



# Radioactive Nuclear Beam Experiments



## Graham F. Peaslee

Chemistry and  
Geology/Environmental Science

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### Education and experiences

Ph.D., State University of New York (1987)

A.B., Princeton University (1981)

Hope College, Associate Professor (1994-)

### Areas of expertise

Nuclear Chemistry, Environmental Chemistry

### Grants and awards

NSF-RUI: Multifaceted Opportunities in Nuclear Physics for Undergraduates at Hope College (2004-2006)

NSF MRI/RUI: Acquisition of a Nuclear Microprobe System for Interdisciplinary Research and the Integration of Research and Undergraduate Education at Hope College (2003-2005)

NSF-MRI: Acquisition of an ICP for environmental metals analysis for undergraduate training (2001-2003)

"Stakeholder of the Year" award from Macatawa Watershed Project (2005)

"Hope Outstanding Professor Educator" (H.O.P.E.) award (2000)

### Recent publications

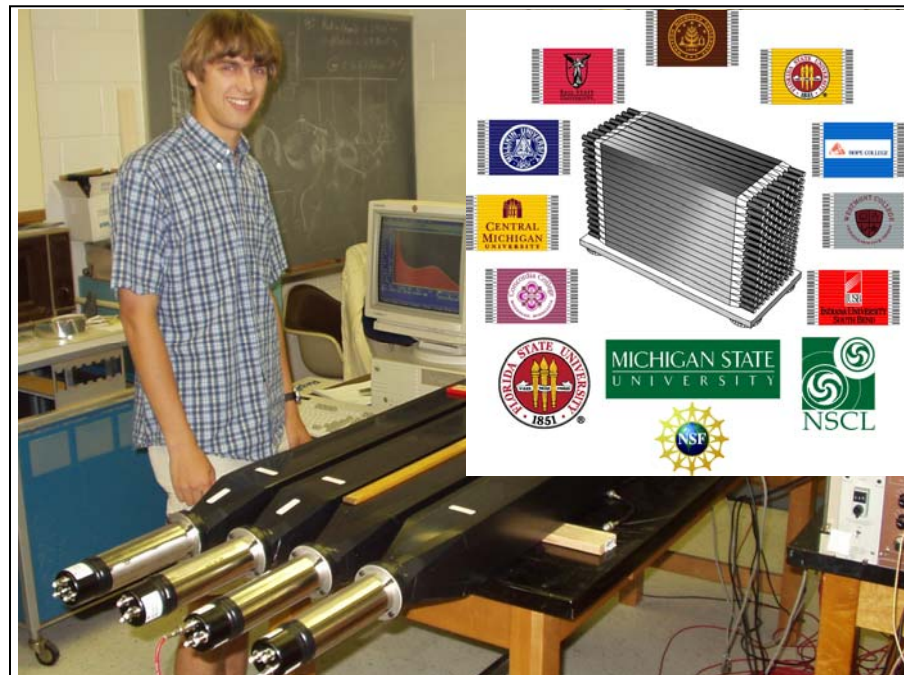
P. Boutachkov, et al., "Doppler Shift as a Tool for Studies of Isobaric Analog States of Neutron-Rich Nuclei: Application to  ${}^7\text{He}$ ", *Phys. Rev. Lett.* **95**, 132502 (2005).

R.H. Howes, et al., "Fabrication of a modular neutron array: A collaborative approach to undergraduate research", *Am. J. Phys.* **73**, 122 (2005).

G.V. Rogachev, et al., "Isobaric analog states as a tool for spectroscopy of exotic nuclei", *Nucl. Instrum. Methods Phys. Res.* **B241**, 977 (2005).

P.A. DeYoung, et al., "Two-neutron transfer in the  ${}^6\text{He} + {}^{209}\text{Bi}$  reaction near the Coulomb barrier", *Phys. Rev.* **C71**, 051601 (2005).

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The Hope College Nuclear Group uses state-of-the-art nuclear physics techniques to characterize short-lived radioactive nuclei created with the newest generation of radioactive nuclear beam facilities. For example, experiments have recently been performed at the Nuclear Structure Laboratory at the University of Notre Dame involving radioactive nuclear beam studies of  ${}^7\text{Be}$  projectiles on  ${}^{12}\text{C}$  targets. Undergraduates were involved in every aspect of detector fabrication and set-up, data taking and analysis and eventual publication. The alpha-transfer reactions of this reaction will lead to new insights into the single most important uncertainty remaining in helium-burning process in stars. We are also important collaborators in the construction and operation of the MOdular Neutron Array (MONA) at the National Superconducting Cyclotron Laboratory at Michigan State University.