

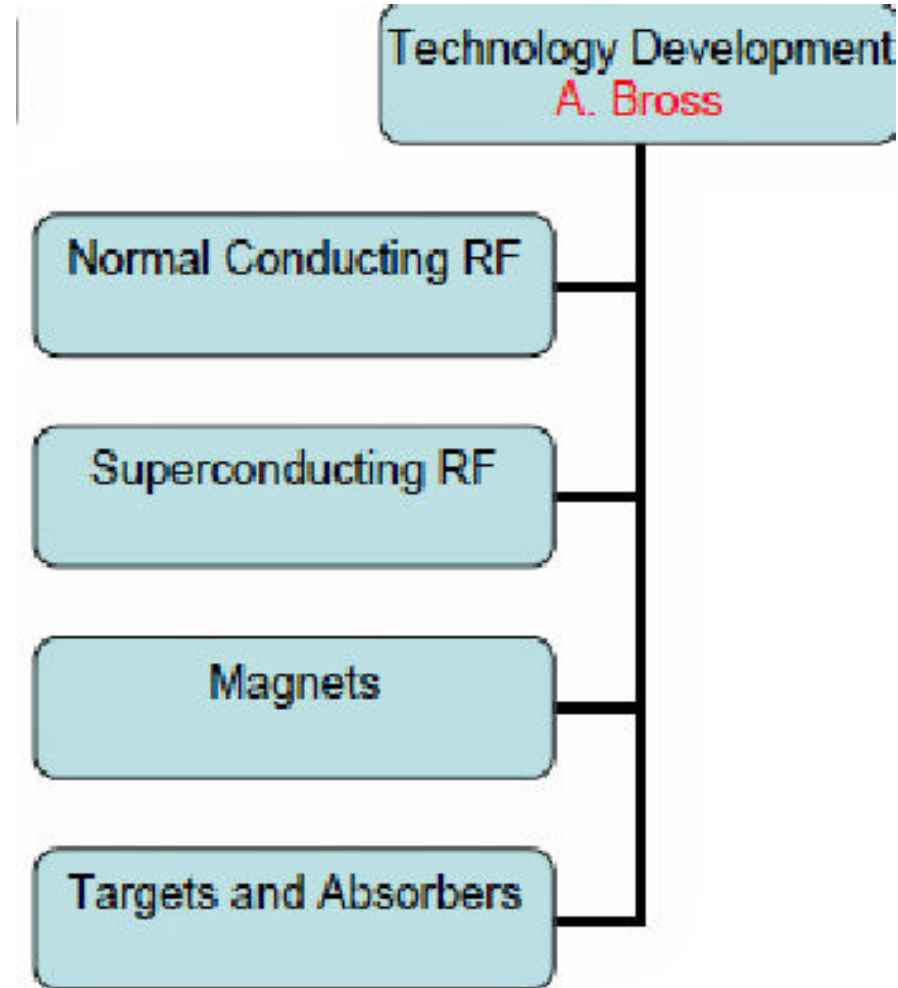


Muon Acceleration Program Technology Development - Update

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Technology Development Level 2 Task



NCRF - MTA

- Phase II of MTA Reconfiguration nearing completion
 - u Ready for beam
 - u Clean environment
 - u Cryo plant commissioning
 - s Solenoid cooldown
- Beam line commissioning continues
 - u To Linac wall
 - u Some problems with instrumentation
- Radiation Assessment
 - u In process
 - s Mid-April first draft
 - u Still on track for June beam running



NCRF - Test Cavities

- Initial running of HP test cell
 - u Complete
 - u Mods in progress for beam tests
- Box cavity complete
 - u Installed
 - u Low gradient ($<10\text{MV/m}$) commissioning to start next week
- Pillbox cavity
 - u Vacuum integrity OK with "O" rings
 - s Ready to ship to Fermilab
- Be-Wall Cavity
 - u Design in progress



- **Cornell Proposal still under evaluation.**
- **Don remains optimistic**

Magnets

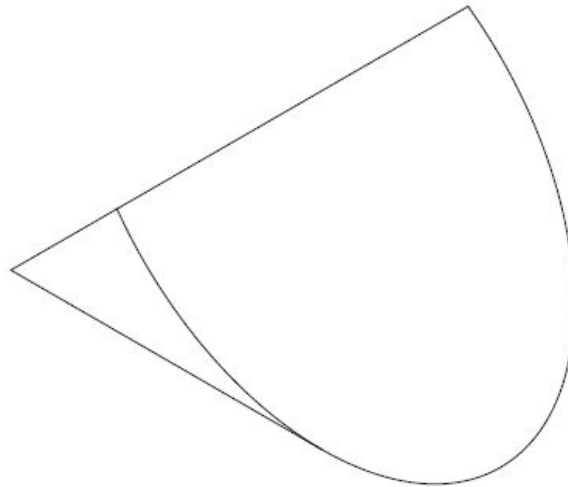
- Due to the cap in the overall MAP proposal cost, much of the magnet work in the original plan has been eliminated
- What remains:
 - u High Field (HTS) solenoid R&D to assess the parameters that are likely to be achieved
 - s Emanuela gave an excellent review a few weeks ago
 - u HCC magnet R&D to assess the feasibility of this type of cooling channel and possibly to build a demonstration magnet for an HCC test section
 - u Open mid-plane dipole magnet R&D to assess the viability of this magnet type for the collider ring
 - s Greatly scaled back - mostly paper studies
 - u Very fast ramping normal-conducting magnets for the later stages of acceleration
 - s Small amount of effort/resources, but important to vet some of the basic tech issues
 - u Target - Capture Solenoid
 - s Again small amount of effort/resources to address some key tech issues

Targetry

- Targetry is not currently explicitly in the text of the MAP proposal under Technology Development, but under the ISD-NF
 - With the input from the MERIT experiment, the U.S. contribution to the ISD-NF in this area will be on more advanced simulations to set definitive benchmarks for the NF/MC target system
 - Make the next iteration on the facility design (following the ORNL/TM-2001/124 technical report) and to develop engineering details of component parts of the system such as the target solenoid
 - However, there is room for optimization
 - Splash mitigation in the mercury beam dump.
 - Possible drain of mercury out upstream end of magnets.
 - Downstream beam window.
 - Water-cooled tungsten-carbide shield of superconducting magnets.
 - HTS fabrication of the superconducting magnets.
 - Improved nozzle for delivery of Hg jet
 - -----
- This is an area where I feel we should increase our effort if funds become available. I give this High Priority

Absorbers

- No work on LH₂ (except what is being done within MICE)
- LiH work continues for MICE
 - Disk Absorber
 - Thinking about wedge - asked Y12 for a quote



Overall Effort & Likely available Resources

- With current guidance we are not likely going to be able to do even all the tasks we currently have on our "A" list
- RF Program will be highest priority
 - u We are ready to "take off"
 - s MTA is in excellent shape
 - s Box Cavity ready
 - s Refurbished Pillbox cavity soon @ Fermilab
 - s On Track for Beam in June
 - s Works progresses on Be-Wall Cavity Design