

DarkLight @ ARIEL Preliminary Installation

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DarkLight@ARIEL Collaboration Meeting

TRIUMF, July 10–12, 2024

July 11, 2024

Preparation of All Components

[GoogleDoc](#)



Preparation of MIT Components

Target System

- is here at TRIUMF, needs to be removed from the ARIEL beam line
- new targets need to be installed: 1 μm Ta, 1 μm C, and BeO screen
- needs cabling, EPICS controls

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TRIUMF/SBU

Scattering Chamber

- under vacuum at Bates, needs bellows to be installed and undergo final test

MIT

Spectrometer Magnets

- iron yoke and coils produced at Buckley, air freight to Bates
- needs some additional machining at Bates
- will be powered and tested at Bates

MIT

MIT



Preparation of MIT Components

Spectrometer Vacuum Chambers

- nearly completed by Ancorp in Florida, to be delivered to Bates
- trial installation in dipoles
- need final design for PEEK, machine PEEK
- 250 μm Al window tested to 4 bar
- vacuum test with PEEK, exit windows, and collimator

MIT

MIT

TRIUMF/MIT

MIT

MIT

Beamline

- need length and arrangement of PMQs for C and Ta options
- weld flanges with PMQs in place and test

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TRIUMF/MIT

Collaboration welcome to participate in tests

Aim to deliver everything to TRIUMF in September



Preparation of Hampton Components

GEM Detectors

- two working GEMs at TRIUMF, need to test with readout system
- two working GEMs at Hampton tested with readout system
- APVs, HDMI cables (on detector and to hut)
- detector support, cable support
- VME crate, MPD cards, LV and HV supplies and cables
- gas manifold, bubblers, gas lines to detector, TV monitor

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Hampton

Hampton

MIT

Hampton

Hampton/TRIUMF



Preparation of UBC Components

Trigger Scintillators

- two working detectors with SiPM readout
- distribution boards
- power supplies and cabling to hut
- detector support, distribution board mount

UBC

UBC

UBC

MIT



Preparation for Installation

Target System

- remove from current location on ARIEL beamline
- install new targets

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TRIUMF



Preparation for Installation

Target System

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If ARIEL is down? Do it now?

Before DarkLight installation remove all items currently there



Installation

Installation of MIT Components

- we are allowing ~ 3 weeks for installation
- engineer/technician, post-doc, graduate student, PRS

MIT

MIT

Will need lots of support from TRIUMF groups

- crane, alignment/survey, electrical, plumbing, cabling
- we would like to identify the group leader/contact for each
- we should meet with each, in advance, to schedule and coordinate

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TRIUMF

TRIUMF/MIT



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TRIUMF/MIT

If it is just Doug Preddy fine

But he will be very busy for those three weeks



After Installation

After main components are installed

- MIT may be very light on the ground at TRIUMF
- until commissioning

MIT



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Other groups will have to take responsibility for their installation

