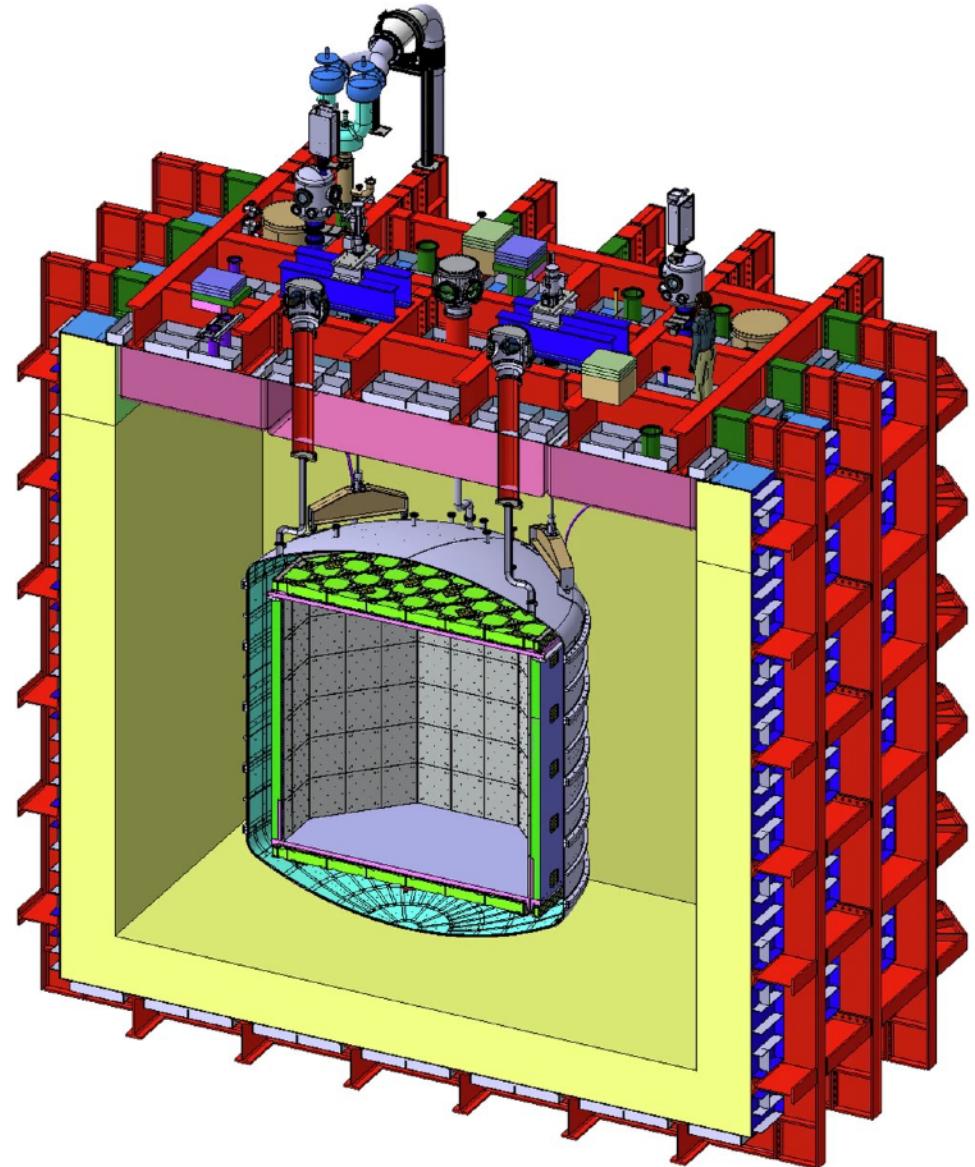

DarkSide-20k and IRIS

Andrew McNab
University of Manchester

IRIS Collaboration meeting, Jan 2026

What is DarkSide-20k

- Experiment looking for dark matter
 - Big tank of 780 tonnes of Liquid Argon in a hall off the Gran Sasso tunnel under the Apennine mountain range in Italy
- Concentric tanks to detect muon background and look for dark matter particles
- Sensitive from 1 keV sterile neutrinos up to Planck scale particles! (10 micrograms)
 - But focus on Weakly Interacting Massive Particles 10-10,000 GeV
- Data taking starts in 2027



DarkSide-20k computing and IRS

- DS's computing host lab is INFN CNAF in Bologna
 - Hosts prototype DarkSide PanDA (workload) and Rucio (replica management) services - so quite conventional
- With STFC funding, Manchester staff are working with CNAF to bring up UK CPU and storage
 - Currently all DS grid CPU is at CNAF and storage at CNAF and Gran Sasso lab
 - So this will be a big help to DS in developing procedures for scaling up capacity, which is essential for DS's needs
 - PanDA / Rucio services taking longer than expected to stabilise
- IRIS support started in the autumn but we have yet not been able to make use of capacity. Expected imminently.