

WG B Cryogenics Summary

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- The IR Hall Cryogenics are assumed to independent from the Linac cryogenic system. IR Hall Cryogenics includes the cooling of the Crab cavities and QF1
- Each detector will need sufficient LHe storage (ala CMS) that can be gravity driven to cool the detector solenoid during a controlled ramp down to avoid quenches in the event of a total refrigeration failure
- Warm helium compressors will be located on the surface
- Cold Box(es) will be located in the IR Hall

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- The periodic use of LN₂ as part of the refrigeration cycle is expected.
- At the level of detail we are now discussing, the cryogenic requirements are basically independent of detector choice. (e.g. no LAr, no He II detector solenoids)
- Moving detectors while cold is certainly possible with proper design and planning

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- In order to move forward on the number (1, 2 or 3) and size of refrigerators to be used, more detailed studies are needed. 2 or more working groups should be established to carry out this work.

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- At a minimum, these studies should include:
 - A piping schematic showing all connections to all components with approximate sizes
 - Approximate sizes, locations and movement of all components
 - A description of how the various components are operated during commissioning, cool down, warm up, operation and quench
 - Possible interferences between components during the various operations phases

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- To start these studies we should develop estimates of heat loads at each temperature for each component. These don't need to be too exact they are only needed for sizing of lines and components so the studies are consistent
- A parallel effort should start to collect in a single spreadsheet the more exact heat loads from the various component designers. This will allow us to do more detailed refrigeration design later