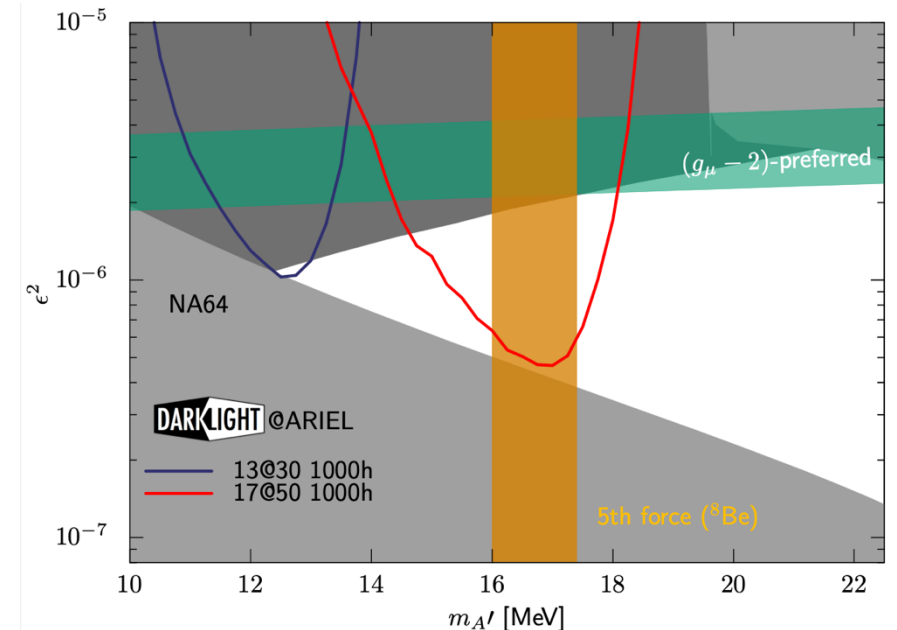
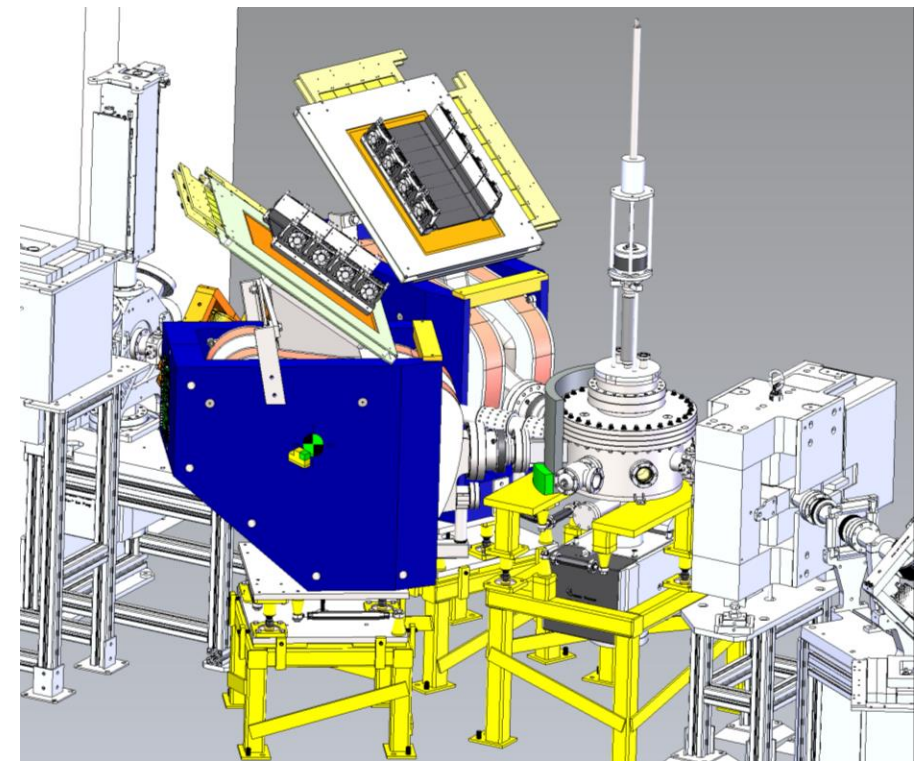


DarkLight @ ARIEL overview & timeline

- For new committee members: DarkLight is an approved experiment currently under construction at the ARIEL e-linac. It will search for new bosons with mass $\sim 10\text{-}20$ MeV decaying to e^+e^-
- Two running stages: 30 MeV and (following anticipated e-linac upgrade) 50 MeV
- Installation planned for early in new year, working around other shutdown job commitments
 - Depends on getting last few components on site, getting CNSC approval to proceed, and on e-linac being ready to host new experiment. Currently linac still requires beam development time before this is possible.
- 30 MeV run must happen before 2026 shutdown. 50 MeV run must happen immediately afterwards: upgrade must be handled during shutdown year.
 - Consequences of delay are being passed by rival experiments and a high likelihood of international collaborators losing funding.



Darklight @ ARIEL experiment status

- Design complete.
- Spectrometer magnets (MIT) arrived at TRIUMF and field mapping is in progress
- Target chamber required modifications; ongoing work by MIT/contractors. Will be vacuum tested before shipment to TRIUMF. Other vacuum chambers ready and tested.
- Trigger detector construction almost done (Gabby, Mike + SciTech); DAQ needs integration with tracking detectors
- Tracking detectors mechanically ready but readout needs development; ongoing (Hampton U., TRIUMF)
- Integration at TRIUMF (cabling, controls, power supplies, etc) ongoing
- Beamline components mostly available; still need collimator.



Spectrometer prepared for mapping

Further status and concerns

- TRIUMF reviews: ongoing
 - Technical reviews complete
 - Safety review completed; now making requested modifications to SAR before final document sign-off
 - Gate 2&3 scheduled before Christmas.
- CNSC approval status: understanding is that SAR will be discussed with them at upcoming site visit.
- Funding status: DarkLight received NSERC RTI grant to fund construction of recirculating ring for energy upgrade (April 2024).
 - Not possible to proceed with ring due to long shutdown plans. Instead, TRIUMF proposes to pivot to more expensive but less personnel-intensive plan for new cryomodule
 - DarkLight involved in discussions with JLab to try to help obtain cryomodule components. Visit/discussion scheduled early December
 - Pivoting to cryomodule plan will require NSERC approval for reallocation of RTI funds. This approval not yet requested since plan still in the air.