

50 MeV future plans

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Recap of the plan to date

- Back and forth historically over two possible ways to reach 50 MeV: a recirculating ring reusing the existing cryomodule, or a second cryomodule
 - Ring is cheaper but much more of an engineering challenge; second cryomodule is conceptually simple but expensive
- Current TRIUMF five year plan including the long shutdown made recirculating ring plan impossible: no engineering support for design
- Accelerator division pivoted to cryomodule proposal. Way to make it affordable would be to get the RF cavity from JLab on long term loan in exchange for knowledge and research cooperation
- Oliver, Michael, Bob, Richard et al have put considerable energy into conversation with JLab to make this happen
- Today we can say with certainty that the e-linac will add a new cryomodule we just don't know when.

Current status

- TRIUMF-JLab MOU approved on TRIUMF end, now with JLab. Anticipate success
- Once signed off, still need to do all of the cavity modifications at JLab before it makes its way up here
- At TRIUMF, components for vacuum tank purchased and planning is in place for the work
- But actual manufacturing has to wait for completion of LHC crab cavity project, which is a preexisting commitment, as well as completion of ARIEL to free up staff involved there
- Given work to be done at both JLab and TRIUMF, and today's date, goal of having the new module installed and running by early 2028 no longer appears feasible.
- No specific projected date at this point. We know it will happen but we do not know when.

Experiment readiness for 50 MeV

- Changes on our side to enable 50 MeV experiment are comparatively small, but still need planning. Include:
 - New target chamber with arms at ~ 21 degrees \rightarrow this is the most significant item
 - New stands for spectrometers; new stands for lead and detectors enabling them to be closer together
 - Upstream collimator, if we didn't do it for 30 (which we probably can't)
 - Any other modifications we know of already?
- Recall that according to our projections, the same PMQs will work for 30 and 50 MeV, so we don't need to modify those
- and ideally we will have already solved the shielding challenges

Next steps

- Propose we do the more affordable portions of the work as soon as the 30 MeV run is launched:
 - Design of the new components
 - TRIUMF project approval steps including design approvals so we are ready to build
- Proceed to actually pay for manufacturing of chamber, collimator, etc and/or purchase any equipment for detector & DAQ improvements only once we have a somewhat clearer idea of timeline and how it aligns with group funding
- Essentially: ready for action, but with minimal financial commitment