

## Richard E. Barrans Jr.

### List of publications

#### Articles in Refereed Journals

“A Process for the Separation of  $^{177}\text{Lu}$  from Neutron Irradiated  $^{176}\text{Yb}$  Targets,” Horwitz, E. P.; McAlister, D. R.; Bond, A. H.; Barrans, R. E.; Williamson, J. M. *Appl. Radiat. Isot.*, **2005**, *63*, 23–36.

“Novel Extraction Chromatographic Resins Based on Tetraalkyldiglycolamides: Characterization and Potential Applications,” Horwitz, E. P.; McAlister, D. R.; Bond, A. H.; Barrans, R. E. Jr. *Solvent Extr. Ion Exch.* **2005**, *23*, 319–344.

“Synthesis and Characterization of *P, P'*-Di-[3-(trimethylsilyl)-1propylene] Alkylenediphosphonic Acids,” Griffith-Dzielawa, J. A.; Barrans, R. E. Jr.; McAlister, D. R.; Dietz, M. L.; Herlinger, A. W. *Synth. Commun.* **2000**, *30*, 2121–2132.

“Hydrogen Bonding in Aggregates of Dialkyl-Substituted Diphosphonic Acids and Monofunctional Analogues,” Barrans, R. E. Jr.; McAlister, D.; Herlinger, A. W.; Chiarizia, R.; Ferraro, J. R. *Solvent Extr. Ion Exch.* **1999**, *17*, 1195–1217.

“High Yield Synthesis of Tetraethyl Alkylene-Diphosphonates *via* the Michelis-Arbuzov Reaction,” Griffith, J. A.; McCauley, D. J.; Barrans, R. E. Jr.; Herlinger, A. W. *Synth. Commun.* **1998**, *28*, 4317–4323.

“Circular Dichroism Studies of Molecular Recognition with Cyclophane Hosts in Aqueous Media,” Forman, J. E.; Barrans, R. E. Jr.; Dougherty, D. A. *J. Am. Chem. Soc.* **1995**, *117*, 9213–9228.

“An Improved Method for Determining Bimolecular Association Constants from NMR Titration Experiments,” Barrans, R. E. Jr.; Dougherty, D. A. *Supramol. Chem.* **1994**, *4*, 121–130.

“Biomimetic Catalysis of an  $\text{S}_{\text{N}}2$  Reaction Resulting from a Novel Form of Transition State Stabilization,” Stauffer, D. A.; Barrans, R. E. Jr.; Dougherty, D. A. *Angew. Chem. Int. Ed. Engl.*, **1990**, *29*, 915–918.

“Concerning the Thermodynamics of Molecular Recognition in Aqueous and Organic Media. Evidence for Significant Heat Capacity Effects,” Stauffer, D. A.; Barrans, R. E. Jr.; Dougherty, D. A. *J. Org. Chem.* **1990**, *55*, 2762–2767.

“‘Hydrophobic’ Binding of Water-Soluble Guests by High-Symmetry, Chiral Hosts. An Electron-Rich Receptor Site with a General Affinity for Quaternary Ammonium Compounds and Electron-Deficient *p* Systems,” Petti, M. A.; Shepodd, T. J.; Barrans, R. E. Jr.; Dougherty, D. A. *J. Am. Chem. Soc.* **1988**, *110*, 6825–6840.

“Calcium in Liquid Ammonia for the Reduction of Benzyl Ethers. Mechanistic Clues Derived from Chemoselectivity Studies,” Hwu, J. R.; Chua, V.; Schroeder, J.; Barrans, R. E. Jr.; Khoudary, K. P.; Wang, N.; Wetzel, J. M. *J. Org. Chem.* **1986**, *51*, 4731–4733.

**Book Chapters**

“Selective Extraction of Trivalent Actinides from Lanthanides with Dithiophosphinic Acids and Tributylphosphate,” Jarvinen, G.; Barrans, R. E. Jr.; Schroeder, N.; Wade, K.; Jones, M.; Smith, B. F.; Mills, J.; Howard, G.; Freiser, H.; Muralidharan, S. In *f-Elements Separations*, Nash, K. L.; Choppin, G. R., Eds.; Plenum: New York, 1995.

**Patents**

“Multivalent Metal Ion Extraction Using Diglycolamide-Coated Particles,” Horwitz, E. P., Barrans, R. E. Jr., Bond, A. H. U.S. Pat. 7 157 022, 2007.

“Purification of 4,4'(5')- di-t-Butylcyclohexano-18-Crown-6,” Bond, A. H.; Barrans, R. E.; Horwitz, E. P. U.S. Pat. 7 091 338, 2006.

“A Composition and Process for Separating Cesium Ion from an Acidic Aqueous Solution Also Containing Other Ions,” Dietz, M. L.; Horwitz, E. P.; Bartsch, R. A.; Barrans, R. E. Jr.; Rausch, D. J. U.S. Pat. 5 888 398, 1999.

**Oral Presentations**

“A Surprisingly Cesium-Selective Crown Ether-Based Extractant,” Barrans, R. E. Jr.; Dietz, M. L.; Rausch, D. J.; Huber, V. J., 219<sup>th</sup> National Meeting of the American Chemical Society, San Francisco, CA, 27 March 2000.

“The Curious Case of Crown 100: On the Trail of a Selective Cesium Extractant,” Chemistry Division Monday Morning Seminar at Argonne National Laboratory, Argonne, IL, 25 October 1999.

“The Curious Case of Crown 100,” invited seminar at Loyola University of Chicago, Chicago, IL, 16 September 1999.

“Advanced Integrated Solvent Extraction and Ion Exchange Systems,” Dietz, M. L.; Horwitz, E. P.; Chiarizia, R.; Barrans, R. E. Jr., Efficient Separations and Processing Crosscutting Program Technical Exchange Meeting, Augusta, GA, 17-19 March 1998.

“Acid Treatment of Hydroxyalkylbenzo Crown Ethers. Toward Improved Extractants for Cesium from Acidic Nitrate Media,” Barrans, R. E. Jr.; Dietz, M. L.; Jensen, M. P.; Rhoads, S.; Rausch, D. J.; Horwitz, E. P. 213<sup>th</sup> National Meeting of the American Chemical Society, San Francisco, CA; 15 April 1997.

**Poster Presentations**

“Conformational Effects in Cesium Ion Coordination to a Bis-18-Crown-6 Ether,” Barrans, R. E. Jr.; Huber, V. J.; Rausch, D. J.; Cullen, C. H. 219<sup>th</sup> National Meeting of the American Chemical Society, San Francisco, CA, 26 March 2000.

“Synthesis of Supercritical Carbon Dioxide-Soluble Methylene-diphosphonic Acids for Metal-Ion Extraction,” Dzielawa, J. A.; Rubas, A. V.; Barrans, R. E. Jr.; Herlinger, A. W.; Dietz, M. L. 219<sup>th</sup> National Meeting of the American Chemical Society, San Francisco, CA, 26 March 2000.

“Functionalized Diphosphonic Acid Ligands for Metal Ion Coordination in Supercritical Carbon Dioxide,” Herlinger, A. W.; Griffith, J. A.; McAlister, D. R.; Barrans, R. E. Jr. 218<sup>th</sup> National Meeting of the American Chemical Society, New Orleans, LA, 22 August 1999.

“Silicone-Functionalized Diphosphonic Acid Ligands for Metal Coordination in Supercritical Carbon Dioxide,” Barrans, R. E. Jr.; Griffith, J. A.; Herlinger, A. W. 217<sup>th</sup> National Meeting of the American Chemical Society, Anaheim, CA, 21 March 1999.

“Formation of Diethanolamine Boronates in Aqueous Solution,” Barrans, R. E. Jr.; Casadio, C. 216<sup>th</sup> National Meeting of the American Chemical Society, Boston, MA, 23 August 1998.

“Synthesis and Reactivity of Tetraethyl Alkylenediphosphonates,” Griffith, J. A.; Herlinger, A. W.; Barrans, R. E. Jr. 31<sup>st</sup> American Chemical Society Great Lakes Regional Meeting, Milwaukee, WI, 1–3 June 1998.

“Monitoring the Degree of Complexation of a Polyelectrolyte,” Mullen, K. I.; Barrans, R. E. Jr.; Soran, P. D.; Neal, E. E.; Smith, B. F. 207<sup>th</sup> National Meeting of the American Chemical Society, San Diego, CA; 13 March 1994.