



# The CPP+ MRS Facility Alberta-Toronto

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For the CPP+ MRS Group

# The IPP Notification

## CPP+ Major Resources Support Centre

*Based at the University of Alberta, with facilities also at the University of Toronto, the CPP+ MRS Centre is available to support SAP-NSERC funded projects. Our resources include: engineering design, precision machining of large pieces to micron tolerances, electro-erosion machining, hardware fabrication and installation, detector development, fast analog and digital electronic design and fabrication, ASIC design, radon free detector fabrication, low background measurement facilities, extensive data acquisition/simulation experience and a high energy X-ray radiation test facility.*

*Full details of the nature of available support is available on the CPP+ Major Resources Support Centre website and includes CPP+ MRS Experts as well as other facilities. Potential users who are members of the Canadian subatomic physics community are encouraged to apply to the **CPP+ Operating Committee** by filling in an **CPP+ online application form**.*

**CPP+ Operating committee (9): Alberta [Hallin, Krauss, Pinfold (Chair)], Queen's [Chen, Boulay, Noble], Regina [Huber], Toronto [Orr, Trischuk]**

# The CPP+ MRS Manpower Resources



*Richard Soluk*  
*MRS Detector technologist*

Access to 2  
Phys. Dept.  
Electronics  
techs  
at \$20/hr



*Paul Davis*  
*MRS Electronics Engineer*

Access to NINT techs at  
\$60/hr



Access to Engineering  
techs at \$60/hr

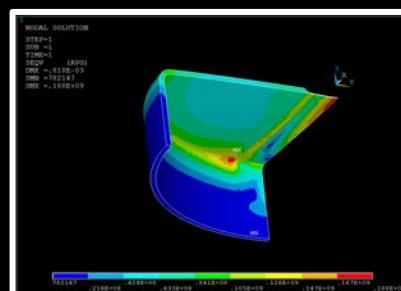


*Mircea Cadabaschi (uofT)*  
*MRS Engineer*

Access to 7 (4 UofA and 3  
UofT) Phys. Dept.  
Machinists at \$20/hr  
(UofA). ~\$60/hr at (UofT)



*Chris Ng*  
*MRS Engineer*



**Advanced Machining Facility + 15 ton crane**

**Uof A & UofT PD Machine shop with 8 comp. contr. machines**

**CAD + mech. & thermal FEA**

**Eng; Machine shop with electro-erosion & water jet**



**Radon free laboratory with machining fac's**



**High energy X-ray source**



**Low background Counting facility**



**Electronics shop with MENTOR CAD/sim**



**Clean assembly labs With fume cupboards**



**Glass blowing shop**

**Detector design,  
development,  
construction & Instal.**

**Machining to a few  
microns precision over  
2m with crane access**

**Machine shop capable of  
heavy construction and  
welding steel and al.**

**Cryo-detector  
design &  
construction**

**Design and  
fabrication of fast  
digital and analog  
electronics**

**Design &  
simulation of  
multi-layer boards  
and ASICs using  
MENTOR**

**FPGA programming  
and data acquisition  
Software prep.**

**X-ray accelerator for  
radiation testing. Radiation  
handling laboratory**

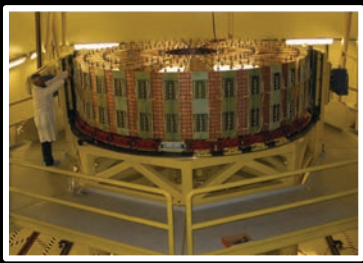
**Access to electro-  
erosion and water  
jet cutting.**

**Radon free clean  
lab. for machining  
and detector  
fabrication**

**Glass lowing and  
machining.**

**Low Background  
Counting Facility  
for qualification  
and monitoring**

**CPP+ MRS  
RESOURCE  
CAPABILITY**



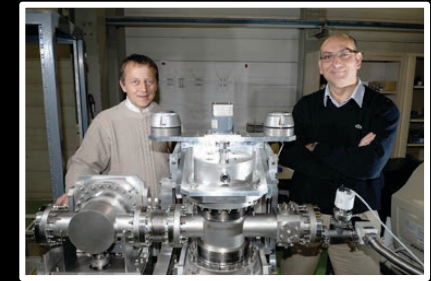
**ATLAS HEC. & Assembly table**



**ATLAS Forward Cal.**



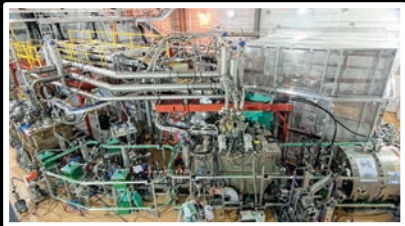
**ATLAS LUCID Lumi-monitor and 2015 upgrade**



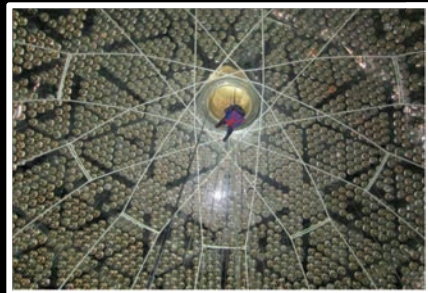
**ATLAS Forward Physics (AFP) upgrade**



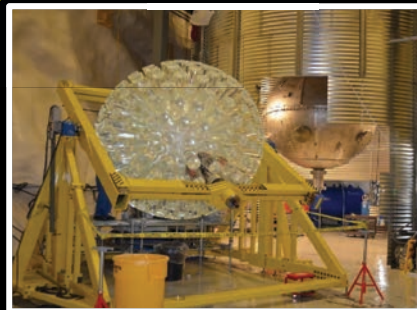
**MoEDAL-LHC detector**



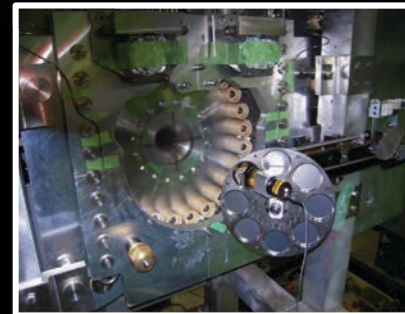
**ARIEL project at TRIUMF**



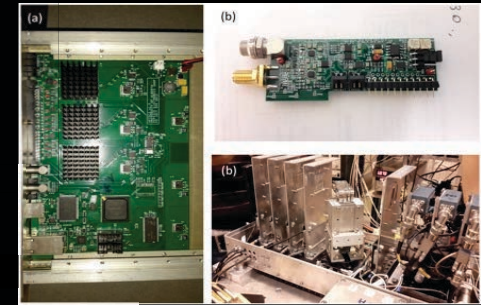
**SNO+ rope-net & water purification**



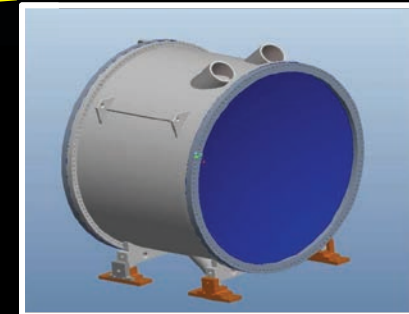
**DEAP acrylic vessel & light guides**



**T2K OTR. beam monitor**



**AFP picosecond time Electronics & HPTDC+ Development with CERN**



**Heavy Gas Cerenkov. Det. for SHMS @ JLab**

**CPP+MRS  
Detector  
development  
examples**

# Conclusion

- *The CPP+ resources has been maintained in one form or another for over 25 years*
- *The CPP+ MRS resource has full capability “one stop shopping” resource for NSERC-SAP users*
- *We can help you develop detector mechanics, electronics, DAQ for your detector whether with low natural backgrounds or not.*
- *Please visit us at the IPP site:*  
<http://www.ipp.ca/sapmrs/index.shtml>
- *Or at the website of the Canadian Institute of Nuclear Physics*  
<http://cinp.phys.uregina.ca/node/175>