

XMASS/Kamioka



Masaki Yamashita
Kavli IPMU, UTokyo

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XLZD Collaboration Meeting

Purpose of this talk

What are the possibilities of offering the XMASS legacy as a “large-scale R&D platform,” and what are the associated challenges?

Kamioka Observatory in Japan



- 1000m under a mountain
- 2km Horizontal access



XMASS

Kamioka mine Gifu, Hida city, Ikenoyama



Kamland

茂住地区

Hyper-K



3 km

XMASS

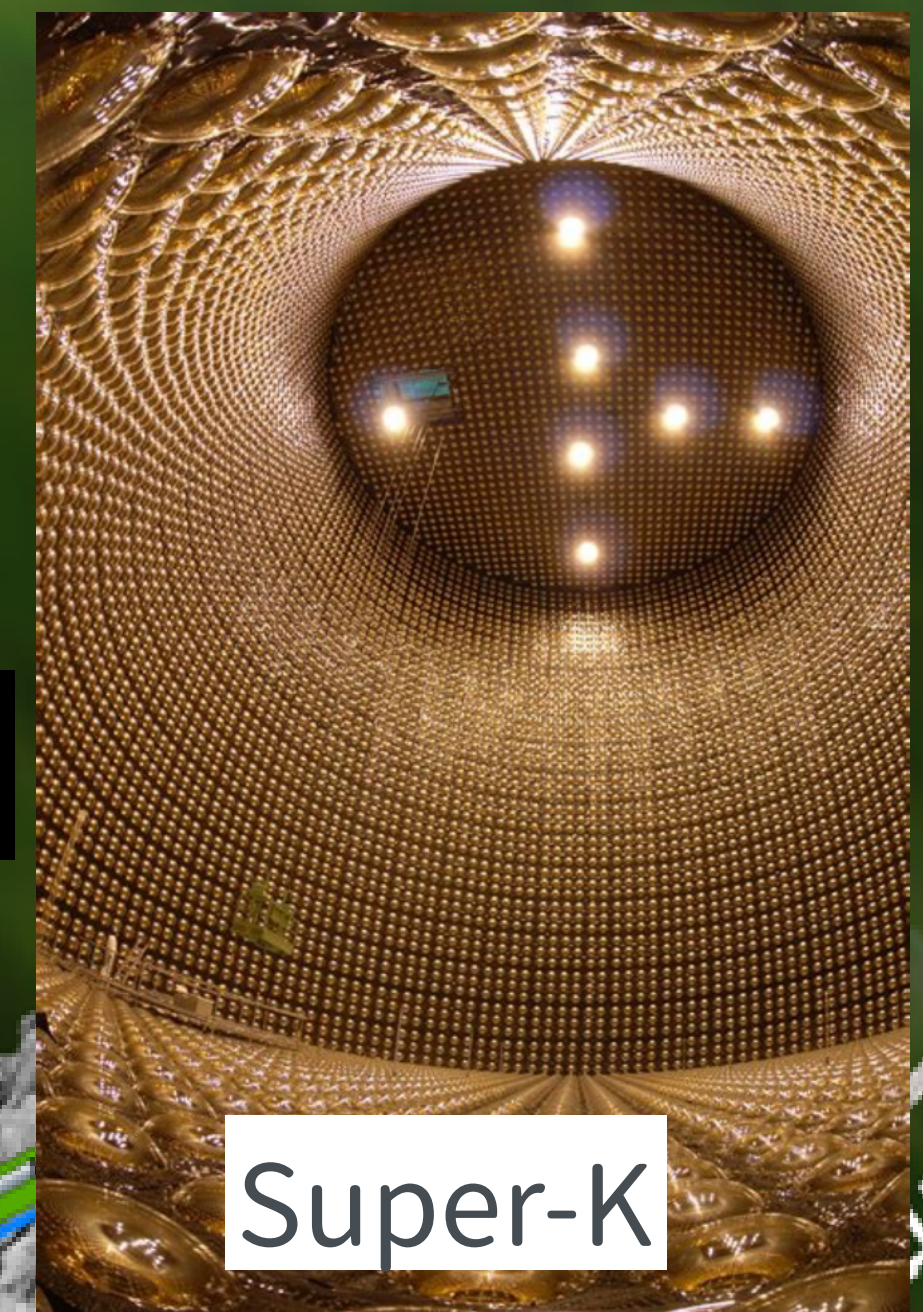
Kamland

Super Kamiokande

CLIO

SG

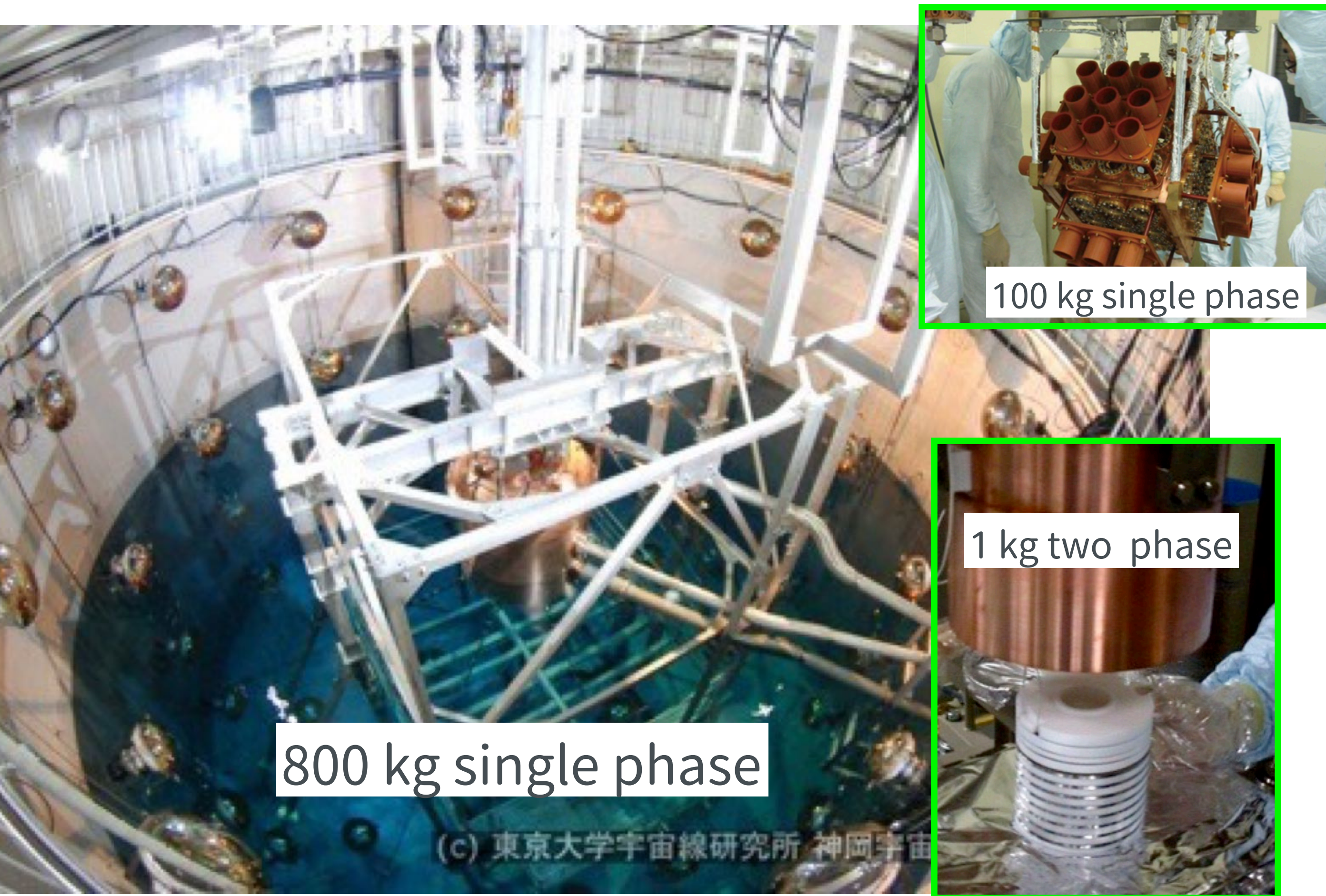
KAGRA



Super-K

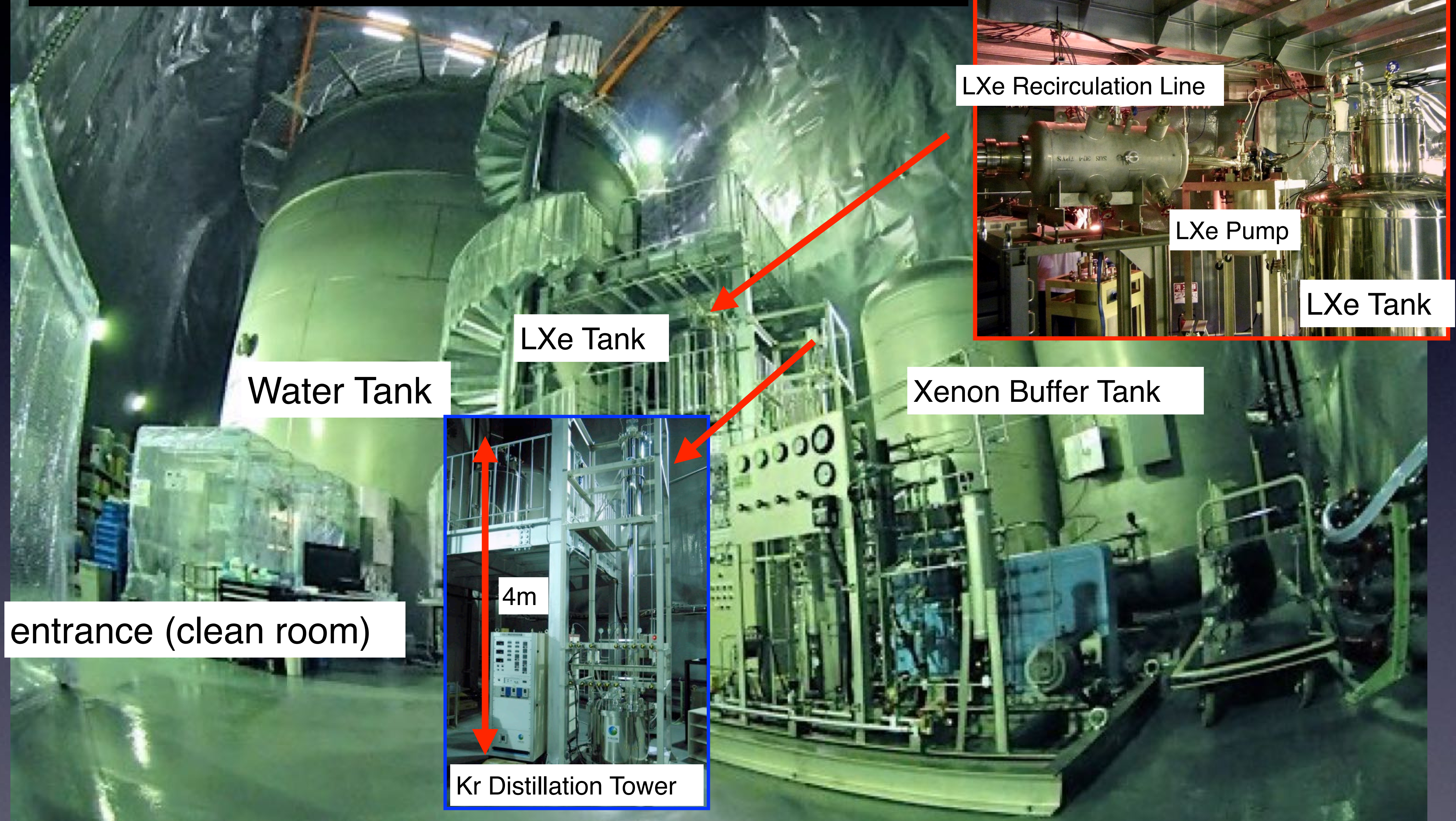
山方面

XMASS History

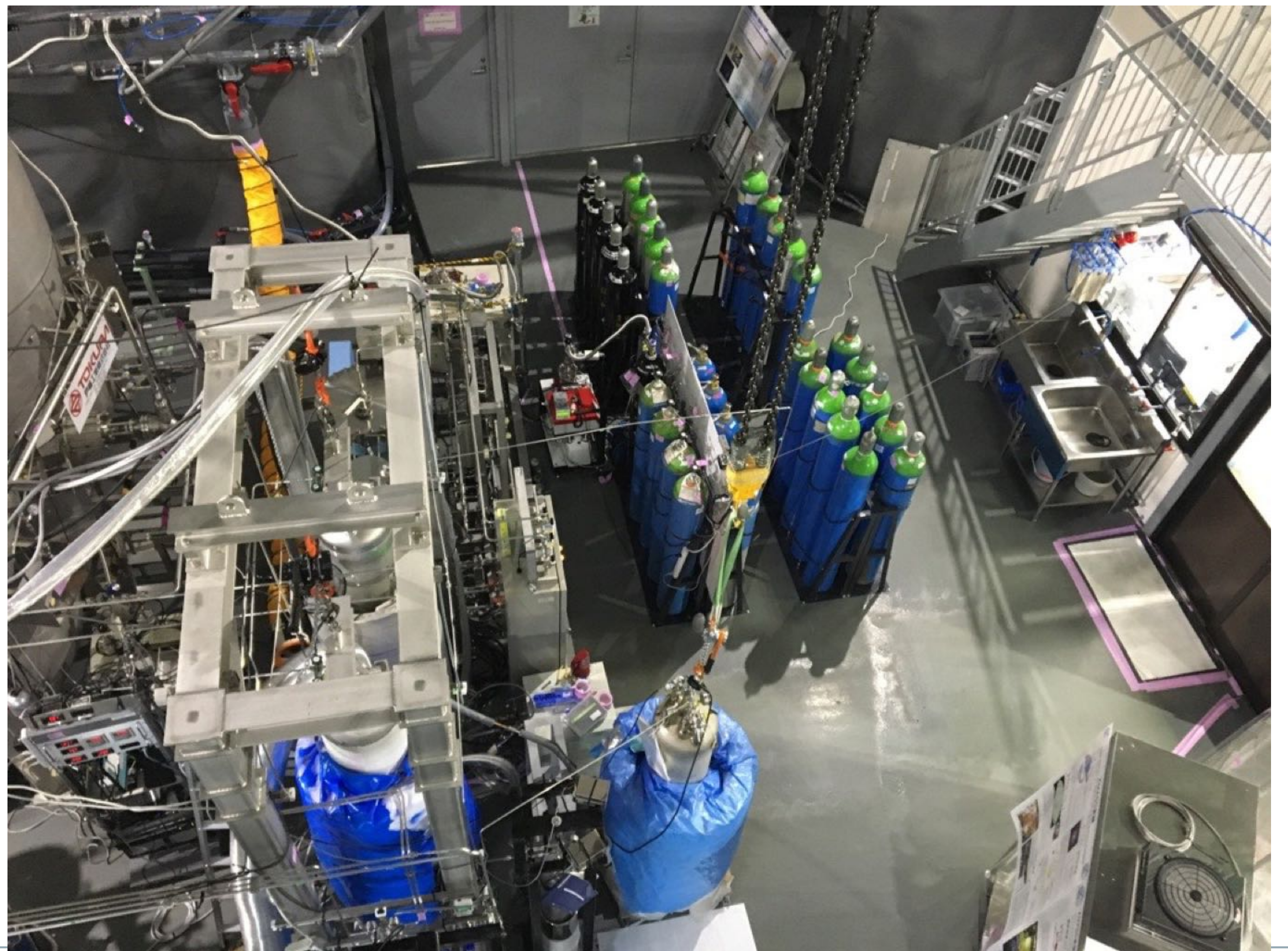
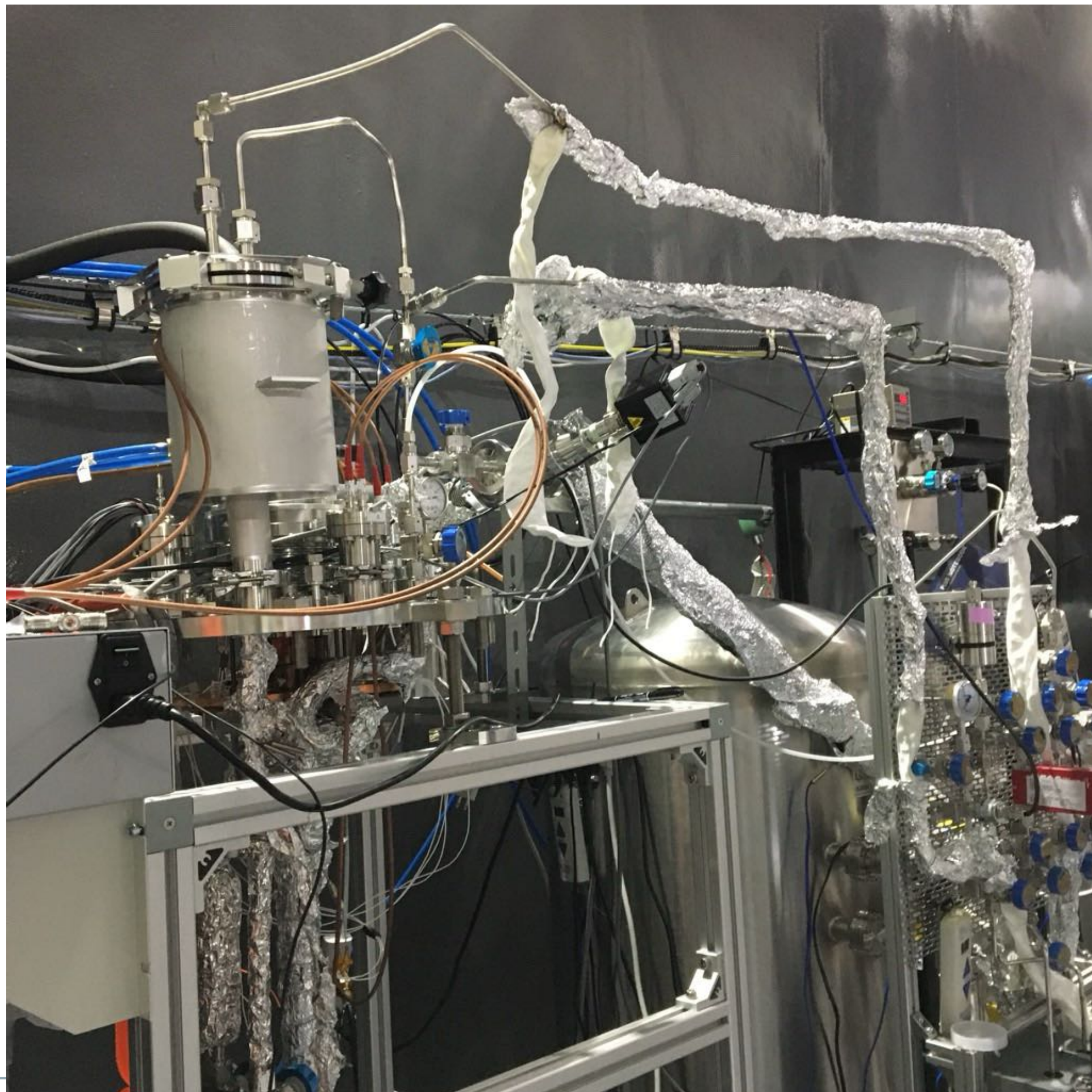


- 2000 XMASS proposal (DM, solar neutrino, DBD)
- 2000 - 2007 R&D
 - single phase 100 kg,
 - two phase Xe detector,
 - cryogenic distillation for Kr removal etc
- 2007 XMASS-I funded (800kg)
- 2009 construction started
- 2010 operation started
- 2012 refurbishment (PMT Al seal BG)
- 2019 operation terminated
- 2022 finalized 5 years data

Experimental Hall (20m x 15m x H15m)



Some space for R&D

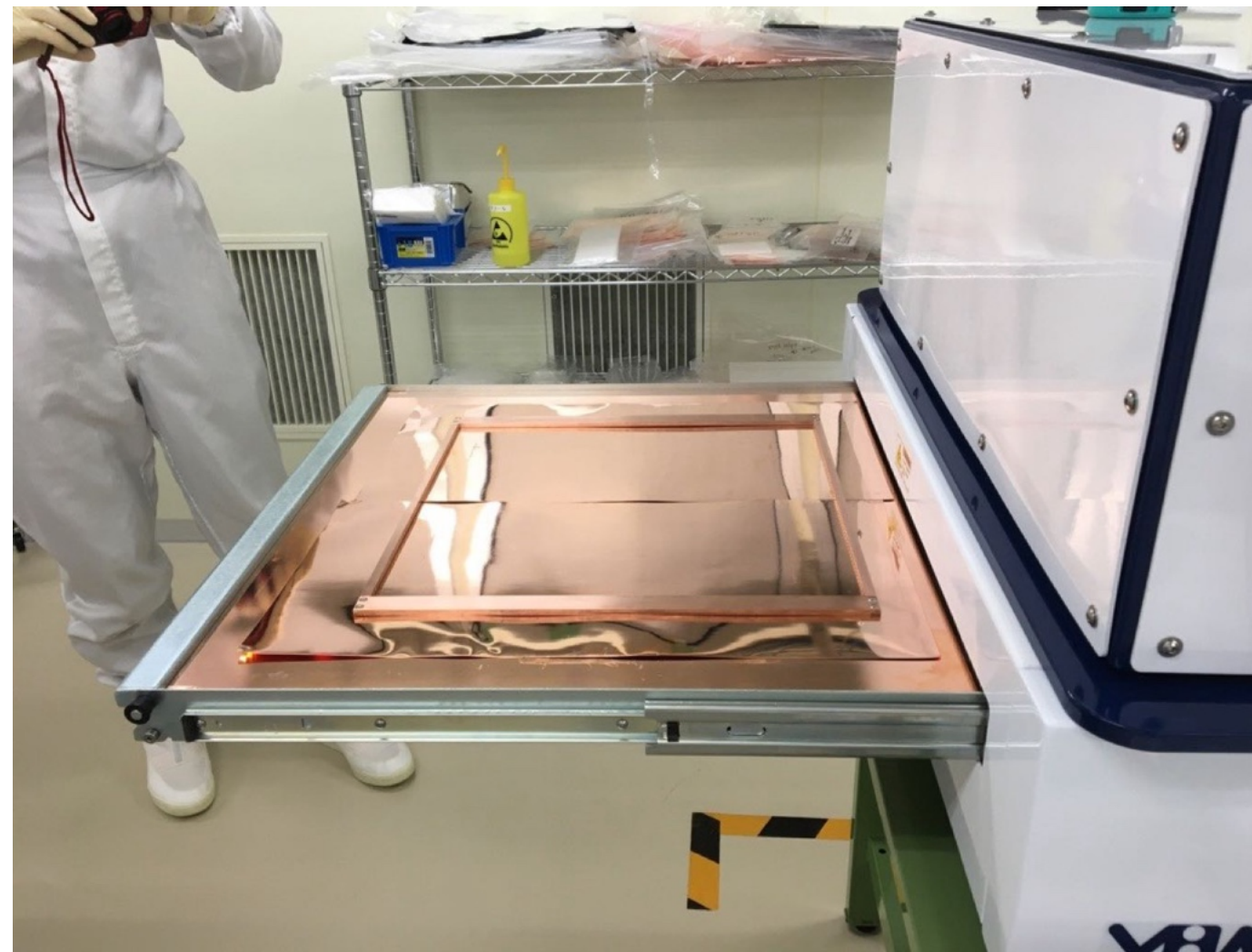


Other facilities

HPGe detectors



surface alpha counter



surface lab (IPMU)



Summary

- The Lab-C underground facility at Kamioka (20 m × 15 m × 15 m high) can be utilized for XLZD R&D.
- HPGe detectors and a XIA counter are available on site.
- The facility is primarily managed by ICRR, The University of Tokyo, which serves as an International Joint Usage/Research Center. Access is possible through proposal-based applications.
- However, the use of the water tank is not straightforward. ICRR members are heavily engaged in preparing Hyper-Kamiokande for operation starting in 2028.
- If the tank is to be used, careful coordination is highly recommended.
 - dismantle cost?, manpower

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