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Oak Ridge National Laboratory
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Education

Rollins College, Winter Park, FL
B.A. Chemistry ACS Certified 1996

Valencia Community College, Orlando, FL
A.A. Honors Degree 1994

Research Interests/Current Activities

Plant Metabolomics; organic synthesis; separations chemistry; instrumentation including GC/MS and NMR

Experience

February 2005 to present
Plant Biochemistry Technician, Environmental Sciences Division,
Oak Ridge National Laboratory, Oak Ridge, TN

February 1998 to December 2004
Contract Chemist, Chemical Sciences Division,
Oak Ridge National Laboratory, Oak Ridge, TN
Organic synthesis, separations, purification, and analyzation and characterization of novel organic compounds utilizing column chromatography, liquid-liquid extraction, crystallization, distillation, preparative TLC, GC, NMR, and ICP

August 1994-May 1996
General and Organic Chemistry Laboratory Assistant, Rollins College
Winter, Park, FL
Undergraduate laboratory experiment preparations and supervision, and assistance with undergraduate lab students

1995-1996
Independent Senior Student Research, Rollins College
Winter, Park, FL
Isolation, purification, and characterization of the iron siderophores produced by the biocontrol soil fungus *Trichoderma viride* ATCC 52440

Summer 1995

National Science Foundation Undergraduate Research Fellow, Chemistry
Department, University of Tennessee, Knoxville

Temperature dependence of the endo/exo product ratios of Lewis Acid catalyzed Diels-Alder reactions and the reaction product ratios

Publications

Custelcean, R., N.L. **Engle**, P.V. Bonnesen. Crystalline hydrogen-bonded nanocolumns of cyclic thiourea octamers. *CrystEngComm*, 2007, **9**, 452-455.

Delmau, L.H., P.V. Bonnesen, N.L. **Engle**, T.J. Haverlock, F.V. Sloop Jr., B.A. Moyer. Combined Extraction of Cesium and Strontium from Alkaline Nitrate Solutions. *Solvent Extr. Ion Exch.* 2006, *24* (2), 197-225.

Kang, H-A, N.L. **Engle**, P.V. Bonnesen, L.H. Delmau, T.J. Haverlock, B.A. Moyer. An Equilibrium Model of Pseudo-Hydroxide Extraction in the Separation of Sodium Hydroxide from Aqueous Solutions Using Lipophilic Fluorinated Alcohols and Phenols. *Sep. Sci. Technol.*, 2005, **40** (1-2), 725-738.

Engle, N.L., P.V. Bonnesen, B.A. Tomkins, T.J. Haverlock, B.A. Moyer. Synthesis and Properties of Calix[4]arene-bis[4-(2-ethylhexyl)benzo-crown-6], A Cesium Extractant With Improved Solubility. *Solvent Extr. Ion Exch.*, **22** (4), 611-636, 2004.

Gorbunova, M.G., P.V. Bonnesen, N.L. **Engle**, E. Bazelaire, L.H. Delmau, B.A. Moyer. New amino-functionalized 1,3-altenate calix[4]arene bis- and mono-(benzo-crown-6 ethers) for pH-switched cesium nitrate extraction. *Tetrahedron Letters*, **44** (2003), 5397-5401.

Sachleben, R.A., J.C. Bryan, G.M. Brown, R. Dabestani, N.L. **Engle**, T.J. Haverlock, B.P. Hay, H.-F. Ji, A. Urvoas, B.A. Moyer. Rational Design of Cesium-Selective Ionophores and Chemosensors: Dihydroxycalix[4]arene Crown-6 Ethers. *European J. Org. Chem.*, 2003, 4862-4869.

Bonnesen, P.V., F.V. Sloop Jr., F. V., N.L. **Engle**, Stability of the Caustic-Side Solvent Extraction (CSSX) Process Solvent: Effect of High Nitrate on Solvent Nitration. ORNL Report ORNL/TM-2002/115, Oak Ridge National Laboratory, Oak Ridge, TN, July 2002.

Bryan, J.C., N.L. **Engle**, R.A. Sachleben. Synthesis and Structure of Dihydrocalix[4]arenes Bearing O-benzonitrile and O-acetyl Substituents. *J. Chem. Crystallogr.* **32**(1-2), 33-38 (2002).

Chambliss, C.K., T.J. Haverlock, P.V. Bonnesen, N.L. **Engle**, B.A. Moyer. Selective Separation of Hydroxide from Alkaline Media by Liquid-Liquid Extraction with Weak Hydroxy Acids. *Environ. Sci. Technol.* **36**, 1861-1867 (2002).

Bryan, J.C., N.L. **Engle**, R.A. Sachleben, B.P. Hay. Tribenzo-18-crown-6 Acetonitrile Solvate. *Acta Crystallogr.* **C57**, 1359-1360 (2001).

Duchemin, C.R., N.L. **Engle**, P.V. Bonnesen, T.J. Haverlock, L.H. Delmau, B.A. Moyer. Solvatochromic Solvent Polarity Measurements of Alcohol Solvent Modifiers and Correlation with Cesium Extraction Strength. *Solvent Extr. Ion Exch.* **19**(6), 1037-1058 (2001).

Bonnesen, P.V., T.J. Haverlock, N.L. **Engle**, R.A. Sachleben, B.A. Moyer. Development of Process Chemistry for the Removal of Cesium from Acidic Nuclear Waste by Calix[4]arene-Crown-6 Ethers. *In Calixarene Molecules for Separations*, G. J. Lumetta, R. D. Rogers, and A. S. Gopalan, Eds., ACS Symposium Series, Vol. 757, American Chemical Society, Washington, D. C., 2000; Chap. 3, pp. 26-44.

Delmau, L.H., J.C. Bryan, B.P. Hay, N.L. **Engle**, R.A. Sachleben, B.A. Moyer. Benzyl Phenol Derivatives: Extraction Properties of Calixarene Fragments. *In Calixarene Molecules for Separations*, G. J. Lumetta, R. D. Rogers, and A. S. Gopalan, Eds., ACS Symposium Series, Vol. 757, American Chemical Society, Washington, D. C., 2000; Chap. 7, pp. 86-106.