

Carleton Technical Team (MRS Supported)

- For more than 20 years, the Carleton Technical Team has been contributing to subatomic physics via R&D, Testing, Large-Scale Assembly and Delivery, and Maintenance of particle detector systems for a variety of projects in Canada and around the world.
- The Carleton MRS is managed, in conjunction with the Victoria and Winnipeg MRS teams, by the local manager (Kevin Graham) working with a Prioritization Board. The Board is constituted from SAP researchers across Canada and requests for support are reviewed and approved by the Board. Board members also act as liaison to the community insuring that the community is aware of the available resources.

Personnel Supported

- **Machinist/Technician** - precision small parts fabrication, welding, vacuum/gas system cleaning and assembly, leak-checking,
- **Electronics Specialist and Electronics Technician**
 - analog and digital readout systems, power supplies, equipment certification, soldering, circuit design, cabling, system modeling and control
- **Designer** - 3-D modeling, concept development, detailed design drawings for fabrication (e.g. CNC), as-built drawings, FEA calculations
 - ⇒ working closely with CPARC and SNOLAB engineers based at Carleton

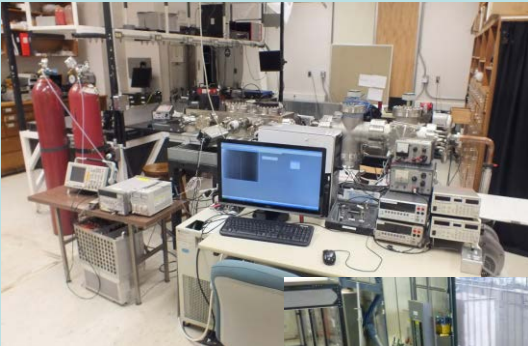
Carleton Technical Team

- Facilities and Equipment

- machine shop, electronics lab, clean rooms, vacuum and gas handling equipment (Swagelok, VCR, Conflat, KF, custom), electronics and DAQ (NIM, VME, LabView), silicon pixel telescope

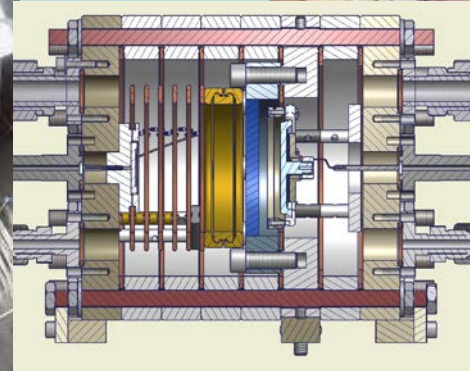
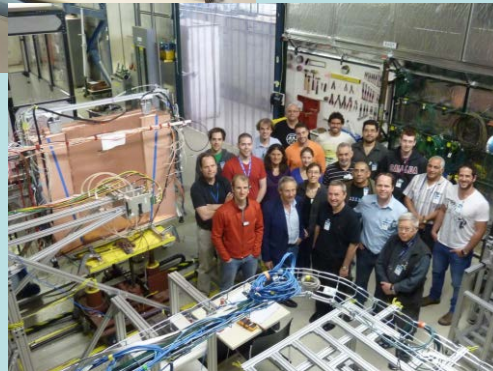
- Carleton Science and Technology Centre (STC) <https://carleton.ca/stc/>

- Selection of Previously Supported Projects



ARIEL
ATLAS (FCAL, sTGC, ITK)
EXO (EXO-200, nEXO)

DEAP
CUTE/NEWS
SNO+



University of Victoria

- Detector laboratory supporting projects for many years
 - S. de Jong (previously P.Poffenberger) started 2017
- Building expertise in FPGA development and programming
 - Current FPGA projects on for ATLAS liquid argon calorimeter and Belle II calorimeter
 - Previous projects included ALPHA, Ariel II
- Additional resources include clean room, vacuum test equipment, local machine shop, electronics shop and general laboratory space



Winnipeg NSERC SAP MRS Resource

For examples of past projects supported by David Ostapchuk see:
www.uwinnipeg.ca/physics/research/nserc-funded-sap-mrs-technician.html

- Technician: David Ostapchuk (MSc Physics)
- General detector fabrication support
 - Electronics PCB, simple machine work, 3D printing, laser cutting
 - Access to North Forge Fabrication Lab (www.northforge.ca)
 - Larger machined parts contracted out to local machine shops
- Resource allocated by UVic/Carleton/UWinnipeg allocation board

