

## CURRICULUM VITAE

**Neville G. Pinto**

### PROFESSIONAL POSITIONS

Sept. 2011 – Present	Dean, J.B. Speed School of Engineering Professor of Chemical Engineering University of Louisville, Louisville, Kentucky
2006 – 2011	Vice Provost & Dean of the Graduate School University of Cincinnati, Cincinnati, Ohio
2005- 2006	Interim Associate University Dean of the Graduate School University of Cincinnati
2002-2006	Assistant Dean for Graduate Studies College of Engineering, University of Cincinnati
1993-1997	Department Head, Chemical Engineering University of Cincinnati
1985-2011	Professor of Chemical Engineering, University of Cincinnati (Assistant Professor, 1985-91; Associate Professor 1991-97)
1996-2002	Adjunct Professor of Chemistry Kent State University, Kent, Ohio

### EDUCATION

#### ***PhD in Chemical Engineering***

The Pennsylvania State University, University Park – 1985

*Dissertation: Development of a Model for Prediction of Diffusion Coefficients in Electrolyte Solutions and Ion Exchangers. Adviser – E. Earl Graham*

#### ***M.S. in Chemical Engineering***

The Pennsylvania State University, University Park – 1982

*Thesis: High Temperature Vapor Phase Deposition Studies of Organic Liquid Lubricants. Adviser E. Erwin Klaus*

#### ***B.Tech. in Chemical Engineering***

Indian Institute of Technology, New Delhi, India – 1980

## **ADMINISTRATIVE EXPERIENCE**

### **A. University of Louisville**

#### ***Dean of the J.B. Speed School of Engineering (2011 – present)***

Administrative head and academic leader for the School of Engineering. The School has an enrollment of approximately 1500 undergraduates and 500 graduate students, supported by over 100 faculty and 200 staff. Major responsibilities include: administering the School's bachelor's, master's and doctoral programs and its research portfolio; providing financial oversight for an annual budget of approximately \$50M; leadership in strategic planning and implementation; fundraising; and advocacy at regional, state and federal levels.

### **B. University of Cincinnati**

#### ***Vice Provost & Dean of the Graduate School (2006 –2011)***

Overall leadership for graduate education at the University of Cincinnati, and member of the Provost's executive team with responsibility for academic planning, budgeting, enrollment and retention management, promotion and tenure review, program assessment, fundraising and diversity. Consultatively developed and implemented a strategic plan for advancing the quality and competitive position of graduate education. Implemented a substantially stronger graduate program assessment process, garnered external and internal funds for program excellence and program development, enhanced the graduate learning environment through the establishment of the Graduate Professional Development Center, oversaw development of new interdisciplinary and distance learning graduate programs, and led development of a custom electronic student information and management system.

#### ***Assistant Dean for Graduate Studies College of Engineering (2002-06)***

Established new Graduate Studies Office in the College of Engineering. Consolidate six department-level administrative offices into a single college-level office, to improve services and reduce costs. Administrative responsibilities included advocacy for graduate engineering education, the management of admissions (approximately 1500 applicants per year), coordination of recruitment efforts, administration of graduate programs (total enrollment of approximately 1100 students in MS and PhD programs), conversion of records management and admissions to electronic format, liaison to University's upper administration for all college graduate affairs, and budgetary responsibility for graduate fellowships, scholarships and assistantships.

#### ***Department Head of Chemical Engineering (1993-97)***

Responsibilities included providing leadership for Department's academic programs, budget management, recruitment of graduate and undergraduate students, faculty and staff development, advocacy of programs within and outside the University, strengthening student, alumni and industrial relations, hiring new faculty and staff, and fundraising. The department consisted of over 400 students (:330 undergraduate and 70 graduate), 13 faculty, and 5 staff, and a budget of over \$3 million.

## TEACHING EXPERIENCE

### **A. COURSES TAUGHT**

Basic Engineering Thermodynamics (undergraduate)  
Chemical Engineering Thermodynamics (undergraduate)  
Equilibrium Processes (undergraduate)  
Chemical Engineering Laboratory IV (undergraduate)  
Biochemical Engineering (dual)  
Bioseparations (dual)  
Adsorption Processes (dual)  
Propagation Phenomena (graduate)  
Advanced Thermodynamics (graduate)  
Electrolyte Solutions (graduate)  
Teaching Methodology I (graduate)

### **B. SHORT COURSES TAUGHT**

US EPA Environmental Training Institute Principles of Adsorption (1992-99).

### **C. AWARDS AND RECOGNITION**

Elected Fellow of the Graduate School University of Cincinnati  
*Lifetime appointment by Board of Trustees based on outstanding scholarly attainment*

Elected to National Academy of Inventors, 2010  
*In recognition of US patents awarded*

BP Outstanding Teaching Award, 2004  
*Selected by graduating seniors of the chemical engineering program.*

Engineering Tribunal Professor of the Year Award, 1994  
*This is the premiere student-selected award in the College of Engineering, University of Cincinnati*

Neal Wandmacher Teaching Award 1992  
*This is the premiere faculty-selected teaching award in the College of Engineering, University of Cincinnati*

ABET Service Recognition Award, 1992-93  
*For outstanding service for ABET accreditation visit.*

Outstanding Chemical Engineering Professor, 1991-92  
*For outstanding contributions to teaching, research and service*

Engineering Tribunal Teaching Certificates of Merit, 1989, 1990, 1995, 1999, 2000

Tau Beta Pi Spotlight Professor, 1990

#### D. MASTER'S STUDENTS ADVISED

**Carol Bailey**, "Modeling of Multicomponent Fixed-Bed-Ion-Exchange Systems," M.S., 1988.

**Ten-Wen Chen**, "Flue Gas Desulfurization by Adsorption on Macroreticular Ion-Exchange Resins," M.S., 1990.

**Jaydeep Mody**, "Ionic Diffusion in Concentrated Electrolyte Solutions," M.S. (non-thesis), 1990.

**Jy-Kung King**, "Development and Characterization of a Novel Fiber Support for Large-Scale Chromatography of Biomolecules," M.S., 1991.

**Robyn Kornhauser**, "Determination of Multicomponent Langmuir Parameters for Displacement Chromatography: Development and Application of a New Method," M.S., 1991.

**Suresh Subramanian**, "A Non-Langmuirian Adsorption Model for Preparative Chromatography of Biomolecules," M.S., 1991.

**Anirudh Singh**, "Development and Characterization of a Novel Polymer-Based Fiber Support for Large-Scale Chromatography of Biomolecules," M.S., 1992.

**Jeff Cook**, "The Development of a Liquid Chromatograph Micromachined on a Silicon Wafer," M.S., 1996.

**Guihua Liu**, "Molecular Thermodynamic Model for Protein Chromatography," M.S., 1997.

**Poonam Raje**, "Effect of Heat of Adsorption on Modeling Preparative Protein Chromatography," M.S., 1997.

**Aditi Chandavarkar**, "A Study of the Heat of Ion Exchange of Proteins and Its Effect on Overloaded Chromatography," M.S., 1998.

**Qinghua King**, "A Miniaturized Ion-Exchange Liquid Chromatograph on a Silicon Wafer," M.S., 1998.

**Maria King**, "An Investigation of Hydrophobic Interaction Chromatography of Proteins Using Flow Microcalorimetry," M.S., 1999.

**Jessica Phillips**, "Heat Effects Accompanying the Adsorption of Oligonucleotides on Hydrophobic Interaction Supports," M.S., 2003.

**Yachiyo Nakashimada**, "Conducting Polymers for Electrochemically Modulated Liquid Chromatography of Proteins in a  $\mu$ -OPPS," M.S., 2005.

**Poornima Rao**, "Advanced Adsorbents for Hot Gas Removal of Mercury in Coal Gasification," M.S. 2010, (co-adviser).

#### E. DOCTORAL STUDENTS ADVISED

**S.C. David Jen**, "Ion-Exchange Displacement Chromatography for the Preparative Purification of Pharmaceutical Proteins," Ph.D., 1991. *Currently: Associate Director Purification Process Development, Alexion Pharmaceuticals, Philadelphia, PA.*

**Chi-Cheng Leng**, "Mechanisms of Adsorption and Desorption of Oxygen and Nitrogen

Containing Aromatics on Activated Carbon,” Ph.D., 1996. *Employment upon graduation: MicroLithography, San Jose, CA.*

**Xueqing Liu**, “Modeling Equilibrium Adsorption of Aromatics on Activated Carbon,” Ph.D., 1996. *Employment upon graduation: Parsons ES, Atlanta, GA.*

**Yong-Long Li**, “A Study of Non-Ideal Effects in Overloaded Ion-Exchange Chromatography of Proteins,” Ph.D., 1997. *Employment upon graduation: Supelco, Belfonte, PA.*

**Hassan Arafat**, “Effect of Chemical Surface Heterogeneity on the Adsorption Mechanism of Dissolved Aromatics on Activated Carbon with Applications in Solidification/Stabilization Processes for Hazardous Waste Treatment,” Ph.D., 2000. *Currently: Associate Professor of Environmental Engineering, MASDAR Institute of Science & Technology, Abu Dhabi, UAE.*

**Marvin Thrash**, “Non-Electrostatic Effects Associated with Protein Adsorption on an Anion Exchange Adsorbent,” Ph.D. 2003. *Currently: Associate Professor of Chemical Engineering, Miami University, Oxford, Ohio.*

**Blanca Lapizco-Encinas**, “Micro Open Parallel Plate Separator: Performance and Applications,” Ph.D., 2003. *Currently: Associate Professor of Chemical Engineering, .*

**Malyuba Abu Daabes**, “Development of Chelating Sorbents for Adsorption of Vapor-Phase Mercury,” Ph.D., 2004. *Currently: Dean of School of Applied Medical Sciences, Jordanian-German University, Amman, Jordan.*

**Ana Cristina Cabral**, (co-advised with Prof. Joao Queiroz) “Adsorption of Enzymes on Hydrophobic Interaction Supports,” Ph.D., 2004. *Currently: Assistant Professor of Chemistry, Universidade da Beira Interior, Covilha, Portugal.*

**Amit Katiyar**, “Molecular Sieve Adsorbents for Selective Biochemical Reactions and Separations,” Ph.D., 2008. *Currently: Research Engineer, Schering-Plough Research Institute, Kenilworth, New Jersey.*

**Lei Ji**, “Advanced Chelating Adsorbents for the Capture of Elemental and Oxidized Mercury from Flue Gases,” Ph.D., 2008. *Currently: Research Engineer, Babcock & Wilcox Research Center, Barberton, Ohio*

**Santosh Yadav**, “Water Adsorption in Stratum Corneum: A Calorimetric Study,” Ph.D., 2010. *Currently: Postdoctoral Fellow, International Specialty Products, Wayne, New Jersey*

**JeungSeung Kim**, “Biomimetic Catalytic Nano-Reactors,” Ph.D., 2011. *Currently: Postdoctoral Fellow, Energy and Transportation Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.*

**Rebecca Desch**, “Thermodynamics and Kinetics of Protein Adsorption in Mesoporous Molecular Sieves,” Ph.D. in progress (co-adviser)

**Amina Darwish**, “Overloaded Chromatographic Bioseparations on Mesoporous Molecular Sieves,” Ph.D. in progress (co-adviser)

**Juan He**, “Advanced Chelating Adsorbents for the Direct Capture of Mercury from Combustion Flue Gases,” Ph.D. in progress. (co-adviser)

**Kun Liu**, “Slipstream Testing Of Novel Nanostructured Chelating Metal Vapor Adsorbents,” Ph.D. in progress. (co-adviser).

## **F. OTHER GRADUATE STUDENTS ADVISED**

**Daniel S. Janke**, “Design of a Continuous Radon Adsorption Column,” M.S., 1994, University of Washington, Seattle.

**Marcus Franz**, “On the Influence of Surface Oxygen and Electrolyte Concentration On Adsorption Behavior of Aromatics on Activated Carbon,” M.S. (equivalent), 1998, Technische Universität Bergakademie Freiberg, Freiberg, Germany.

**Falk Ahnert**, “Surface Effects in the Adsorption of Liquid Aromatics on Activated Carbon,” M.S. (equivalent), 1999, Technische Universität Bergakademie Freiberg, Freiberg, Germany.

**Christian Kunze**, “An Investigation of the Potential of Functionalized SBA-15 for Recovery and Immobilization of Xylanase from *Thermomyces Lanuginosus*,” M.S. (equivalent) 2005, Technische Universität Bergakademie Freiberg, Freiberg, Germany.

## RESEARCH EXPERIENCE

### A. REFEREED PAPERS (Published)

1. Pinto, N.G. and E.E. Klaus, **In situ Formation of Solid Lubricating Films from Conventional Mineral Oil and Ester Base Lubricants**, ASLE J., 14, 98-104 (1984).
2. Pinto, N.G. and E.E. Graham, **Evaluation of Diffusivities in Electrolyte Solutions Using Stefan-Maxwell Equations**, AIChE J., 32, 291-296 (1986).
3. Pinto, N.G. and E.E. Graham, **Application of the Shrinking Core Model for Predicting Protein Adsorption**, Reactive Polymers, 5, 49-53 (1987).
4. Pinto, N.G. and E.E. Graham, **Multicomponent Diffusion in Concentrated Electrolyte Solutions: Effect of Solvation**, AIChE J., 33, 436-443 (1987).
5. Graham, E.E., N.G. Pinto and A. Pucciani, **A Comparative Study of Models to Predict Protein Adsorption**, Biotech. Prog., 3, 141-145 (1987).
6. Pinto, N.G. and E.E. Graham, **Characterization of Ionic Diffusivities in Ion-Exchange Resins**, I. & E.C. Res., 26, 2331-36 (1987).
7. Bailey, C.B. and N.G. Pinto, **Multicomponent Fixed-Bed Ion Exchange: Verification of Equilibrium Theory of Coherence**, Sep. Sci. & Tech., 23, 1853-73 (1988).
8. Chen, T.W., N.G. Pinto and L. Van Brocklin, **Rapid Method for Determining Multicomponent Langmuir Parameters for Displacement Chromatography**, J. Chrom., 484, 167-185 (1989).
9. Chen, T.W. and N.G. Pinto, **Stability and Equilibrium Properties of Macroreticular Resins for Flue Gas Desulfurization**, I. & E. C. Res., 3, 440-446 (1990).
10. Pinto, N.G., **Partially Oriented Short-Fiber Beds for Downstream Processing of Biomolecules**, Reactive Polymers, 12, 2, 201-205 (1990).
11. Jen, S.C.D. and N.G. Pinto, **Use of Sodium Salt of Poly(vinylsulfonic acid) as a Low Molecular Weight Displacer for Protein Separations by Ion-Exchange Displacement Chromatography**, J. Chrom., 519, 87-98 (1990).
12. Chen, T.W. and N.G. Pinto, **Fixed-Bed Adsorption of Acid Gases on a Macroreticular Ion-Exchange Resin**, Reactive Polymers, 14, 151-168 (1991).
13. Jen, S.C.D. and N.G. Pinto, **Dextran Sulfate as a Displacer for Displacement Chromatography of Pharmaceutical Proteins**, J. Chrom. Sci., 29, 478-484 (1991).
14. Jen, S.C.D. and N.G. Pinto, **Theory of Optimization of Ideal Displacement Chromatography of Binary Mixtures**, J. Chrom., 590, 3-15 (1992).
15. King, J.K. and N.G. Pinto, **Short Fibrous Supports for Preparative Chromatographic Separations of Biomolecules**, J. Chrom., 609, 61-68 (1992).
16. Jen, S.C.D. and N.G. Pinto, **Influence of Displacer Properties on the Displacement Chromatography of Proteins: A Theoretical Study**, Reactive Polymers, 19, 145-161 (1993).
17. Jen, S.C.D. and N.G. Pinto, **A Modification of the H-Root Method for the**

- Determination of Langmuir Coefficients**, J. Chrom., 662, 396-400 (1994).
18. Li, Y.L. and N.G. Pinto, **Influence of Lateral Interactions on Preparative Protein Chromatography: Part I. Isotherm Behavior**, J. Chrom., 658, 445-457 (1994).
  19. Fotou, G.P., S.E. Pratsinis and N.G. Pinto, **Surface Enhancement of Silica Fibers by Sol-Gel Processes**, J. Non Crystalline Solids, 183, 135-143 (1995).
  20. Farschman, C., J.B. Manos and N.G. Pinto, **Short-Fiber Chromatography Columns: Potential for Process-Scale Bioseparations**, Sep. Sci. & Tech., 30, 1325-1350 (1995).
  21. Singh, A. and N.G. Pinto, **On the Synthesis and Characteristics of Polysulfone Anion-Exchange Fibers for Preparative Chromatographic Separations of Proteins**, Reactive Polymers, 4, 229-242 (1995).
  22. Li, Y.L. and N.G. Pinto, **Model for Ion-Exchange Equilibria of Macromolecules in Preparative Chromatography**, J. Chrom., 702, 113-123 (1995).
  23. Li, Y.L., N.G. Pinto, H.T. Henderson, S.T. Hwang and P. Nguyen, **Permeabilities of Gases in Thermally-Grown Silicon Dioxide**, Matl. Sci. & Eng., B32, 63-68 (1995).
  24. Jen, S.C.D. and N.G. Pinto, **Non-Linear Chromatography of f-Lactoglobulins A and B: Non-Langmuirian Behavior**, I. & E. C. Res., 34, 2685-91 (1995).
  25. Leng, C.C. and N.G. Pinto, **An Investigation of the Mechanisms of Chemical Regeneration of Activated Carbon**, I. & E. C. Res., 35, 2024-2031 (1996).
  26. Liu, X. and N.G. Pinto, **Frequency Domain n-phase Shift Reflectometry for Soil Moisture Measurement: I Theory**, Sensors & Actuators A, 55, 127-132 (1996).
  27. Liu, X. and N.G. Pinto, **Ideal Adsorbed Phase Model for Adsorption of Phenolic Compounds on Activated Carbon**, Carbon, 35, 1387-97 (1997).
  28. Leng, C.C. and N.G. Pinto, **Effects of Surface Properties of Activated Carbons on Adsorption Behavior of Selected Aromatics**, Carbon, 35, 1375-85 (1997).
  29. Raje, P. and N.G. Pinto, **A Combination of the SMA and NISS Models for Overload Protein Ion-Exchange Chromatography**, J. Chrom., 760, 89-103 (1997).
  30. Raje, P. and N.G. Pinto, **Importance of Heat of Adsorption in Modeling Protein Equilibria for Overloaded Chromatography**, J. Chrom., 796, 141-156 (1998).
  31. Chandavarkar, A. and N.G. Pinto, **Modeling the Adsorption of Proteins in Overloaded Ion-Exchange Chromatography**, Fund. of Adsorption, 6, 413-418, (1998).
  32. Arafat, H.A., M. Franz and N.G. Pinto, **Effect of Salt on the Mechanism of Adsorption of Aromatics on Activated Carbon**, Langmuir, 15, 5997-6003 (1999).
  33. Hebatpuria, V.M., H.A. Arafat, P.L. Bishop and N.G. Pinto, **Leaching Behavior of Selected Aromatics in Cement-Based Solidification/Stabilization under Different Leaching Tests**, Env. Eng. Sci., 16(6), 451463 (1999).
  34. Esquibel-King, M.A., A.C. Dias-Cabral, J.A. Queiroz, and N.G. Pinto, **A Study of Hydrophobic Interaction Adsorption of Bovine Serum Albumin Under Overloaded Conditions Using Flow Microcalorimetry**, J. Chrom. 865, 111-122 (1999).



35. Arafat, H.A., V.M. Hebatpuria, H.S. Rho, N.G. Pinto, P.L. Bishop and R.V. Buchanan, **Immobilization of Phenol in Cement-Based Solidified/Stabilized Hazardous Wastes Using Regenerated Activated Carbon: Role of Carbon**, *J. Hazardous Materials*, 70, 3, 177-138 (1999).
36. Franz, M., H.A. Arafat and N.G. Pinto, **Effects of Surface Heterogeneity on the Adsorption Mechanism of Aromatics on Carbon**, *Carbon*, 38, 1807-1819 (2000).
37. Rho, H., H.A. Arafat, B. Kountz, R.C. Buchanan, N.G. Pinto and P.L. Bishop, **Decomposition of Hazardous Organic Materials in the Solidification/Stabilization Process Using Catalytic Activated Carbon**, *J. Waste. Manag.*, 21, 4, 343-356 (2001).
38. Kang, Q., N. Golubovic, N.G. Pinto and H. Henderson, **An Integrated Micro Separator and Detector on a Silicon Wafer**, *Chem. Eng. Sci.*, 56, 3409-20 (2001).
39. Thrash, M. and N.G. Pinto, **A Study of Protein Adsorption on Chromatographic Supports Using Flow Microcalorimetry**, *J. Chrom.* 908, 293-299 (2001).
40. Thrash, M. and N.G. Pinto, **Characterization of Enthalpic Events in Overloaded Ion-Exchange Chromatography**, *J. Chrom.*, 944, 61-68 (2002).
41. Uribe, A., P.L. Bishop and N.G. Pinto, **The Influence of pH and Temperature Changes on the Adsorption Behavior of Organophilic Clays Used in the Stabilization/Solidification of Hazardous Wastes**, *Env. Eng. Sci.*, 1, 123-133 (2002).
42. Dias A.C., N.G. Pinto, and J. Queiroz, **Studies on Hydrophobic Interaction Adsorption of Bovine Serum Albumin on Polypropylene Glycol-Sepharose Under Overloaded Conditions**, *Sep. Sci. & Tech.*, 37, 1505-1520 (2002).
43. Lapizco-Encinas, B.H. and N.G. Pinto, **Modeling Open Parallel Plate Columns for Liquid Chromatography**, *Sep. Sci. & Tech*, 37, 2745-2762 (2002).
44. Ahnert, F., H.A. Arafat and N.G. Pinto, **A Study of the Influence of Hydrophobicity of Activated Carbon on the Adsorption Equilibrium of Aromatics in Non-Aqueous Media**, *Adsorption*, 9, 311-319 (2003).
45. Lapizco-Encinas, B. and N.G. Pinto, **A Comparison of Preparative Characteristics of IOPPS and Microbore Columns for Concentration of Trace Species by Displacement Chromatography**, *J. Chrom.*, 989, 3-17 (2003).
46. Dial-Cabral, A.C., J.A. Queiroz and N.G. Pinto, **Effect of Salts and Temperature on the Adsorption of BSA on Polypropylene Glycol-Sepharose Under Linear and Overloaded Chromatographic Conditions**, *J. Chrom.*, 1018, 137-153 (2003).
47. Diogo, M.M., D.M.F. Prazeres, N.G. Pinto and J.A. Queiroz, **Hydrophobic Interaction Chromatography of Homo-oligonucleotides on Derivatized Sepharose CL-6B. Using and Relating Two Models for Describing the Effect of Salt and Temperature on Retention**, *J. Chrom.*, 1006, 137-148 (2003).
48. Arafat, H.A., F. Ahnert and N.G. Pinto, **On the Adsorption of Aromatics on Oxygenated Activated Carbon in Non-Aqueous Adsorption Media**, *Sep. Sci. & Tech.*, 39, 1, 43-62 (2004).
49. Phillips, J.M. and N.G. Pinto, **A Calorimetric Investigation of the Adsorption of**

- Nitrogen Bases and Nucleosides on a Hydrophobic Interaction Support**, J. Chrom., 1036 (1), 79-86 (2004).
50. Lapizco Encinas, B. and N.G. Pinto, **Effectiveness of H-Root Method for Determining the Adsorption Isotherms of Protein–Salt Systems in Open Micro-Channels**, J. Chrom., 1036 (1), 61-72 (2004).
51. Lapizco-Encinas, B. and N.G. Pinto, **On the Potential of Electrochemically Modulated Liquid Chromatography of Proteins in a  $\mu$ -OPPS Separator**, J. Sep. Sci., 27 (9), 667-674 (2004).
52. Abu Daabes, M. and N.G. Pinto, **Effect of Surface Oxygen Complexes of Activated Carbon On Phenol Adsorption from Single and Mixed Non-Aqueous Solvents**, Sep. Sci. & Tech, 39 (13), 2997-3009 (2004).
53. Ji. L., A. Katiyar, N.G. Pinto, M. Jaroniec and P.G. Smirniotis, **Al-MCM-41 Sorbents for Bovine Serum Albumin: Relation Between Al Content and Performance** Microporous & Mesoporous Matls., 75 (3), 221-229 (2004).
54. Thrash, Jr., M.E., J.M. Phillips and N.G. Pinto, **An Analysis of the Interactions of BSA with an Anion Exchange Surface under Non-Linear Conditions**, Adsorption, 10, 299-307 (2005).
55. Abu Daabes, M. and N.G. Pinto, **Synthesis and Characterization of a Nano-structured Sorbent for the Direct Removal of Mercury from Flue Gases by Chelation**, Chem. Eng. Sci., 60(7), 1901-1910 (2005).
56. Katiyar, A. L. Ji, P. G. Smirniotis and N. G. Pinto, **Protein adsorption on the Mesoporous Molecular Sieve Silicate SBA-15: Effects of pH and Pore Size**, J. Chrom., 1069(1), 119-126 (2005).
57. Lapizco-Encinas, B. and N.G. Pinto, **Determination of Adsorption Isotherms of Proteins by H-Root-Method: Comparison between Open Micro-Channels and Conventional Packed Columns**, J. Chrom. 1070 (1-2), 201-205 (2005).
58. Katiyar, A. L. Ji, P. G. Smirniotis and N. G. Pinto, **Adsorption of Bovine Serum Albumin on Siliceous MCM-41**, Microporous & Mesoporous Matls., 80(1-3), 311-320 (2005).
59. Dias-Cabral, A.C., A. S. Ferreira, J. Phillips, J. A. Queiroz and N. G. Pinto, **The Effects of Ligand Chain Length, Salt Concentration and Temperature on the Adsorption of Bovine Serum Albumin onto Polypropyleneglycol–Sephacryl**, Biomedical Chromatogr., 19, 606-616 (2005).
60. Katiyar, A., S. Yadav, P. G. Smirniotis and N.G. Pinto, **Synthesis of Ordered Large Pore SBA-15 Spherical Particles for Chromatographic Separations of Biomolecules**, J. Chrom., 1122 (1-2), 13-20 (2006).
61. Katiyar, A. and N.G. Pinto, **Visualization of Size-Selective Protein Separations on Spherical Mesoporous Silicates**, Small, 2, 5, 644-648 (2006).
62. Thrash, M.A. and N.G. Pinto, **Incorporating Water Release and Lateral Protein Interactions in Modeling Equilibrium Adsorption for Ion-Exchange Chromatography**, J. Chrom., 1126, 304-310 (2006).

63. Yadav, S., N.G. Pinto and G.B. Kasting, **Thermodynamics of Water Interactions with Human Stratum Corneum from, I. Measurement by Isothermal Flow Calorimetry**, J. Pharma. Sci., 96, 1585-1597 (2007).
64. Ji, L., S.W. Thiel and N.G. Pinto, **Pyrrrolidinium Imides: Promising Ionic Liquids for Direct Capture of Elemental Mercury from Flue Gas**, Water, Air and Soil Pollution: Focus, 8, 349-358 (2008).
65. Ji, L., P.M. Sreekanth, P.G. Smirniotis, S.W. Thiel and N.G. Pinto, **Manganese Oxide/Titania Materials for Removal of NO<sub>x</sub> and Elemental Mercury from Flue Gas**, Energy & Fuels, 22, 2299-2306 (2008).
66. Ji, L., S.W. Thiel and N.G. Pinto, **Room Temperature Ionic Liquids for Mercury Capture from Flue Gas**, I. & E. C. Res, 47, 8396-8400, (2008).
67. Peise, O., L. Ji, S.W. Thiel and N.G. Pinto, **New Adsorbents for Direct Warm-Gas Capture of Mercury**, J. of Main Group Chem., 7, 181-189 (2008).
68. Ji, L., M. Abu-Daibes and N.G. Pinto, **Thermally Robust Chelating Adsorbents for the Capture of Gaseous Mercury: Fixed-Bed Behavior**, 64, 486-491(2009).
69. Yadav, S., Wickett, R.R. N.G. Pinto, G.B. Kasting and S.W. Thiel, **Comparative Thermodynamic and Spectroscopic Properties of Water Interaction with Human Stratum Corneum**, Skin Research & Technology, 15, 172-179 (2009).
70. Jaladi, H., A. Katiyar, S.W. Thiel, V.V. Guliants and N.G. Pinto, **Effect of Pore Diffusional Resistance on Biocatalytic Activity of Burhholderia Cepacia Lipase Immobilized on SBA-15 Hosts**, Chem. Eng. Sci., 64, 1474-1479 (2009).
71. Yadav, S., S.W. Thiel, G.B. Kasting, and N.G. Pinto, **Thermodynamics of Water Interactions with Human Stratum Corneum. II. Interpretation Via the Guggenheim-Anderson-deBoer Isotherm**, Chem. Eng. Sci., 64, 1480-1487 (2009).
72. Katiyar, A., S.W. Thiel, V.V. Guiliants and N.G. Pinto, **Investigation of the Mechanism of Protein Adsorption on Ordered Mesoporous Silica using Flow Microcalorimetry**, J. Chrom., 1217, 1583-1588 (2010).
73. Kim, J., R.J. Desch, S. W. Thiel, V.V. Guliants and N.G. Pinto, **Energetics of protein adsorption on amine-functionalized mesostructured cellular foam silica**. J. Chrom. A, 1218(43), 7796-780 (2011).
74. Kim, J., R.J. Desch, S. W. Thiel, V.V. Guliants and N.G. Pinto **Energetics of lysozyme adsorption on mesostructured cellular foam silica: Effect of salt concentration**. J. Chrom. A., 1218(38), 6697-6704 (2011).
75. Kim, J., R.J. Desch, S. W. Thiel, V.V. Guliants and N.G. Pinto, **Adsorption of biomolecules on mesostructured cellular foam silica: Effect of acid concentration and aging time in synthesis**. Microporous and Mesoporous Materials, 149(1), 60-68 (2012).

## B. CONFERENCE PROCEEDINGS

76. Newman B. and N.G. Pinto, **Estimation of Diffusivities in Concentrated Electrolyte**

**Solutions**, Electrochem. Soc. Proc. Ser., 88-18, 57 (1988).

77. Golubovic, N.C., Q. Kang, H.T. Henderson and N.G. Pinto, **MEMS Based Micro Fluidic System for Chromatographic Analysis of Liquid Samples**, Proceedings of SPIE 98, 3515 (1998).
78. Abu Daabes, M. and N.G. Pinto, **Preliminary Results of an Investigation on The Feasibility of a Novel Chelating Adsorbent for the Control of Gaseous Mercury Emissions**, Proceedings of the 19<sup>th</sup> Annual International Pittsburgh Coal Conference, 24-1, Sept. (2002).
79. Dolgoff J., G.G. Lipscomb, K. Pugh, S. Beltyukova and N.G. Pinto, **Experiments in Membrane Separation Processes Delivered Through the Internet**, Proceedings of the 2003 American Society of Engineering Education Annual Conference, Session 1526, (2003).
80. Katiyar A., P. G. Smirniotis and N.G. Pinto, **Mesoporous Molecular Sieves for Size Selective Separation of Biomolecules**, Proceedings of Eighth International Conference on Inorganic Membranes, July 18-22, Cincinnati, Ohio, (2004).

#### **C. BOOK CHAPTERS**

81. Pinto, N.G., **Removal of Acid Gases from Combustion Flues by Adsorption on Ion Exchangers**, in "Ion Exchange Technology: Recent Advances in Pollution Control," A.K. Sengupta, Ed., Chapter 9, Technomic Publishing, Lancaster, PA (1995).
82. Thrash M. and N.G. Pinto, **Protein and Peptides Purification in Pharmaceutical Analysis**, in Encyclopedia of Analytical Chemistry, A. Holyoak, Ed., 7259-7288, John Wiley & Sons Ltd., Chichester, UK (2000).

## D. PATENTS

1. Henderson, H.T. and N. G. Pinto, **Liquid Chromatograph on a Chip**, U.S. Patent 6,258,263, July 10, 2001.
2. Pinto, N.G and M. Abu Daabes, **High Capacity Materials for Capture of Metal Vapors from Gas Streams**, U.S Provisional Patent, Ser. No. 60/729,350 , Oct. 21, 2005.

## E. AWARDS OF CONTRACTS AND GRANTS

1. A Study of Diffusion in Multicomponent Systems, University Research Council (Internal), 1986-87, \$3,750, (PI).
2. Modeling Fixed-Bed Adsorption for Coal-Gas Cleanup, University Research Council (Internal), 1987-88, \$3,500, (PI).
3. Control of Local Equivalence Ratios Using Electric Fields, Herman Schneider Foundation (Internal), 1987-88, \$3,750, (PI).
4. Flue Gas Desulfurization with Ion-Exchange Resins, Ohio Department of Development, 1987-90, \$221,000, (PI).
5. Fuel-Cell Electrolytes: Non-Aqueous -Mixed Solvents, University Research Council (Internal), 1987-88, \$6,400, (PI).
6. Development of a Glucose Microsensor, Amoco Foundation (Internal), 1988-89, \$20,000, (PI).
7. Development of a Chromatographic Microsensor, Ohio Board of Regents, 1988-89, \$115,000, (PI).
8. Development of a Novel Coal Feeder System for Circulating Fluidized Bed Combustors, Ohio Department of Development, 1989-90, \$100,000, (co-PI), share- \$50,000.
9. Development of a Partially Oriented Fiber Bed for Downstream Processing of Biomolecules, National Science Foundation, 1989-91, \$70,000, (PI).
10. Research Experiences for Undergraduate Students, National Science Foundation, 1989-92, \$125,000, (co-PI), share - \$31,250.
11. A Novel Chromatographic System for High Throughput Bioseparations, University Research Council (Internal), 1990-91, \$7,013, (PI).
12. Purification of Monoclonal Antibodies by Ion Exchange, National Science Foundation, 1992-95, \$140,231, (PI).
13. Separation Science Consortium, Ohio Board of Regents, 1993-96, \$1,750,000, (co-PI), share - \$299,000.
14. Supplemental Award, National Science Foundation, 1994-95, \$4,978, (PI).
15. Radium Recovery from Vitrified K-65 Waste, Department of Energy (FERMCO), 1996-97, \$46,800, (PI).
16. Stabilization/Solidification of Organically Contaminated Wastes Using Reactivated Carbon, National Science Foundation, 1996-00, \$670,000, (co-PI), share - \$223,000.

17. An Investigation of a Catalytic Carbon for Removal of Hormonally Active Agents from Drinking Water, University Research Council (Internal), 2001-02, \$5,000, (PI).
18. Gas-Phase Chelating Agents for Removal of Mercury from Flue Gases, Ohio Department of Development, 2001-02, \$111,051, (PI).
19. Gas-Phase Chelating Agents for Removal of Mercury from Flue Gases, Ohio Department of Development, 2002-03, \$110,061, (PI).
20. Internet-based Unit Operations Laboratory, National Science Foundation, 2003-05, \$146,010, (co-PI), share - \$72,784.
21. Exploratory Studies to Evaluate Potential of Novel Nanoporous Media for Highly Selective Separations of Biomolecules, National Science Foundation, 2002-04, \$99,394, (PI), share - \$49,697.
22. Gas-Phase Chelating Agents for Removal of Mercury from Flue Gases, Ohio Department of Development, 2003-04, \$108,184, (PI).
23. NIRT: Biocatalytic Membrane Nanosystems, National Science Foundation, 2004-10, \$1,000,000, (co-PI), share - \$250,000.
24. Gas-Phase Chelating Agents for Removal of Mercury from Flue Gases, Ohio Department of Development, 2004-05, \$110,483, (PI).
25. Simultaneous Removal of NO<sub>x</sub> and Mercury in Low Temperature Selective Catalytic and Adsorptive Reactor, Department of Energy, 2004-05, \$58,985, (PI), share - \$29,492.
26. Gas-Phase Chelating Agents for Removal of Mercury from Flue Gases, Ohio Department of Development, 2005-06, \$113,307, (PI).
27. Integrated Removal of NO<sub>x</sub>, with Carbon Monoxide as Reductant, and Capture of Mercury in a Low Temperature Selective Catalytic and Adsorptive Reactor, Department of Energy, 2006-10, \$200,000, (PI), share - \$100,000.
28. Improved Process Economics for Novel Nanostructured Chelating Adsorbents for Direct Capture of Mercury from Coal Combustions Flue, Ohio Department of Development, 2006-07, \$115,259, (PI).
29. Advanced Adsorbents for Hot Gas Removal of Mercury in Coal Gasification, Ohio Department of Development, 2006-07, \$115,242, (PI).
30. Water Vapor Sorption Characteristics of Neonatal Skin, Kao Corp. (Japan), 2006-07, \$50,000, (PI), share - \$44,289.
31. Advanced Adsorbents for Direct Capture of Gas-Phase Mercury, Ohio Department of Development, 2007-09, \$210,897, (Co-PI), share -\$105,448
32. Slipstream Testing Of Novel Nanostructured Chelating Metal Vapor Adsorbents For Direct Capture Of Mercury From Coal Combustion Flue Gas, Ohio Department of Development, 2007-10, \$309,225, (PI), share - \$154,612.
33. Advanced Adsorbents for Hot Gas Removal of Mercury in Coal Gasification, Ohio Department of Development, 2007-08, \$103,839, (Co-PI), share -\$51,919.
34. Advanced Adsorbents for Hot Gas Removal of Mercury in Coal Gasification, Ohio

Department of Development, 2008-10,\$211,559, (Co-PI), share -\$105,779.

35. Thermodynamic Properties of Solvents for Carbon Dioxide Capture, Babcock & Wilcox Power Generation Group, Baberton, OH, 2010-2011, \$139,082, (Co-PI), share-\$69,041.

## F. RESEARCH PRESENTATIONS

**Pinto**, N.G. and E.E. Graham, "Diffusion of Electrolytes in Concentrated Solutions," Paper 37e, AIChE Annual Meeting, San Francisco, CA, Nov. (1984).

**Pinto**, N.G. and E.E. Graham, "A Predictive Model for Ion Exchange of Proteins," Paper 59e, AIChE Annual Meeting, Chicago, Nov. (1985).

Bailey, C.B. and N.G. **Pinto**, "Non-equilibrium Model for Multicomponent Fixed- Bed Ion Exchange," 5<sup>th</sup> Symposium on Separation Science and Technology for Energy Applications, Knoxville, Oct. (1987).

Newman, B. and N.G. **Pinto**, "Estimation of Transport Properties in Concentrated Electrolyte Solutions," Paper 71f, AIChE Annual Meeting, New York, Nov. (1987).

Chen, T-W. and N.G. **Pinto**, "Desulfurization of Flue Gases with Macroreticular Ion-Exchange Resins," Paper 65b, AIChE Annual Meeting, Washington, D.C. Nov. (1988).

Chen, T-W. and N.G. **Pinto**, "Use of the Coherence Theory to Measure Isotherms For Displacement Chromatography," invited poster presentation, Gordon Research Conference on Reactive Polymers, Ion Exchangers, and Adsorbents, Newport RI, Aug. (1989).

Jen, S.C. and N.G. **Pinto**, "Ion Exchange Displacement Chromatography of Proteins," Paper No. 76c, AIChE Annual Meeting, San Francisco, CA, Nov. (1989).

**Pinto**, N.G., "Membrane Based Chemical Sensors" Research Seminar, Center for Microsensors and Microstructures, University of Cincinnati, May (1990).

**Jen**, S.C. and N.G. **Pinto**, "On the Use of Dextran Sulfates as Displacers for Ion Exchange Displacement Chromatography of Proteins," Paper No. 117, 200<sup>th</sup> ACS Meeting, Washington, D.C., Aug. (1990).

King, J.K. and N.G. **Pinto**, "A New Fiber Support for Ion-Exchange Chromatography of Proteins," Paper No. 241e, AIChE Annual Meeting, Chicago, IL, Nov. (1990).

**Pinto**, N.G., "Fabrication of Silicon Dioxide Membranes," Institute of Advanced Manufacturing Science, Cincinnati, OH, April (1990).

**Jen**, S.C. and N.G. **Pinto**, "A Theoretical Optimization Method for Ideal Displacement Chromatography of Binary Mixtures," 4<sup>th</sup> International Symposium on Preparative Chromatography, Arlington, WA, May (1991).

**Jen**, S.C. and N.G. **Pinto**, "Displacement Chromatography as a Tool for the Preparative Separation of Biomolecules," Poster Presentation, Ohio Valley Chromatography Symposium, Houston Woods, OH, June (1991).

Singh, A., J.K. King and N.G. **Pinto**, "Short-Fiber Supports for High-Flow Ion -Exchange Chromatography," paper presented at ACS Meeting, Atlanta, GA, Aug. (1991).

**Jen**, S.C. and N.G. **Pinto**, "Displacer Selection in Displacement Chromatography For the Purification of Proteins," Paper No. 77h, AIChE Annual Meeting, Los Angeles, CA, Nov. (1991).

**Yam**, R. and N.G. **Pinto**, "Effects of Non-Langmuirian Adsorption on Overload Chromatography," poster presentation, AIChE Annual Meeting, Los Angeles, CA, Nov. (1991).

**Jen**, S.C. and N.G. **Pinto**, "Determination of Multicomponent Equilibrium and Kinetic Parameters for Modeling Overload Liquid Chromatographic Separations Of f-Lactoglobulin A and B," Paper No. 275e, AIChE Annual Meeting, Los Angeles, CA, Nov. (1991).

**Pinto**, N.G., "Strategies for Preparative Ion-Exchange Chromatography of Proteins," invited seminar, Purdue University, West Lafayette, IN, Oct. (1991).

**Jen**, S.C. and N.G. **Pinto**, "Optimization of Displacement Chromatography of Binary Mixture: An Application of the Coherence Theory," Paper No. 89e, invited paper, AIChE Annual Meeting, Miami, FL, Nov. (1992).

**Pinto**, N.G., "Fixed-Bed Adsorption with Displacement Development: Opportunities for Use in Environmental Applications," invited seminar, Environmental Protection Agency, Risk Reduction Engineering Laboratory, Cincinnati, OH, Oct. (1992).

**Fotou**, G.P., S.E. Pratsinis and N.G. **Pinto**, "Preparation of Submicron Particle- Coated Silica Fibers by Sol-Gel Process: A New Chromatographic Support," Paper No. 192a, AIChE Annual Meeting, Miami, FL, Nov. (1992).

**Farschman**, C., J.B. **Manos** and N.G. **Pinto**, "Short Fiber Chromatography," poster presentation, DOE Conference on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. (1993).

**Li**, Y.L. and N.G. **Pinto**, "On the Effects of Lateral Interactions on Preparative Protein Chromatography," invited paper, PREP-93, 6<sup>th</sup> International Symposium on Preparative Chromatography, Arlington, VA, June (1993).

**Li**, Y.L. and N.G. **Pinto**, "Ion Exchange Equilibria of Proteins in Preparative Chromatography," Paper No. 146g, AIChE Meeting, San Francisco, CA, Nov. (1994).

**Li**, Y.L. and N.G. **Pinto**, "A Model for Ion-Exchange Equilibria of Macromolecules in Preparative Chromatography," invited paper, PREP-94, 7<sup>th</sup> International Symposium on Preparative Chromatography, Washington, D.C., June (1994).

**Pinto**, N.G., "Perspectives on Preparative Ion-Exchange Chromatography for Bioseparations," invited seminar, The Pennsylvania State University, University Park, PA, March (1994).

**Pinto**, N.G., "Overload Ion-Exchange Chromatography for Downstream Processing," invited seminar, University of Toledo, Toledo, OH, March (1995).

**Pinto**, N.G., "Problems with Modeling Protein Ion-Exchange Chromatography," invited paper, Federation of Analytical Chemistry and Spectroscopy Societies, Cincinnati, OH, Oct. (1995).



**Pinto**, N.G. and Y.K. Kao, "Optimization of Preparative Chromatography using the Separation Vector," invited paper, PREP-95, 8<sup>th</sup> International Symposium on Preparative Chromatography, Washington, D.C., June (1995).

**Pinto**, N.G., "Protein Chromatography: An Engineer's Perspective," invited Seminar, Miami University, OH, May (1996).

Raje, P. and N.G. **Pinto**, "Protein Ion-Exchange Equilibria: Importance of Non-Ideal Effects," invited paper, PREP-96, 9<sup>th</sup> International Symposium on Preparative Chromatography, Washington, D.C., May (1996).

**Leng**, C.C. and N.G. Pinto, "Effects of Surface Properties of Activated Carbons On Adsorption Behavior of Phenol," poster presentation, American Carbon Society Workshop, Charleston, SC, June (1996).

**Liu**, X. and N.G. Pinto, "Adsorbed Phase Model for the Adsorption of Liquid Organics on Activated Carbon," poster presentation, American Carbon Society Workshop, Charleston, SC, June (1996).

Liu, X. and N.G. **Pinto**, "Adsorbed Phase Model for the Adsorption of Liquid Organics and Activated Carbon," Paper No. 116h, AIChE Meeting, Chicago, IL, Nov. (1996).

Leng, C.C. and N.G. **Pinto**, "Effects of Solutions pH on Surface Adsorption Characteristics of Activated Carbon," Paper No. 155d, AIChE Meeting, Chicago, IL, Nov. (1996).

**Raje**, P. and N.G. Pinto, "Incorporating Heat of Ion-Exchange Measurements in Modeling Overloaded Protein Chromatography," invited paper PREP-97, 10<sup>th</sup> International Symposium on Preparative Chromatography, Washington, D.C., May (1997).

Liu, X. and N.G. **Pinto**, "Adsorption of Phenol and Aniline on Activated Carbon," poster presentation, 10<sup>th</sup> Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. (1997).

**Pinto**, N.G., "Protein Chromatography: An Engineer's Perspective," invited seminar, Kent State University, OH, Oct. (1997).

Chandavarkar, A. and N.G. **Pinto**, "Modeling the Adsorption of Proteins in Overloaded Ion-Exchange Chromatography," Fundamentals of Adsorption VI, Giens, France, May (1998).

**Chandavarkar**, A. and N.G. Pinto, "Modeling Ion-Exchange Displacement Chromatography of Proteins with Heat of Ion Exchange," invited paper PREP-98, 11<sup>th</sup> International Symposium on Preparative Chromatography, Washington, D.C., May (1998).

Franz, M., H.A. Arafat and N.G. **Pinto**, "An Investigation of the Effects of Chemical Surface Heterogeneity of Carbon on the Adsorption of Selected Liquid Organics," 3<sup>rd</sup> International Symposium on Surface Heterogeneity for Adsorption and Catalysis, Torun, Poland, Aug. (1998).

**Golubovic**, N.C., Q. Kang, H.T. Henderson and N.G. Pinto, "MEMS Based Micro-Fluidic System for Chromatographic Analysis of Liquid Samples," SPIE 98, Santa Clara, CA., Sept. (1998).

**Arafat**, H.A. and N.G. Pinto, "An Investigation of the Mechanisms of Adsorption of Oxygen and Nitrogen Containing Aromatics on Activated Carbon, Paper No. 152c, AIChE Meeting, Miami, FL, Nov. (1998).

**Pinto**, N.G., "Ion-Exchange Chromatography: The Challenges of Scale-up and Miniaturization," invited seminar, Technische Universitat Bergakademie Freiberg, Freiberg, Germany, Dec. (1998).

Esquibel-King, M., A.C. Dias-Cabral, J.A. Queiroz and N.G. **Pinto**, "An Investigation of Hydrophobic Interaction Chromatography using Flow Microcalorimetry," invited paper PREP-99, 12<sup>th</sup> International Symposium on Preparative Chromatography, San Francisco, CA, May (1999).

**Pinto**, N.G., "Ion-Exchange Chromatography: The Challenges of Scale-up and Miniaturization," invited seminar, University of Toledo, OH, May (1999).

**Arafat**, H.A. and N.G. Pinto "Hydrogen Bonding in the Adsorption of Liquid Aromatics on Oxygen Containing Activated Carbon," 24<sup>th</sup> Biennial Conference on Carbon, Charleston, SC, July (1999).

**Arafat**, H.A., B. Kontz, H.S. Rho, N.G. Pinto, P. Bishop and R. Buchanan, "Immobilization and Decomposition of Hazardous Organic Materials in Solidification/Stabilization Processes by Addition of Catalytic Activated Carbon," 24<sup>th</sup> Biennial Conference on Carbon, Charleston SC, July (1999).

**Kang**, Q., N.C. Golubovic, H.T. Henderson and N.G. Pinto, "A Microseparator and Detector Integrated on a Silicon Chip for Ion-Exchange Chromatography," 11<sup>th</sup> Symp. Separation Science & Technology for Energy Applications, Gatlinburg, TN, Oct. (1999).

**Arafat**, H.A. and N.G. Pinto, "Enhancement of the Adsorption of Liquid Aromatics on Activated Carbon," Paper No.23g, AIChE Annual Meeting, Dallas, TX, Nov., (1999).

Liu, G., M.E. Thrash and N.G. **Pinto**, "Molecular Thermodynamic Model for Protein Chromatography," invited paper PREP-2000, 13<sup>th</sup> International Symposium on Preparative/Process Chromatography, Washington, D.C., May (2000).

**Thrash**, M.E. and N.G. Pinto, "Heat Adsorption Measurements for BSA Overloaded on a Reversed-Phase Support," PREP-2000, 13<sup>th</sup> International Symposium on Preparative/Process Chromatography, Washington, D.C., May (2000).

**Thrash**, M.E. and N.G. Pinto, "Characterization of Enthalpic Events in Overloaded Ion-Exchange Chromatography," PREP-2001, 14<sup>th</sup> International Symposium on Preparative/Process Chromatography, Washington, D.C., May (2001).

**Dias-Cabral**, A.C., J.A. Queiroz and N.G. Pinto, "Manipulation on Hydrophobic Interaction Adsorption of Bovine Serum Albumin on Polypropylene Glycol-Sepharose," poster presentation, PREP-2001, 14<sup>th</sup> International Symposium on Preparative/Process Chromatography, Washington, D.C., May (2001).

**Thrash**, M.E. and N.G. Pinto, “An Investigation of Non-Ideal Effects in Protein Ion Exchange Equilibria,” AIChE Annual Meeting, Reno, NV, Nov. (2001).

**Lapizco-Encinas**, B. and N.G. Pinto, “Performance Characteristics of Novel Open Parallel-Plate Separator, AIChE Annual Meeting, Reno, NV, Nov. (2001).

Lapizco-Encinas, B. and N.G. **Pinto**, “ Comparison of Preparative Characteristics of 10PPS and Microbore Columns for Concentration of Trace Species by Displacement Chromatography,” invited paper, PREP2002 15<sup>th</sup> International Symposium on Preparative/Process Chromatography, Washington, D.C., June (2002).

**Thrash**, M.E. and N.G. Pinto, “An Analysis of the Interaction of BSA with an Anion Exchange Surface Using Van’t Hoff Plots and Flow Microcalorimetry,” PREP-2002 15<sup>th</sup> International Symposium on Preparative/Process Chromatography, Washington, D.C., June (2002).

Abu Daabes, M and N.G. **Pinto**, “Preliminary Results of an Investigation on The Feasibility of a Novel Chelating Adsorbent for the Control of Gaseous Mercury Emissions” invited paper, 19<sup>th</sup> Annual International Pittsburgh Coal Conference, Pittsburgh, PA, Sept. (2002).

Diogo, M.M., D.M.F. Prazeres, N.G. Pinto and J.A. **Queiroz** “Hydrophobic Interaction Chromatography of Homo-Oligonucleotides on Derivatized Sepharose CL-6B. Influence of Temperature.” SPICA 2002, Heidelberg, Germany, Oct. (2002).

**Dias-Cabral**, A.C., A.S. Ferreira, N.G. Pinto and J.A. Queiroz, “Analysis of Protein Hydrophobic Interaction Adsorption on Polypropylene Glycol Sepharose,” poster presentation, SPICA 2002, Heidelberg, Germany, Oct. (2002).

**Pinto**, N.G. “Chromatography for Process-Scale and Trace-Protein Purifications,” invited seminar, University of Akron, Nov. (2002).

**Thrash**, M.E. and N.G. Pinto, “An Analysis of the Interaction of Biomolecules with Chromatographic Surfaces Using Van’t Hoff Plots and Flow Microcalorimetry,” AIChE Annual Meeting, Indianapolis, IN, Nov. (2002).

**Abu Daabes**, M. and N.G. Pinto, “An Investigation of the Feasibility of a Novel Chelating Adsorbent for the Control of Gaseous Mercury Emissions in Flue Gases,” poster presentation, AIChE Annual Meeting, Indianapolis, IN, Nov. (2002).

Thrash, M. and N.G. **Pinto**, “Non-Electrostatic Effects Associated with Protein Adsorption in Ion-Exchange Chromatography,” invited paper, PREP-2003, 16<sup>th</sup> International Symposium on Preparative/Process Chromatography, San Francisco, CA, June (2003).

**Dias-Cabral**, A.C. A.S. Ferreira, J. Phillips, J.A. Queiroz and N.G. Pinto, “Relationships Between Equilibrium Adsorption Capacity of Bovine Serum Albumin on Polypropyleneglycol-Sepharose and Salt Concentration, Ligand Type and Temperature,” PREP-2003, 16<sup>th</sup> International Symposium on Preparative/Process Chromatography, San Francisco, CA, June (2003).

Phillips, J. and N.G. **Pinto**, “A Calorimetric Study of the Interactions of Homo-deoxyoligonucleotides with a Hydrophobic Interaction Support,” poster presentation, PREP-

2003, 16<sup>th</sup> International Symposium on Preparative/Process Chromatography, San Francisco, CA, June (2003).

**Lapizco-Encinas**, B. and N.G. Pinto, "Characterization of Equilibrium Adsorption Behavior of Protein Salt Systems Using the H-Root Method: Comparison between Microseparators and Conventional Packed Columns," poster presentation, PREP-2003, 16<sup>th</sup> International Symposium on Preparative/Process Chromatography, San Francisco, CA, June (2003).

**Abu Daabes**, M. and N.G. Pinto, "Gas Phase Chelating Sorbents for Removal of Mercury from Flue Gases," Paper 324a, AIChE Annual Meeting, San Francisco, Nov. (2003).

Katiyar, A. L. Ji, P. Smirniotis and N.G. **Pinto**, "Tailoring Surface Functionality with Transition Metal Incorporated MCM-41 for Bioseparations," Paper 322a, AIChE Annual Meeting, San Francisco, Nov. (2003).

**Ji**, L., A. Katiyar, N. Pinto and P. Smirniotis, "Al-MCM-41 Sorbents for Proteins. Some Remarkable Behavior of these Molecular Sieves," Paper 326a, AIChE Annual Meeting, San Francisco, Nov. (2003).

Dolgoft, J., B. Xu, N. Pinto, G. **Lipscomb**, K. Pugh, S. Beltyukova, "Internet-based Unit Operations Laboratories in Membrane Separation Systems, Paper 501b, AIChE Annual Meeting, San Francisco, Nov. (2003).

**Dias-Cabral**, A.C., N. G. Pinto and J. A. Queiroz, "Determinants of Protein Retention Equilibrium Characteristics on Hydrophobic Interaction Chromatography," 3rd Portuguese Chromatography Meeting, Lisbon, Portugal, Nov. (2003).

Katiyar, A., L. Ji, P. Smirniotis and N.G. **Pinto**, "Protein Adsorption Characteristics on Siliceous Mesoporous Sieves," invited paper, PREP-2004, 17<sup>th</sup> International Symposium on Preparative/Process Chromatography, Baltimore, MD, May (2004).

Dias-Cabral A.C., J.A. **Queiroz** and N.G. Pinto, "An Analysis of the Enthalpic Effect Associated with Protein Adsorption in Hydrophobic Interaction Chromatography," poster presentation, PREP-2004, 17<sup>th</sup> International Symposium on Preparative/Process Chromatography, Baltimore, MD, May (2004).

**Katiyar**, A., L. Ji, P. Smirniotis and N.G. Pinto, "Mesoporous Molecular Sieves for Size Selective Separation of Biomolecules," Paper 676, 8<sup>th</sup> International Conference on Inorganic Membranes, Cincinnati, OH, July (2004).

**Katiyar**, A., L. Ji., P. Smirniotis and N.G. Pinto, "Toward Achieving Size-Selective Chromatographic Separations of Macro-biomolecules on SBA-15," AIChE Annual Meeting, Austin, TX, Nov. (2004).

**Ji**, L., A. Katiyar, N.G. Pinto and P. Smirniotis, "Comparison of Adsorption Kinetics and Capacities for Mesoporous Silicates with Different Pore Structures," AIChE Annual Meeting, Austin, TX, Nov. (2004).

**Zheng**, S., H. Jaladi, A. Katiyar, V. Guliants, N.G. Pinto and Y.S. Lin, "Immobilization of Pseudomonas Cepacia Lipase in Ordered Mesoporous Silica," AIChE Annual Meeting, Austin,

TX, Nov. (2004).

Katiyar, A., P. Smirniotis and N.G. **Pinto**, “Adsorption of Proteins on Fibrous and Spherical Mesoporous Molecular Sieve Silicates SBA-15,” invited paper, PREP-2005, 18<sup>th</sup> International Symposium on Preparative/Process Chromatography, Philadelphia, PA, May (2005).

**Yadav**, S. G. Kasting and N.G. Pinto, “Study of Heat of Water Interaction in Human Stratum Corneum using Isothermal Calorimetry” poster presentation Gordon Research Conference on Barrier Function of Mammalian Skin, South Hadley, MA, Aug. (2005).

Katiyar, A., P. Smirniotis and N.G. **Pinto**, “Functionalized Nanoporous Molecular Sieves for Chromatographic Separations of Proteins,” Paper 521b, AIChE Annual Meeting, Cincinnati, OH, Nov. (2005).

Abu Daabes, M. L. Ji and N.G. **Pinto**, “A Nanostructured Chelating Adsorbent for the Capture of Gaseous Mercury: Synthesis & Characterization,” Paper 345b, AIChE Annual Meeting, Cincinnati, OH, Nov. (2005).

Jaladi, H., A. Katiyar, V.V. **Gulians** and N.G. Pinto, “Immobilization of Lipase Onto Mesoporous Silica: Study of Kinetic Parameters and Mass Transfer Effects Using a Continuous Micro Reactor Setup, Paper 289y, AIChE Annual Meeting, Cincinnati, OH, Nov. (2005).

**Yadav**, S. G. Kasting and N.G. Pinto, “Thermodynamics of Water Vapor Sorption on Human Stratum Corneum using Isothermal Calorimetry” Poster 148y, AIChE Annual Meeting, Cincinnati, OH, Nov. (2005)

Dolgoft, J., B. Xu, G. **Lipscomb**, K. Pugh, S. Beltyukova and N.G. Pinto, “Membrane Gas Separation through the Internet,” Paper 552d, AIChE Annual Meeting, Cincinnati, OH, Nov. (2005).

Katiyar, A, P. Smirniotis and N.G. **Pinto**, “Nanoengineered Materials for Protein Separations” invited paper, ChemCon’05, 58<sup>th</sup> Annual Indian Session of the Institute of Chemical Engineers, New Delhi, India, Dec. (2005).

**Pinto**, N.G., “A Nanostructured Chelating Adsorbent for Capture of Gaseous Mercury,” invited seminar, US EPA Research Laboratory, Durham, NC, Feb. (2006).

Katiyar, A. and N.G. **Pinto**, “Fundamental Investigation of Mesoporous Molecular Sieve Silicates Chromatographic Media for Preparative Bioseparations,” invited paper, PREP-2006, 19<sup>th</sup> International Symposium on Preparative/Process Chromatography, Baltimore, MD, May (2006).

**Yadav**, S. G.B. Kasting and N.G. Pinto, “A Comparative Thermodynamic Study of the Interactions of Human Stratum Corneum and Its Components with Water,” Paper 311h, AIChE Annual Meeting, San Francisco, CA, Nov. (2006).

**Katiyar**, A., H. Jaladi, V.V. Gulians and N.G. Pinto, “Unusual Interfacial Activation of *Burkholderia Cepacia* Lipase Immobilized in Nanopores of SBA-15 Silica,” Paper 322e, AIChE Annual Meeting, San Francisco, CA, Nov. (2006).

**Katiyar**, A. and N.G. Pinto, "Fundamental Studies on Dual Mode Biomolecular Separations in Ordered Mesoporous Materials," Paper 325b, AIChE Annual Meeting, San Francisco, CA , Nov. (2006).

**Abu-Daabes**, M. and N.G. Pinto, "The Chemistry of Mercuric Chloride Reduction in Flue Gases of Coal Combustion, Paper 593b, AIChE Annual Meeting, San Francisco, CA , Nov. (2006).

Jaladi, H., A. Katiyar, V.V. **Gulians** and N.G. Pinto, "Effects of Mass-Transfer and Kinetic Parameters on Biocatalytic Activity of Immobilized *Burkholderia Cepacia* Lipase in a Packed-Bed Reactor," Paper 620d, AIChE Annual Meeting, San Francisco, CA , Nov. (2006).

**Ji**, L. S.W. Thiel and N.G. Pinto, "Pyrrolidinium Irides: Promising Ionic Liquids for Elemental Mercury Capture from Flue Gas," 37<sup>th</sup> Mid-Atlantic Industrial and Hazardous Waste Conference, Cincinnati, OH, March (2007).

**Katiyar** A., S.W. Thiel and N.G. Pinto, "Protein Adsorption on Ordered Mesoporous Silica: Interpretation Using Confocal Scanning Laser Microscopy (CSLM) and Flow Micro Calorimetry (FMC)," invited paper, PREP-2007, 20<sup>th</sup> International Symposium on Preparative/Process Chromatography, Baltimore, MD, May (2007).

**Katiyar**, A. V.V. Gulaints and N.G. Pinto, "Immobilization of *Burkholderia cepacia* Lipase on Ordered Mesoporous Silicas: Effects of Pore Structure on Hydrolytic Activity," Poster Presentation, PREP-2007, 20<sup>th</sup> International Symposium on Preparative/Process Chromatography, Baltimore, MD, May (2007).

**Yadav** , S., S.W. Thiel, G.B. Kasting and N.G. Pinto, "A Transient Heat of Water Vapor Sorption Model for Human Skin ," Paper 12g, AIChE Annual Meeting, Salt Lake City, UT, Nov. (2007).

**Ji**, L. S.W. Thiel and N.G. Pinto, "Removal of Mercury from Flue Gases Using Ionic Liquid Coated Chelating Adsorbents," Paper 255c, AIChE Annual Meeting, Salt Lake City, UT, Nov. (2007).

**Yadav**, S., S.W. Thiel, G.B. Kasting and N.G. Pinto, "Probing the Interactions of Water with Naturally Smart Biopolymer "Human Skin", Poster 517r, AIChE Annual Meeting, Salt Lake City, UT, Nov. (2007).

Peise, O., L. Ji, S.W. **Thiel** and N.G. Pinto, "Advanced Adsorbents for Warm Gas Mercury Capture," ACS National Meeting, New Orleans, LA, April (2008).

Desch, R. J., A. Katiyar, S.W. **Thiel** and N.G. Pinto, "Protein Adsorption on Ordered Mesoporous Silica: Characterization of Intraparticle Diffusion Using Confocal Scanning Laser Microscopy," PREP-2008, 21<sup>st</sup> International Symposium on Preparative/Process Chromatography, San Jose, CA, June, (2008).

Ji, L., J. He, M. Khan, P.G. Smirniotis, S.W. **Thiel** and N.G. **Pinto**, "Simultaneous Removal of NOx and Hg in a Low Temperature Selective Catalytic and Adsorptive Reactor," DOE URC Conference, Pittsburgh, PA, June (2008).

Darwish, A.M., R.J. Desch, S.W. **Thiel** and N.G. Pinto, "Size Selective Protein-Protein

Separations using Mesoporous Silicates,” PREP-2009, 22<sup>nd</sup> International Symposium on Preparative/Process Chromatography, Philadelphia, PA, July, (2009).

**Katiyar**, A., S.W. Thiel, V.V. Guiliants and N.G. Pinto, “Investigation of the Mechanism of Protein Adsorption on Ordered Mesoporous Silica using Flow Microcalorimetry,” Poster Presentation, PREP-2009, 22<sup>nd</sup> International Symposium on Preparative/Process Chromatography, Philadelphia, PA, July, (2009).

Desch, R.J., A.M. Darwish, S.W. Thiel and N.G. **Pinto**, “Effects of pH and Ionic Strength on Adsorption of Proteins on Ordered Mesoporous Silica Visualized by Confocal Scanning Laser Microscopy,” PREP2009, 22<sup>nd</sup> International Symposium on Preparative/Process Chromatography, Philadelphia, PA, July, (2009).

Desch, R.J., A.M. Darwish, S.W. **Thiel**, V.V. Guliants and N.G. Pinto, “Solution Effects on Protein Adsorption Mechanisms onto SBA-15,” AIChE Annual Meeting, Nashville, TN, Nov. (2009)

**Variyath**, S., J.S. Kim, S.W. Thiel, N.G. Pinto and V.V. Guliants, “Molecular Dynamics of Pseudomonas Cepacia Lipase in Different Buffers and Correlations with its Biocatalytic Activity,” AIChE Annual Meeting, Nashville, TN, Nov. (2009).

Kim, J.S., S.W. **Thiel**, V.V. Gulaints and N.G. Pinto, “Biocatalysis using Lipase from Pseudomans Cepacia Immobilized on Functionalized Alumina,” AIChE Annual Meeting, Nashville, TN, Nov. (2009).

He, J., S.W. **Thiel**, P. G. Smirniotis and N.G. Pinto, “Adsorption of Gas-Phase Mercury using Ceria-Titania Materials,” AIChE Annual Meeting, Nashville, TN, Nov. (2009).

**Desch**, R.J., S.W. Thiel and N.G. Pinto, “Energetics of Lysozyme Adsorption on Mesoporous Silica,” PREP-2010, 23<sup>rd</sup> International Symposium on Preparative/Process Chromatography, Philadelphia, PA, May (2010).

Kim, J. S., S.W. **Thiel**, V.V. Guliants and N.G. Pinto, “Influence of Surface Functionality on Biomolecule Immobilization and Enzymatic Activity of Mesostructured Cellular Foam Silica,” Paper 312d, AIChE Annual Meeting, Salt Lake City, UT, Nov. (2010).

Liu, K., J. He, M.R. Whelen, S.W. **Thiel** and N.G. Pinto, “Supported Ionic Liquid Sorbent for Simultaneous Capture of Carbon Dioxide and Mercury,” Paper 440c, AIChE Annual Meeting, Salt Lake City, UT, Nov. (2010).

**He**, J., S.W. Thiel, K. Reddy, P. Smirniotis and N.G. Pinto, “Simultaneous Removal of NO<sub>x</sub> and Gas-Phase Mercury using Ceria-Titania Materials, Paper 573d, AIChE Annual Meeting, Salt Lake City, UT, Nov. (2010).

## SERVICE

### **A. STATE**

Kentucky State Board of Licensure for Professional Engineers and Land Surveyors: Member, 2011-present

Kentucky Statewide EPSCoR Committee: Member, 2012 - present

Ohio Governor Ted Strickland's Higher Education Transition Leadership Team: Member - 2006.

Ohio Board of Regents Advisory Council on Graduate Education: Member 2006-2011.

State of Ohio Hazardous Waste Facility Board: Member 1993-2003.

### **B. UNIVERSITY PANELS**

Pennsylvania State University: Industrial and Professional Advisory Committee, Department of Chemical Engineering, 2002-07.

Universidade da Beira Interior, Covilha, Portugal: Jury Member for Full Professor Candidate (Juri das Provas de Agregacao), 2002.

### **C. EDITORIAL BOARD**

Separation Science & Technology, 1997-present

### **D. SERVICE TO PEER REVIEW (Selected)**

National Science Foundation

Department of Energy

Petroleum Research Fund

AIChE

Journal Adsorption

Journal American Chemical Society

Symposium Series Journal of Chromatography

Langmuir

Carbon

Canadian Journal of Chemical Engineering

The Chemical Engineering

Journal Biotechnology and Bioengineering

Biotechnology Progress

Chemical Engineering Science

Chemical Engineering Communications

Reactive Polymers

Industrial and Engineering Chemistry Research



Hanser Publishers  
Tulane University DOE/EPSCoR External Review Panel

## **E. COMMITTEE WORK**

### **UNIVERSITY OF LOUISVILLE**

Council of Academic Officers, 2011-present  
Compliance Oversight Council, 2011-present  
Strategic Technology Executive Committee, 2011-present  
Review Committee Vice President for Business Affairs, 2012

### **UNIVERSITY OF CINCINNATI (Selected)**

#### **University**

Search Committee Dean of Nursing (Chair), 2010-11  
Collegiate Restructuring –Department of Economics (co-Chair), 2010  
Task Force for Competitive Graduate Funding (co-Chair), 2008  
Task Force on Enrollment Management, 2008  
Task Force on Graduate and Married Housing, 2008  
Search Committee, Charles P. Taft Research Center Faculty Chair, 2008  
Search Committee, Assoc. Senior Vice President for Business and Financial Affairs, 2008  
University Diversity Council, 2007-11  
University Academic Operations Committee, 2006-11  
University Dean's Council, 2006-11  
Strategic Enrollment Management Committee, 2006-11  
University Graduate Council (Chair), 2006-11  
Provost Reappointment Promotion and Tenure Committee, 2006-11  
Charles P. Taft Research Center Executive Board, 2006-11  
Performance Based Budgeting Task Force, 2006  
Tuition, Discounting & Remission Task Force, 2006  
Search Committee, Director Center for Enhancement of Teaching & Learning, 2006  
IGERT Admissions Committee (Chair), 2005  
Search Committee, Director Graduate Recruitment & Retention, 2003-2004  
University Graduate Council, 2002-2006  
University Graduate Standards Committee, 2003-2006  
BS/MD Faculty Admissions Committee, 2002  
Graduate Assistant Teaching Effectiveness Workshop Committee, 1999  
Distinguished Graduate Assistantships Committee, 1997  
Graduate Faculty Nominations Committee, 1995-97  
Biomedical Seed Grants Review Panel (Chair), 1994  
Biomedical Seed Grants Review Panel, 1993  
Faculty Summer Fellowship Committee, 1987

## **College of Engineering**

MINE Department Head Search Committee (Chair), 2004  
Material Science and Engineering Department Head Search Committee, 1999-2000  
Resource Allocation Committee, 1995  
COE Curriculum Committee, 1993-94  
Task Force on Excellence in Undergraduate Engineering Education, 1993  
College of Engineering Awards Committee, 1993  
21<sup>st</sup> Century Curriculum Committee, 1991-92  
Graduate Student Summer Fellowship Committee, 1987-88  
Academic Standards Committee, Summer 1989

## **Department of Chemical Engineering**

Department Head Search Committee: 2005-06  
Undergraduate Chemical Engineering Curriculum Committee, 2004-05  
ABET Committee: Chair 2000-02; Chair 1992 Visit; Committee Member 1986 Visit.  
Reappointment, Promotion & Tenure Committee (Chair), 1999-2000  
Department Head Review Committee, 1991  
Acting Graduate Studies Director, 1998-99  
Faculty Search Committee: Chair 2000-01; 1993-94; 1992-92; Chair 1990-91; 1989-90  
Eminent Scholar Search Committee: 1998-99; Chair 1995-97; 1989-95  
Instructional Specialist Search Committee, 1992  
Graduate Studies Committee: 1999-2000; Chair 1998-99; Chair 1992-93; 1986-91  
Awards Committee: Chair 1999-2003; 1992-93  
Chemical Engineering Curriculum Committee, 1986-87  
Academic Leave Committee 2001-02, 1992-93, 1990-91  
Graduate Seminar Series Coordinator: 2002; 1999, 1993; 1990; 1988  
URC Student Fellowship Committee, 1991-93

## **F. ADVISER FOR STUDENT ORGANIZATIONS**

University Graduate Student Governance Association 2005-present  
Chemical Engineering Graduate Student Association 1994-1997  
Engineering Tribunal 1994-96  
AIChE Student Chapter 1986-1989

## **G. MEMBERSHIP IN PROFESSIONAL & HONOR SOCIETIES**

American Institute of Chemical Engineers  
American Society for Engineering Education  
Tau Beta Pi Engineering Honor Society

## **H. ORGANIZATION OF SCIENTIFIC MEETINGS**

1. "Nonlinear Wave Propagation: Theory and Application," Symposium Nos. 239 and 240,

- AIChE Annual Meeting, Chicago, IL, 1990, Session Co-Chair.
2. "Chromatographic Engineering in Bioseparations," Symposium No. 77, AIChE Annual Meeting, Los Angeles, CA, 1991, Session Co-Chair.
  3. "Preparative Chromatography," PREP-94, International Symposium, Washington, D.C., 1994, Session Chair.
  4. "Preparative Chromatography, Ion Exchange, Adsorption/Desorption Processes and Related Techniques," PREP-95, International Symposium, Washington, D.C., 1995, Session Chair.
  5. "Preparative Chromatography, Ion Exchange, Adsorption/Desorption Processes and Related Techniques," PREP-96, International Symposium, Washington, D.C., 1996, Session Chair.
  6. "Surface Chemistry/Catalytic Properties of Activated Carbon," American Carbon Society Workshop, Charleston, SC, 1996, Session Co-chairman.
  7. "Preparative Chromatography, Ion Exchange, Adsorption/Desorption Processes and Related Separation Techniques," PREP-2002, International Symposium, Washington, D.C., 2002, Session Chair.
  8. International Symposium for Preparative Chromatography and Related Techniques, Scientific Advisory Committee, 2008-present.

## **I. RESEARCH CONSULTING**

Procter and Gamble, Cincinnati, OH, 1988-91  
The BF Goodrich Company, Brecksville, OH 1996  
American Laundry Machinery, Norwood, OH, 1996-2000  
Material Methods LLC, Newport, CA, 2002-04  
Syracuse Investment Group, Syracuse NY, 2004-05  
FIBRIQ, Loveland, OH, 2007-08