

Balazs J. Bene



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Biography

Balazs Bene is a 5th year student in the UNLV Radiochemistry PhD Program. He received his Master of Science in Chemical Engineering in 2008 from Budapest University of Technology and Economics.

Research

Chromatographic Separation of Neighboring Lanthanides for Neutron Capture Measurements

The National Nuclear Security Administration cites the “investigation leading to greater accuracy in the knowledge of low energy cross sections for stable and unstable nuclei and corresponding reaction rates for neutron-, γ - and ion-induced reactions” as one of the major research areas in nuclear science. One of these unstable nuclei of interest is Tm-171, which can be produced through neutron capture on Er-170 followed by beta decay. Tm-171 together with Pm-147 are branching points in the stellar nucleosynthesis. In order to perform cross section measurements on Tm-171 and Pm-147, milligram amounts need to be separated from an irradiated erbium or neodymium target respectively. A highly efficient and very selective separation based on liquid chromatographic methods is currently under development to separate these neighboring lanthanides

Publications, Presentations and Awards

Scale-up of Erbium and Thulium Separation for ¹⁷¹Tm Production

245th ACS National Meeting & Exposition
New Orleans, Louisiana 2013

Chromatographic Separation of Erbium and Thulium for Neutron Capture Cross Section Measurements

9th International Conference on Methods and Applications of Radioanalytical Chemistry
Kailua-Kona, Hawaii 2012

Best Paper in Radiochemistry:

*Preparative Scale Separation of Tm and Er for Neutron Capture Cross-section
Measurement* 2014 ANS Student Conference
State College, Pennsylvania 2014

1st place:

Scale-up of Erbium and Thulium Separation by Cation Exchange Chromatography
7th Annual Interdisciplinary Research & Scholarship Day
UNLV Division of Health Sciences
Las Vegas, Nevada 2014