



Accelerator Mass Spectrometry Group

The AMS group was formed in early 2003 with the arrival of Professor. Philippe Collon from the Lamont-Doherty Earth Observatory of Columbia University. The development of a new AMS program at Notre Dame, centred on the renovation and upgrade of a previously installed Browne-Buechner spectrograph.

The Institute for Structure and Nuclear Astrophysics at the University of Notre Dame installed its Browne-Buechner spectrograph in the early 1970's for highly accurate energy measurements of nuclear reactions. Recent renovation and upgrading of this spectrograph has enabled operation of the magnet in a gas-filled mode, a very useful technique in isobar separation, in particular for the study of nuclear reactions with low cross-sections of interest in nuclear astrophysics. One of the principle issues shared by measurements of extremely low abundances in AMS and nuclear astrophysics is the discrimination between the nuclei of interest and often very intense isobaric background.

In comparison to conventional counting methods, AMS provides a highly powerful counting technique which is totally independent of a radioisotope's half-life, of great importance in the measurement of astrophysical reactions. Whereas prompt γ -counting is still successful in most cases, AMS can provide a different approach removing any uncertainty associated with the detailed knowledge of the branching ratios in the gamma cascade or where there is a lack of γ 's in the decay scheme.



From left: Pat Engel (UG), Steve Kurtz (UG), Daniel Robertson (GS), Chris Schmitt (GS), Angelo Signoracci (UG), Tristan Butterfield (UG). Front: Philippe Collon (Assistant Professor)

Group Members

The group presently consists of 1 Professor (P. Collon) and 2 Graduate Students (D. Robertson and C. Schmitt). The group is not solely active in graduate research but has a significant and active undergraduate research program, with between 5 and 10 undergraduate research projects at any one time. Including a yearly intake of 2 REU students for summer research projects.

Current Students

Daniel Robertson (Graduate Student)
Chris Schmitt (Graduate Student)
John Biddle (Class of 08)
Brian Walsh (Class of 08)
Laura Cass (Class of 09)
Scott Feister (Class of 09)
Stanley Stryker (Class of 09)
Steve Kurtz (Class of 07)
Patrick Brown (Class of 09)
Thomas Rehagen (Class of 09)

Previous Students

Notre Dame Graduates	Previous REU's
A. Signoracci (Class of 06)	J. Cohen (2006)
P. Engel (Class of 06)	A. Jackson (2006)
G. Hsu (Class of 06)	R. Meharchand (2005)
T. Butterfield (Class of 06)	T. Butterfield (2005)
	G. Hsu (2004)
	Bethany (2004)



Renovated Browne-Buechner Spectrograph