

Lessons on the way to



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disclaimer: personal thoughts only



XLZD Pre-history

- Informal discussions started by Laura Baudis and Rick Gaitskell
- Kicked off a more formal process with a large committee to get to an MOU for a consortium
- It was a weird time, many of us still working from home during the pandemic, our experiments trying to be constructed to turn on

XLZD's History

- Consortium MOU signed in July 2021 by **X**ENONnT, **L**UX-**Z**EPLIN, **D**ARWIN
- Collaboration agreement signed September 2024
- XENONnT and LZ: ongoing science programs, technology progenitors
- DARWIN: initiated R&D and design studies and long term planning
- In-person meetings
 - Germany in June 2022
- xlzd.org
- SNOWMASS and P5 participation



XLZD Meeting at KIT in Karlsruhe, Germany (June 2022)

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- In-person meetings
 - Los Angeles in March 2023
- xlzd.org
- SNOWMASS and P5 participation



*XLZDers at the Getty Center in LA
-Florian Jorg*



XLZD Meeting at UCLA (April 2023)

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 - UK in April 2024
- xlzd.org
- SNOWMASS and P5 participation



XLZD Meeting at RAL (April 2024)

XLZD-UK TEAM

Meanwhile a long process in the UK, that started with the XenonFutures R&D Project and the Boulby Feasibility project, led to funding for an Infrastructure Pre-construction project for XLZD that started in July 2024.



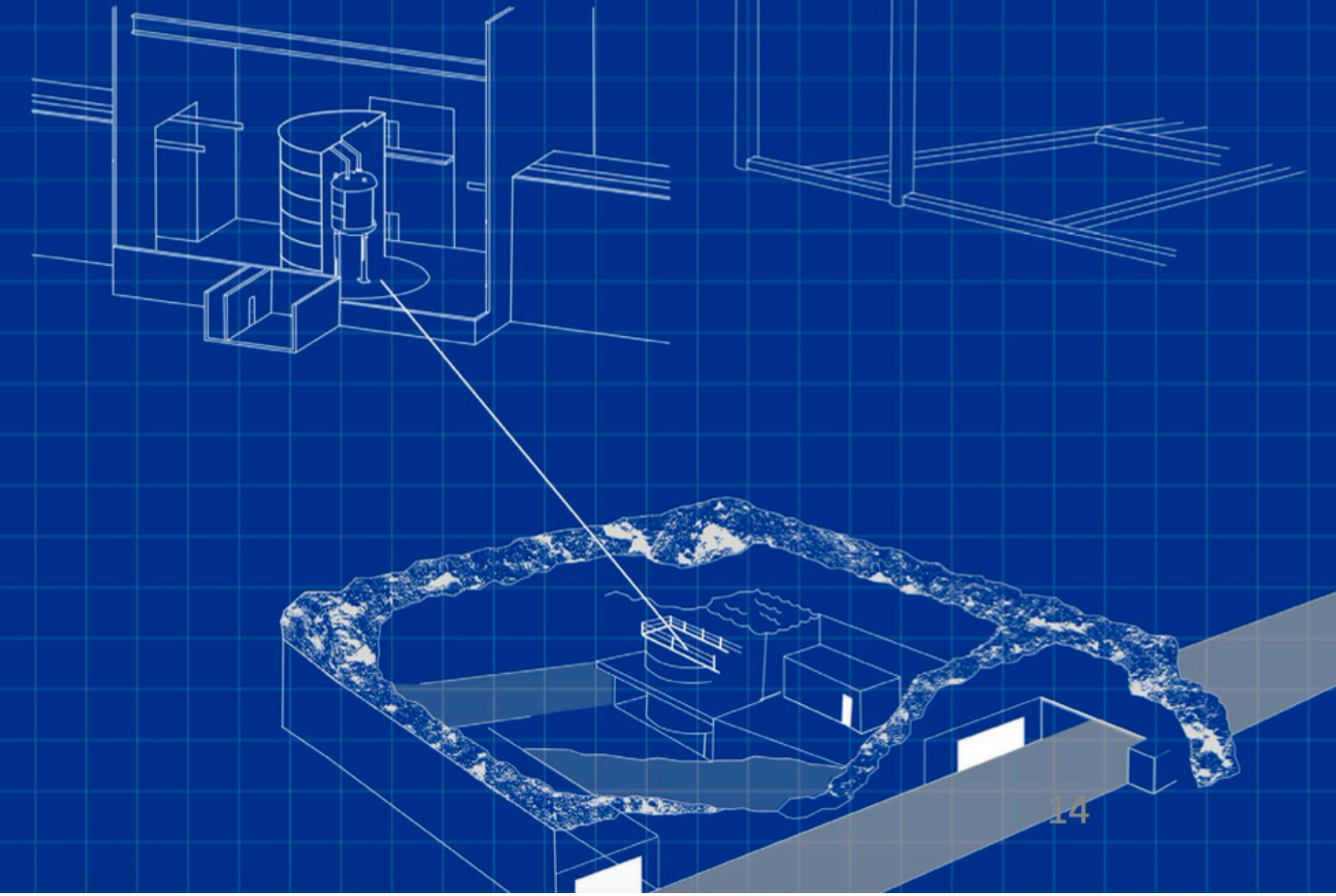
With key UK partners:

- STFC Boulby Underground Laboratory
- STFC Technology Department
- RAL/PPD Project Management Office
- Advanced Manufacturing Research Centre (N-AMRC & AMRC-TC)
- ICL-Boulby
- BUTTON, DarkSPHERE, LEGEND, AION



XLZD@BOULBY: STFC ASSURANCE REVIEW 2023

*Hosting the definitive underground
rare-event observatory in the UK*



XLZD's History

- Since becoming an official collaboration
- Governance plan in place
- IB chair elected
- Spokespeople elected
- Executive board elected
- More Project and Science work done
 - Design book and 0vbb sensitivity publications out
 - New members, esp. some from nEXO



XLZD Meeting at LNGS (June 2025)

Visits



IDM visit to LNGS



German delegation visit to Boulby

Lessons learned

- External drivers help (SNOWMASS, UK funding)
- Personal relationships matter (lots of initial meetings had time for people to just get to know each other)
- Lots of enthusiasm during first year of consortium, but hard to have kept that momentum with actively running and competing experiments
- Lots of educating each other about funding and structures in different countries (as well about design differences)
- Relatively easy transition because much shared already
- Funding agencies will be key moving forward