

Woods Hole Oceanographic Institution

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NOSAMS NATIONAL OCEAN SCIENCES
ACCELERATOR MASS SPECTROMETRY

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Developments

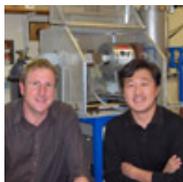


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[Development of a Continuous-Flow AMS System](#)

Under a NSF Major Research Instrumentation (MRI) award, NOSAMS has built a new AMS system designed monitoring ^{14}C in a flowing gas stream. The instrument is capable of continuously analyzing chromatographic abundance of ^{14}C in individual chromatographic peaks. This system will enable a dramatic expansion of sign lines of inquiry including: (i) surveys of the distribution of radiocarbon among natural products and thus of the quantification of ^{14}C tracers at extraordinary levels of dilution, and (iii) sensitive recognition of fossil-fuel-deriv by exploiting their zero content of ^{14}C as a 'negative label'. [More »](#)

Image Caption: Mark Roberts Staff Physicist assembles the gas-ion source at the 0° port.



[Development of a Gas-Ion Source](#)

NOSAMS has been exploring the capabilities of a gas-accepting microwave ion source originally built at the / River Laboratories. The source uses 2.45 GHz microwaves and a continuously flowing stream of argon gas to containing gases mixed into the argon yield C^+ ions that can be extracted as an ion beam. Negative ions are through a magnesium charge-exchange canal. Initial success with this ion source has led to the design of a n

Image caption: Albert Benthien and Baoxi Han Post-docs 2004 with the gas-ion source.



[Collaborative Efforts to Improve NEC Ion Source](#)

WHOI/NOSAMS) is underway to improve the design of Cs-sputter ion sources manufactured by NEC and cur labs. The NSF-sponsored collaboration is supported for the two-year period beginning in August, 2003. [More](#)

Image caption: Karl von Reden, staff physicist, works on the NEC ion source.



[Development of Carbon Stripper Foils](#)

Over the last decade, research on single-walled carbon nanotubes (cylindrical closed structures of graphitic c revealed remarkable properties: high electric and thermal conductivity and tensile strength far exceeding that Reden and Enid Sichel to the idea of developing a durable carbon nanotube foil for electron stripping in accel (AMS). The idea is to create thin mats of nanofibers into a mesh configuration that would perform like a “froze atoms largely stationary under ion beam bombardment and minimizing the structural damage known to occur [More »](#)

Image caption: Enid Sichel Adjunct Scientist & Karl von Reden examine a nanotube foil with an atomic force i

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