



Muon Cold Sample Environment Project

- *What?*
- *Why?*
- *When?*

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What's happening?

- We're in the process of investing in a new suite of low temperature sample environment kit.

Item	Number	Comment
^4He cryostat	2	Compatible with all inserts, working in tandem with existing HIFI Variox ('White' cryostat).
Dilution Insert	4	
Support equipment for DRI	2	Compatible with all inserts
^3He Insert with support equipment	2	



Why?

- **Obsolescence ... a lot of our kit is getting old:**
 - TBT fridge now retired after 25+ years use
 - HIFI fridge retired (cold leak on mixture circuit)
 - MuSR Kelvinox/Variox in use 15+ years (and causing problems)
 - Muon ^3He system in use 20+ years.
- **Demand:**
 - Currently huge demand for sub-1K experiments across the facility
 - 50-80% of MuSR time relies on sub-1K kit
 - Large demand for ^4He cryostats across all instruments
- **Experimental efficiency, reliability and redundancy:**
 - Sample changes will be more efficient - no 'cold to cold' changes
 - 'Spare' compatible kit if things go wrong, easier to support
 - Benefits EMU/HiFi (with shared vacuum), one cryostat/multiple inserts
 - Can retire ICE fridge (doesn't work well in ^4He mode)



When?

- Contract placed with Oxford Instrument (following a tender exercise) just before Christmas 2016
- 24 month project
- We're expecting:
 - July 2018: VARIOX (He4) (1) / Kelvinox JT (2) / Heliox VT (He3) (1) / DU Support Equipment
 - Sept 2018: VARIOX (He4) (1) / Kelvinox JT (2) / Heliox VT (He3) (1) / DU Support Equipment
 - Late 2018: Commissioning, kit enters programme
- But timescales may slip!



Other benefits ...

- With more cold sample environment available, possibility of using some of the older kit on\ RIKEN-RAL
- Recent study has led to adaptors being made to mount the existing EMU Variox and ICE fridge on ARGUS, and the HIFI Variox on CHRONUS

