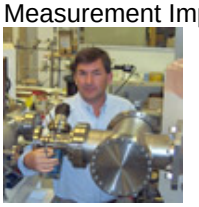
Research
Client Research
Measurement Improvements
Research Programs
Staff & Research

Measurement Improvements



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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 14C in a flowing gas stream. The instrument is capable of continuously analyzing chromatographi abundance of 14C 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 14C tracers at extraordinary levels of dilution, and (*iii*) sensitive recognition of fossil-fuel-deriv by exploiting their zero content of 14C as a 'negative label'.

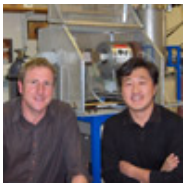

Image Caption: Mark Roberts Staff Physicist assembles the gas-ion source at the 0º port.

Development of a Gas-Ion Source

NOSAMS has been exploring the capabilities of a gas-accepting microwave ion source originally built at the A River Laboratories. The source uses 2.45 GHz microwaves and a continuously flowing stream of argon gas t 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

A collaborative research effort involving National Electrostatics Corp. (NEC) and three AMS laboratories (UC WHOI/NOSAMS) is underway to improve the design of Cs-sputter ion sources manufactured by NEC and cu labs. The NSF-sponsored collaboration is supported for the two-year period beginning in August, 2003.

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
films.<br /.

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

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