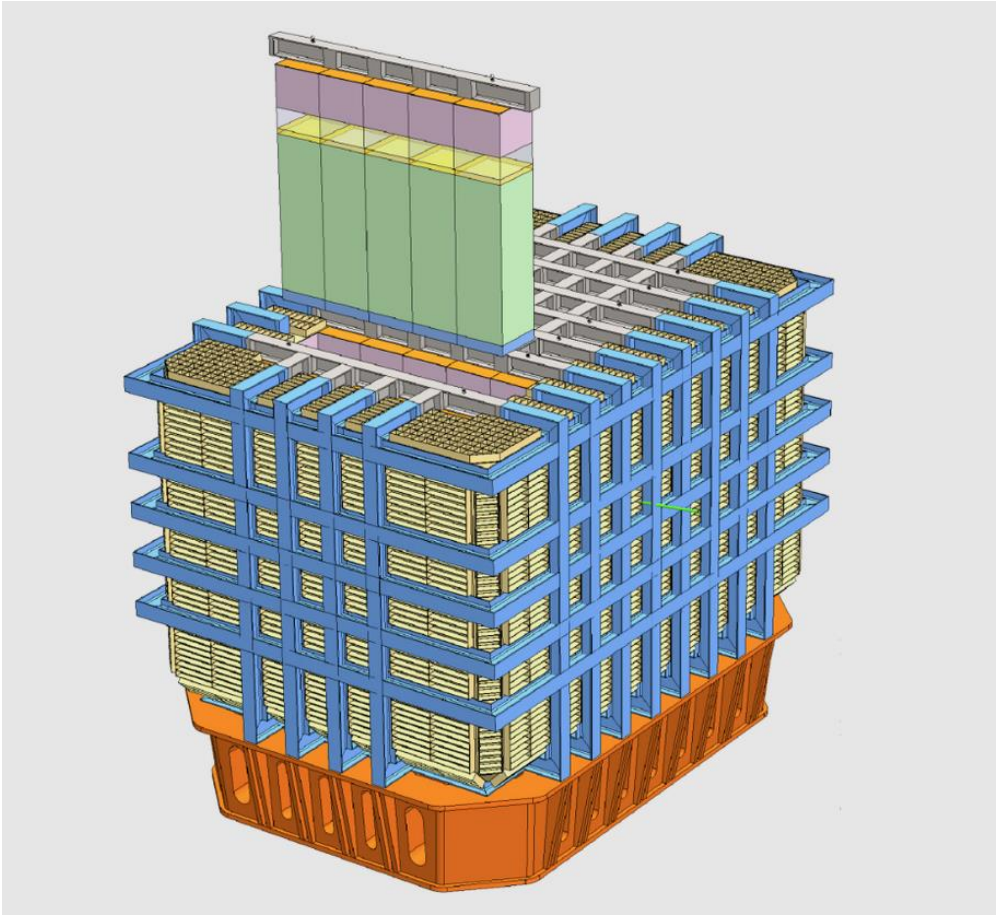
DUNE ND LAr expected signal

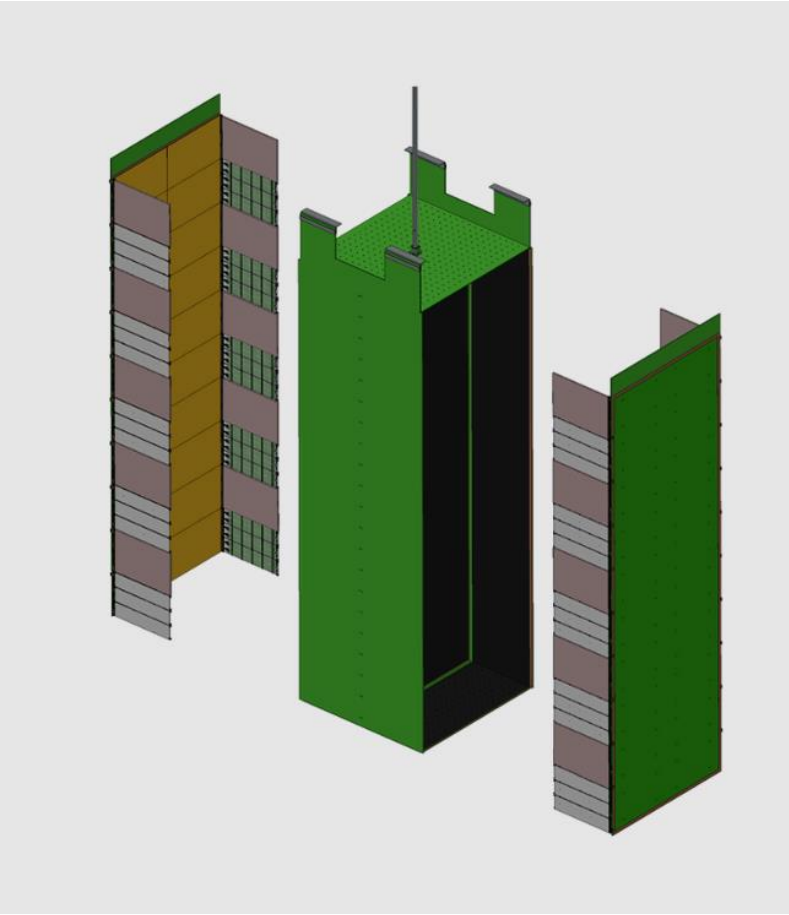




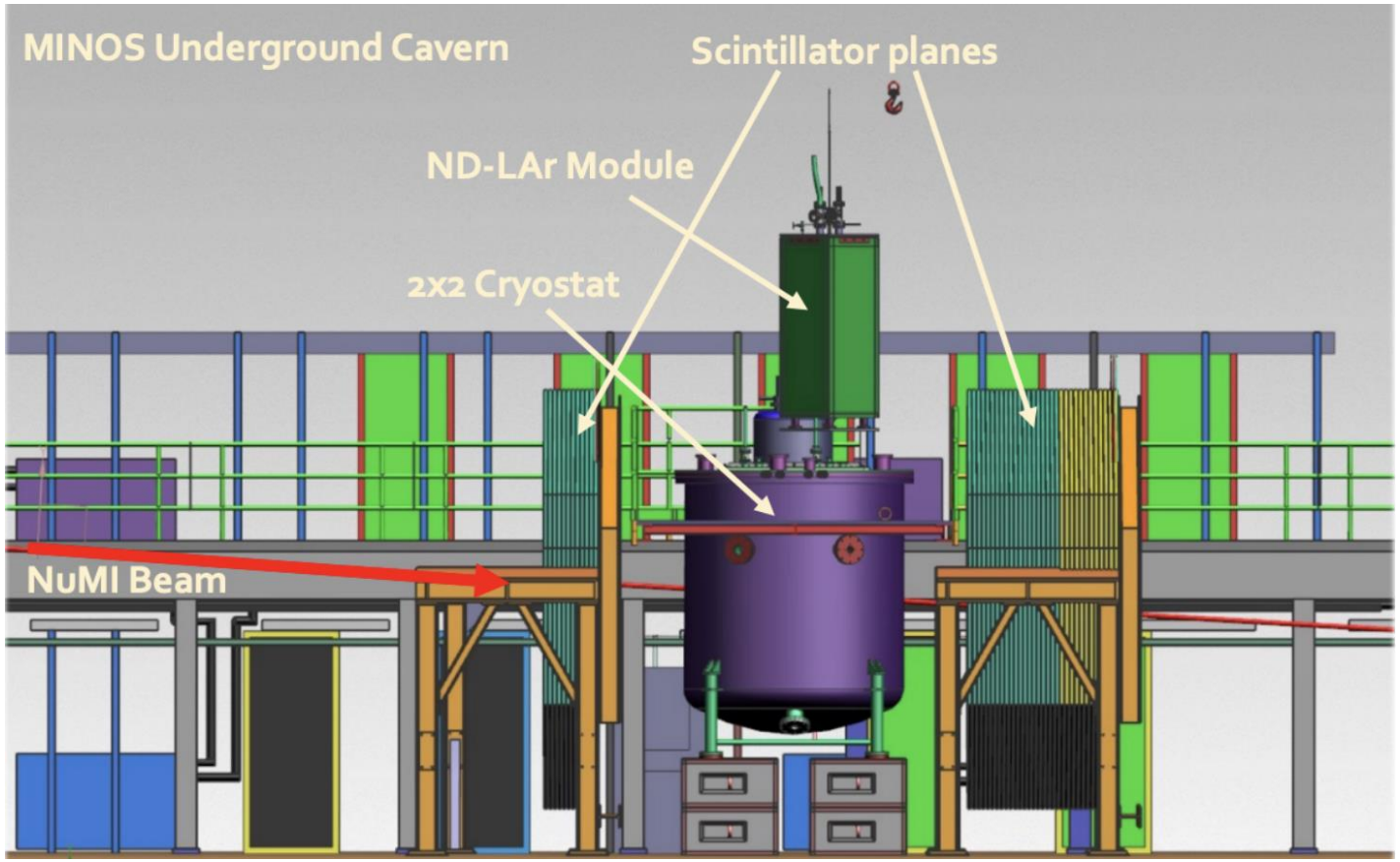
Simulation: P. Koller

ND LAr optically isolated modules

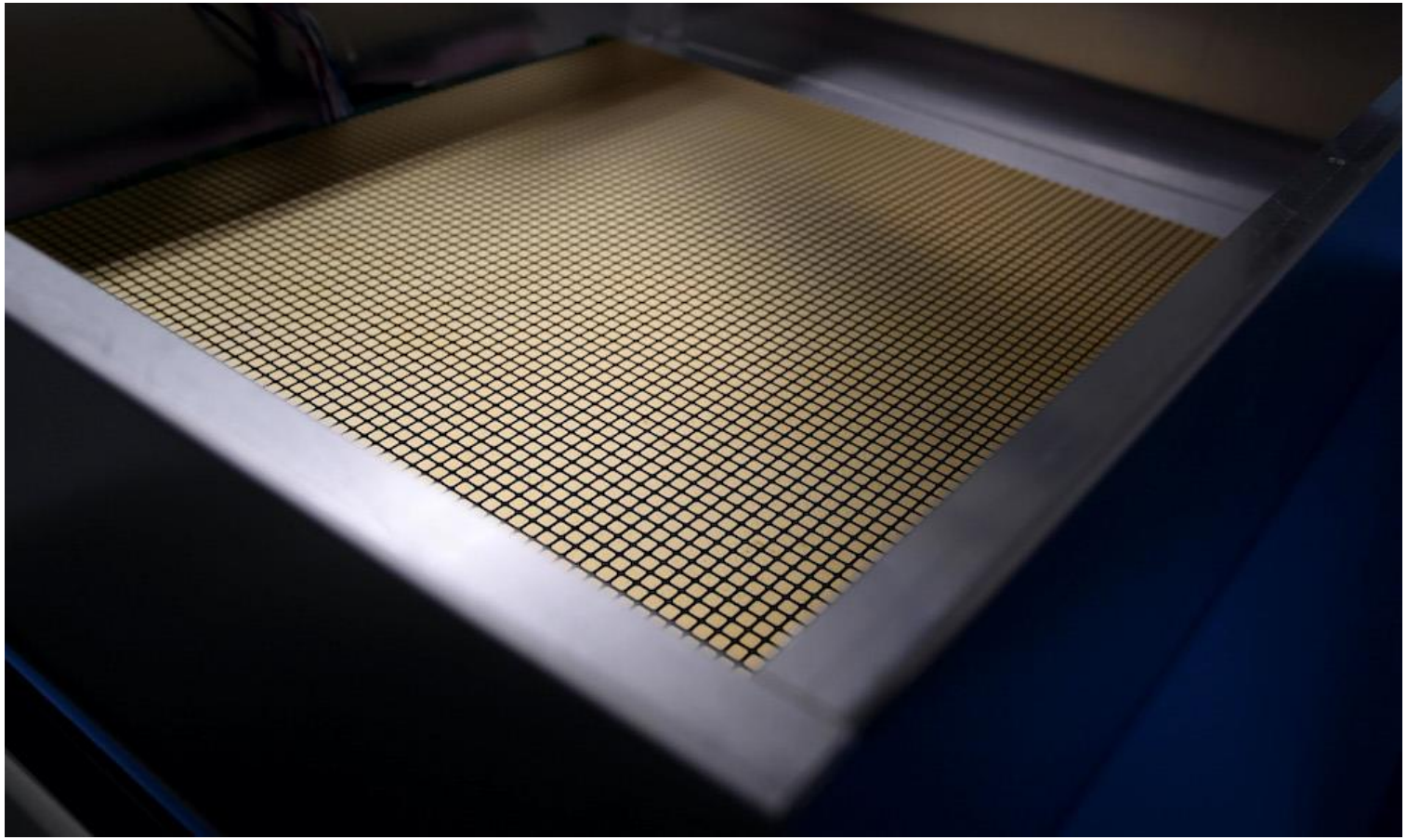


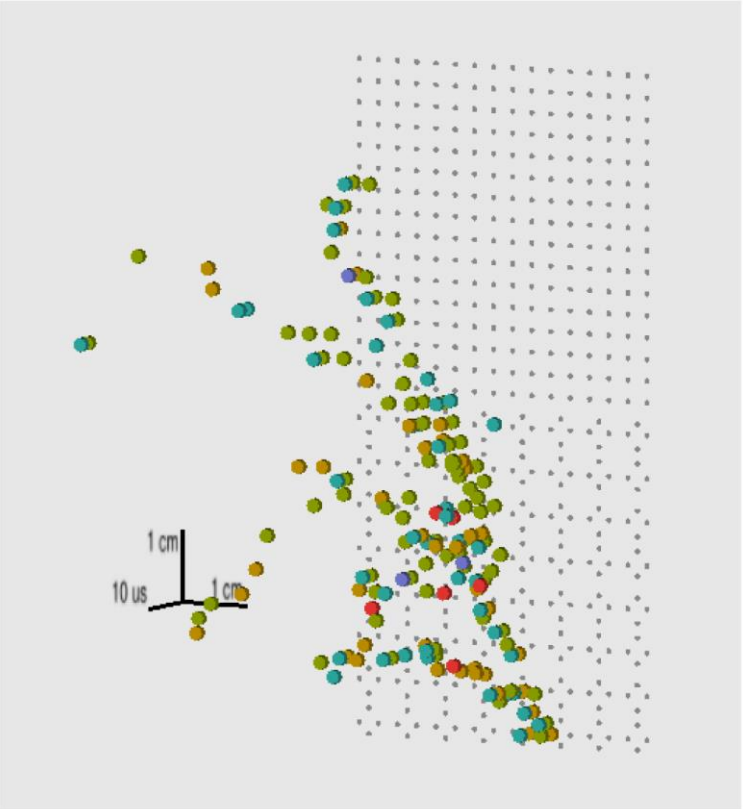


DUNE ND LAr 2x2 prototype



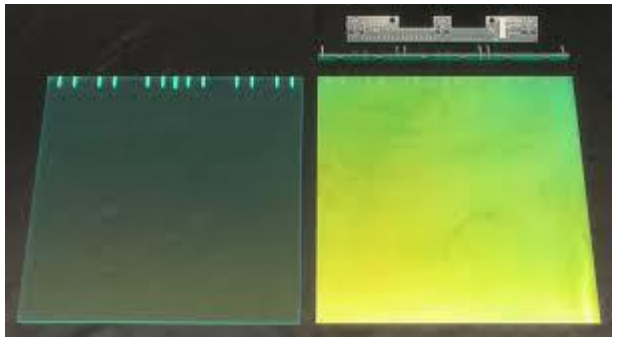
Pixelated charge readout

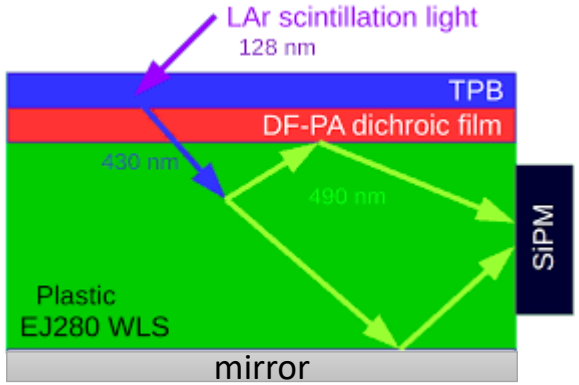




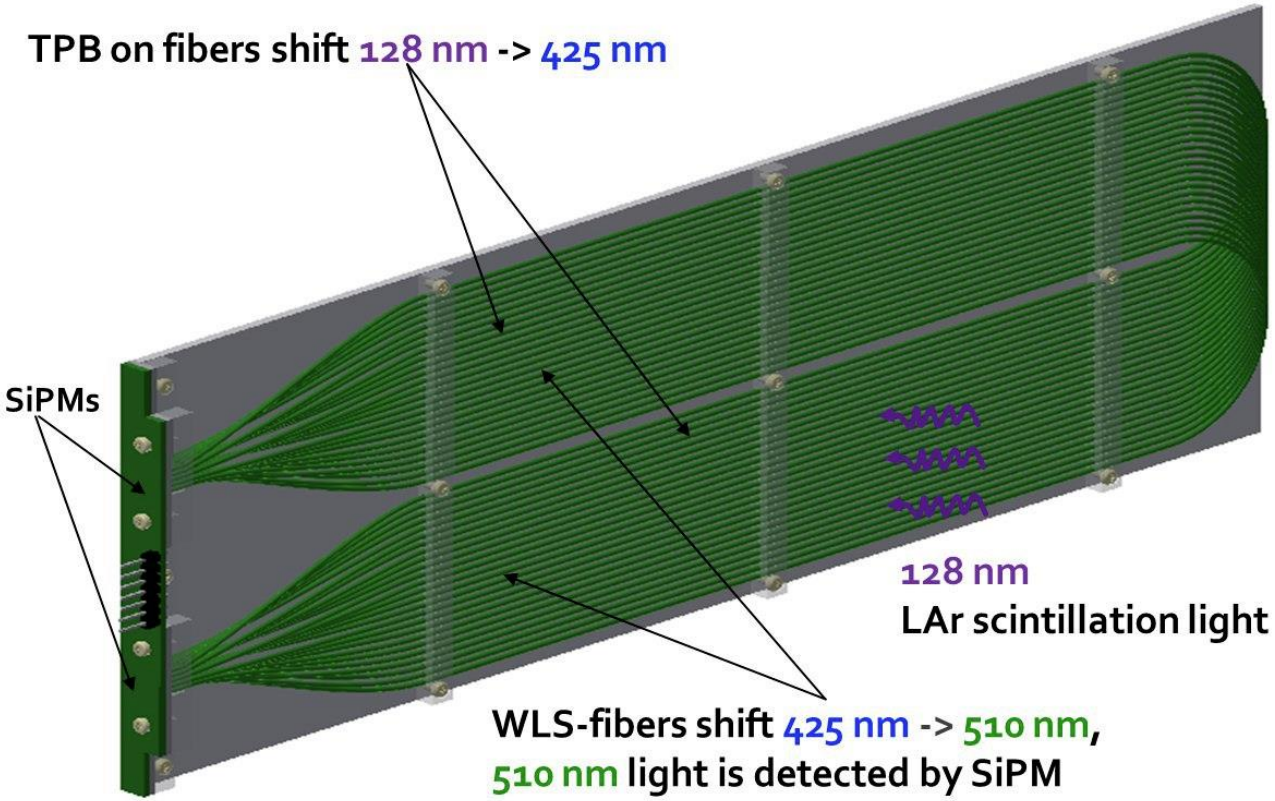
Light readout

ArCLight

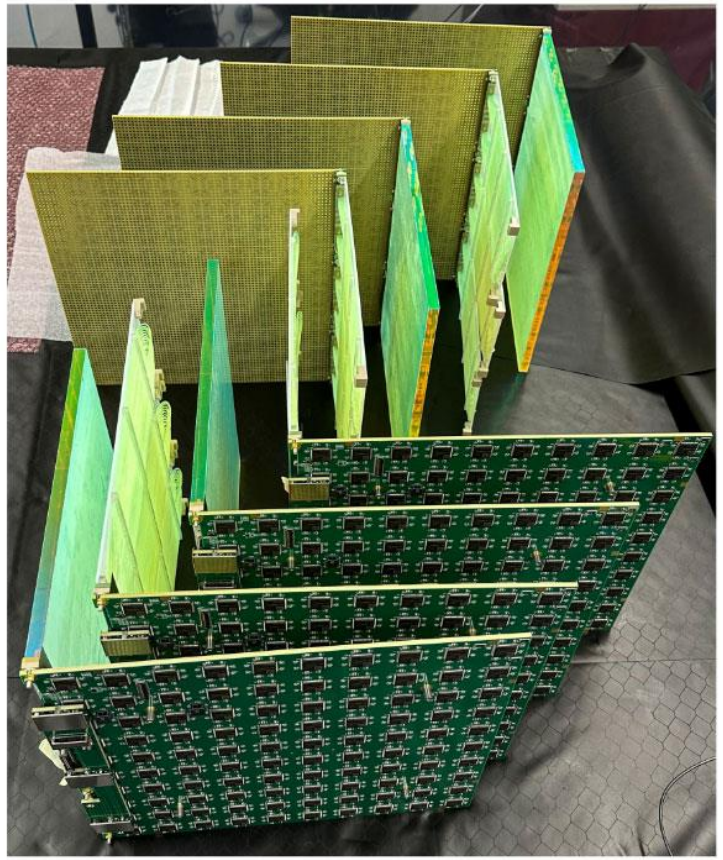


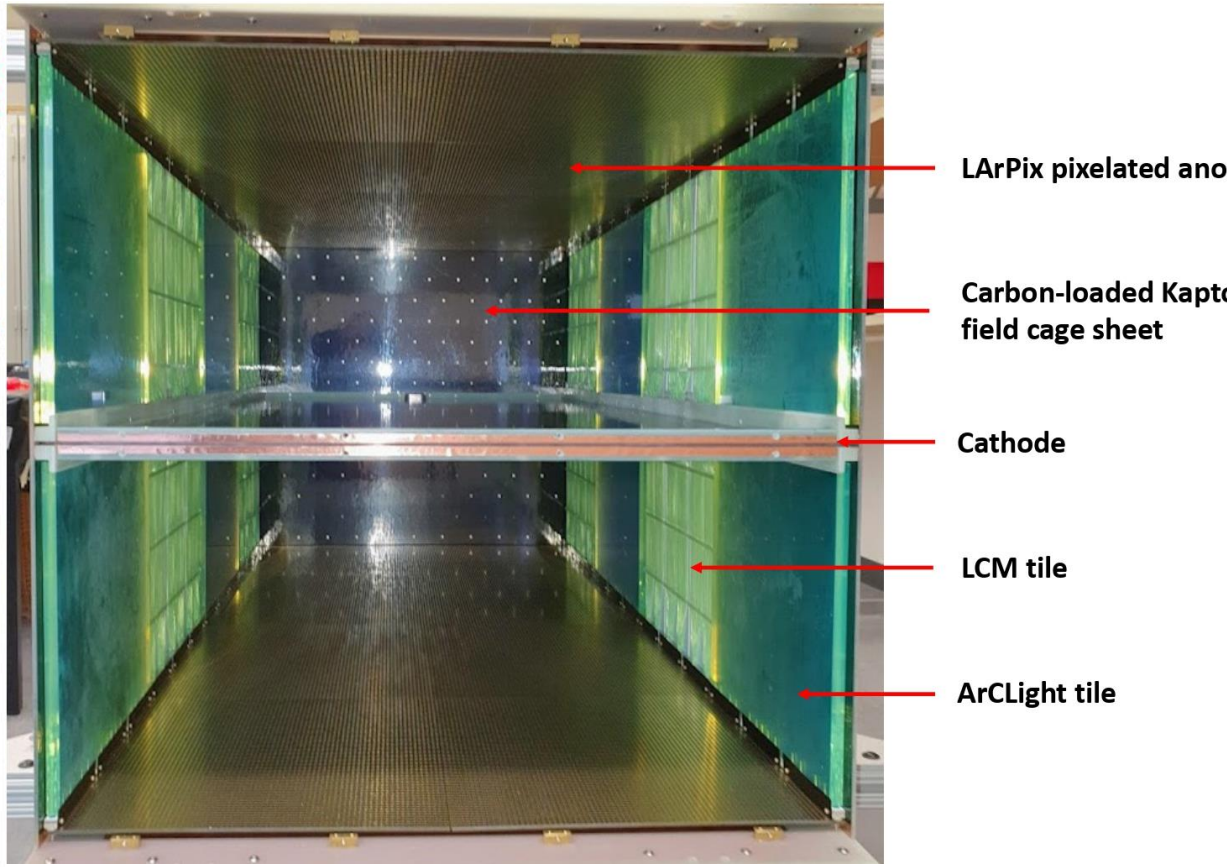


LCM



Single module





2x2 coming soon