

TuePE20

A Negative Ion Source Test Facility

S. Melanson¹, S. Brown², B. Coad², M. Dehnel*¹, P. Jackle¹, T. Jones², C. Hollinger¹, J. Martin¹,
C. Philpott², D. Potkins¹, T. Stewart¹, J. Theroux¹, P. Williams², S. Withington¹

1. D-Pace Inc., Nelson BC, Canada

2. Buckley Systems Ltd, Auckland, New Zealand

**Corresponding author: morgan@d-pace.com*

Progress is being made in the development of an Ion Source Test Facility (ISTF) by D-Pace Inc. in collaboration with Buckley Systems Ltd in Auckland NZ. The project is planned in two phases, with the first phase schedule to be completed by October 2015. The ISTF will have multiple purposes. It will primarily be used for the development and commercialization of ion sources. D-Pace Inc. licensed from the University of Jyvaskyla a CW 13.56MHz RF H⁻ 30 keV Volume-Cusp ion source with the goal to increase the current from 1 mA to 5 mA DC. We expect to test the first model by early 2016. We also plan to further improve D-Pace's TRIUMF licensed filament powered H⁻ DC Volume-Cusp 15 mA, 30 keV ion source to 20-25 mA. Thirdly, D-Pace Inc. plans to investigate the production of exotic negative ion beams such as C⁻. The ISTF will also be used to characterize and further develop various D-Pace Inc. products under development. This includes TRIUMF licensed devices such as an emittance/phase space scanner, wire scanner, sliding slit Faraday Cups, slits, collimators; and D-Pace devices such as AC raster scanning magnets, scintillator based beam profile monitors and low energy transport (LEBT) systems. The ISTF will also be used to factory acceptance test ion sources and beam diagnostics devices before shipment to customers. Finally, an analyzer permits energy spectrum measurements to be made or mass spectrometer measurements. Collaborative R&D or independent 3rd party experiments would be possible. The first phase of the ISTF, schedule to be commissioned in August 2015, will incorporate a single faraday cage and ion source bay for the developing the RF and filament powered volume cusp sources. Analysis equipment will include a single vacuum box with ports for emittance/phase space scanner, wire scanner and faraday cup. The second phase, schedule to be commissioned August 2016, will see a 1:1000 Analyzer/Spectrometer System added to the ISTF.