

# The Centre for Accelerator Science at ANSTO, Sydney, Australia

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The Australian Nuclear Science and Technology Organisation (ANSTO) has a long history of running linear positive ion accelerators to complement its nuclear reactor research program. The first accelerator was a 3 MV Van de Graaff accelerator arriving at ANSTO in January 1964 from High Voltage Engineering Corporation (HVEC) in the USA. This machine was purchased for fast neutron cross section and capture studies, the study of subcritical assemblies using pulsed neutrons, gamma free neutron dosimetry and health physics research. By 1970 this accelerator had a national reputation, the number of separate beamlines had increased to 10 and the accelerator was operating over 6,000 hours a year running experiments driven by internal research as well as major groups of external users from most of the 25 universities around Australia.

By the mid 1980's the applied research program, using the accelerator had expanded to the point where new and more diverse accelerators were required to fill the ever increasing demand both nationally and internationally. In 1989 ANSTO acquired a second hand 10MV HVEC FN tandem from Rutgers in the USA to fill this expanding demand for ion beam analysis (IBA) and accelerator mass spectrometry (AMS) research. Then in October 2002, ANSTO purchased another 2MV Tandatron from HVE to meet the increasing IBA and AMS requirements and to replace the now aging 3MV Van de Graff accelerator. The national need for access to accelerators for applied research continues to grow within Australia and in May 2009 the Federal Government allocated a further 25M to ANSTO for accelerator research. This enabled ANSTO to build and develop its new 38M Centre for Accelerator Science (CAS). CAS now has four accelerators, a 1MV, 2MV, 6MV and 10MV accelerators for applied research focused on environmental, materials and life science research.

Here we will discuss, in detail, the performance indicators and figures of merit for these accelerators and how they have changed with time in response to external demands.

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