

## Initial Tests for the New 5MV Accelerator

A major equipment upgrade at the University of Notre Dame's Nuclear Science Laboratory, has recently seen the installation of the new Stable beam Accelerator for Nuclear Astrophysics (St. ANA). The new 5MV vertical accelerator and ECR ions source (electron cyclotron resonance) will provide high intensity heavy ion beams for experiments with the St. George recoil mass separator.

The accelerator installation was finalized in March 2012, when first testing and commissioning began. The accelerator "shake down" and acceptance tests were completed in January 2013, with the final hand over of machine operations.

Current development tests are being performed to expand the variety and intensity of beams available. As well as measuring beam energy resolution and long term beam energy stability.



*Inside the accelerator, as seen from the upper access way. The moveable maintenance platform can be seen in position at bottom of picture.*

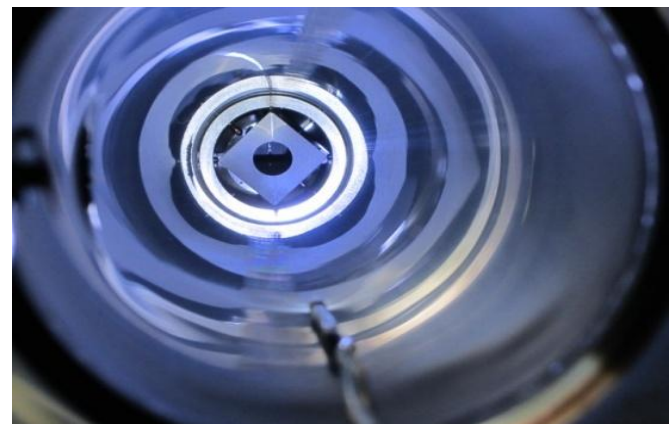
| <b>Ion of interest</b>         | <b>Beam Intensity</b> | <b>Machine Voltage</b> |
|--------------------------------|-----------------------|------------------------|
| He <sup>+</sup>                | 100 eμA               | 4.4 MV                 |
| <sup>40</sup> Ar <sup>2+</sup> | 45 eμA                | 4.3 MV                 |
| H                              | 180 eμA               | 4.0 MV                 |
| H <sub>2</sub>                 | 60 eμA                | 0.5 MV                 |
| H                              | 100 eμA               | 0.3 MV                 |

*Selection of beams, intensities and voltages currently tested at the Nuclear Science Laboratory.*

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*Beamline view as seen by accelerated particles after magnetic selection.*