

KRISTA S. WALTON

ASSOCIATE PROFESSOR AND
MARVIN R. MCCLATCHEY AND RUTH MCCLATCHEY CLINE FACULTY FELLOW
SCHOOL OF CHEMICAL & BIOMOLECULAR ENGINEERING
GEORGIA INSTITUTE OF TECHNOLOGY
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I. EARNED DEGREES

Ph.D. 2005 Chemical Engineering Vanderbilt University
B.S.E. 2000 Chemical Engineering University of Alabama–Huntsville, *Magna Cum Laude*

II. EMPLOYMENT

2012 – present Georgia Institute of Technology, Associate Professor and McClatchey Faculty Fellow
2009 – 2012 Georgia Institute of Technology, Assistant Professor
2006 – 2009 Kansas State University, Chemical Engineering, Tim and Sharon Taylor Assistant Professor
2005 – 2006 Postdoctoral Research Associate and ACS PRF Fellow, Northwestern University
2000 – 2005 Graduate Research Assistant and IBM Fellow, Vanderbilt University
1997 – 1999 Process Engineer, UAH Cooperative Education Program, Solutia, Inc., Decatur, AL

III. HONORS AND AWARDS

2013 International Adsorption Society Award for Excellence in Publications by a Young Member of the Society (*Inaugural Award*)
2012 Kavli Fellow, National Academy of Sciences (NAS) German-American Frontiers of Science Symposium (GAFOS), Meeting Chair (U.S. side)
2011 Young Scientist Delegation, IAP/World Economic Forum's "Summer Davos" in Dalian, People's Republic of China, Invitee (1 of 2 US Young Scientists chosen after nomination by the US National Academies)
2011 Kavli Fellow and Organizer, National Academy of Sciences (NAS) German-American Frontiers of Science Symposium (GAFOS)
2010 Kavli Fellow, National Academy of Sciences (NAS) German-American Frontiers of Science Symposium (GAFOS)
2009 CAREER Award, National Science Foundation
2009 Sigma Xi Outstanding Junior Scientist Award, KSU
2008 Presidential Early Career Award for Scientists and Engineers (PECASE)
2007 Army Research Office Young Investigator Award
2005 American Chemical Society Petroleum Research Fund Alternative Energy Postdoctoral Fellowship
2005 AIChE Separations Division Graduate Research Award, Adsorption and Ion Exchange
2000 IBM Graduate Fellowship
1999 Society of Women Engineers Student Engineer of the Year, Alabama
1999 Alabama Association of Colleges & Employers Cooperative Education Student of the Year
1999 UAH Cooperative Education Student of the Year

IV. TEACHING

A. INDIVIDUAL STUDENT GUIDANCE

A.1. Postdoctoral Fellows

1. Dr. Tim Duerinck, starting Fall 2013
2. Dr. Bogna Grabicka, 2011-2013, Promoted to Research Scientist I, 2013
3. Dr. Yougui Huang, 2008-2013
4. Dr. Sangil Han, 2010-2012, Co-Advised with D. Sholl, C. Meredith, S. Nair, C. Jones, W. Koros
5. Dr. Taku Watanabe, 2010-2012, Co-Advised with D. Sholl, S. Nair, C. Meredith, C. Jones, W. Koros
6. Dr. Ying Dai, 2010-2012, Co-Advised with W. Koros, D. Sholl, S. Nair C. Meredith, C. Jones
7. Dr. Cantwell Carson, 2009-2011
8. Dr. Feng Li, 2007-2008

A.2. Graduate Students

Alumni

1. Bin Mu, Ph.D. 2011, "Synthesis and Gas Adsorption Study of Porous Metal-Organic Framework Materials," Current Position: Assistant Professor, Arizona State University.
2. J. Reddy Karra, Ph.D. 2011, "Development of Porous Metal Organic Frameworks for Gas Adsorption Applications," Current Position: Research Engineer, UTRC.
3. Christine Flemming, M.S. 2012, "Synthesis and Characterization of Metal-Organic Frameworks as Base Catalysts," Current Position: Process Engineer, Cummins, Inc.
4. Paul Schoenecker, 2012, "High-Throughput Synthesis and Application of Water-Stable MOFs," Current Position: Research Engineer, MeadWestvaco

Current

1. Yang Cai, Ph.D. Candidate, defense scheduled August 2013.
2. Katrina Stults, Ph.D. Candidate, defense expected May 2014.
3. Greg Cmarik, Ph.D. Candidate, defense expected May 2014.
4. Michael Mangarella, Ph.D. candidate.
5. Himanshu Jasuja, Ph.D. candidate.
6. Nicholas Burtch, Ph.D. Candidate.
7. Karen Tulig, Ph.D. proposal scheduled 2013.
8. William Mounfield, 1st year Ph.D. student.
9. Michael Dutzer, 1st year Ph.D. student.
10. Ken Onubogu, M.S. Student. *Co-advised with Prof. David Sholl*
11. Yang Jiao, 1st year Ph.D. student.

Current Visiting Students

1. Naixu Li, 2012-2013, Southeast University, China, State Scholarship Fund

A.3. Undergraduate Students

Georgia Tech:

1. Joshua Cruz, Spring 2010
2. Thomas Devine, Spring 2010
3. Chien Wei Wang, Fall 2010 (*Co-Advised with David Sholl and Sankar Nair*)

4. Victor Manrique, Fall 2010-Spring 2011 (*Co-Advised with David Sholl and Sankar Nair*)
5. Megan DeWitt, Fall 2010-Spring 2011 (*Co-Advised with David Sholl and Sankar Nair*)
6. Stella Kinnaid, Fall 2010-Spring 2011 (*Co-Advised with David Sholl and Sankar Nair*)
7. Madison Barre, Fall 2010-Spring 2011 (*Co-Advised with David Sholl and Sankar Nair*)
8. Chris Kim, Fall 2010-Spring 2011 (*Co-Advised with David Sholl and Sankar Nair*)
9. Grace Belancik, Spring-Summer 2011 (PURA winner for Summer 2011)
10. Arthur Barfield, Summer 2011
11. Deonte Fletcher, Spring/Summer/Fall 2012
12. Thomas Brumby, Fall 2012/Spring 2013
13. Pooja Sujit, Fall 2012/Spring 2013

Kansas State University:

1. Jordon Groskurth, Spring 2008 – Spring 2009
2. Levi Naden, Summer 2008
3. Jason Orr, Summer-Fall 2008
4. Zachary Farrell, Fall 2008

V. SCHOLARLY ACCOMPLISHMENTS**A. PUBLISHED BOOKS AND PARTS OF BOOKS**

1. Beaudet, R. A., Bandosz, T. J., Berkowitz, J. B., Clack, H. L., Gekler, W. C., Koller, L. D., LeVan, M. D., Pendergrass, J. A., Walton, K. S., Weber, W. J., Jr., and Yang, Y.-C., National Research Council. *The Disposal of Activated Carbon from Chemical Agent Disposal Facilities, Board on Army Science and Technology*. Washington, D. C., National Academies Press, 2009.
2. David Dubbeldam and Krista S. Walton, "On the Application of Classical Molecular Simulations of Adsorption in Metal-Organic Frameworks" Book chapter in *Metal-Organic Frameworks: Materials Modeling towards Engineering Applications* edited by Jiang Jianwen (Pan Stanford Publishing Pte Ltd, 2013).

B. REFEREED PUBLICATIONS (h-index = 14)**Ph.D. Research:**

1. Walton, K. S., and M. D. LeVan. Consistency of Energy and Material Balances for Bidisperse Particles in Fixed-Bed Adsorption and Related Applications. *Industrial & Engineering Chemistry Research*, **2003**, 42, 6938–6948.
2. Walton, K. S., G. Pigorini, and M. D. LeVan. Simple Group Contribution Theory for Adsorption of Alkanes in Nanoporous Carbons. *Chemical Engineering Science*, **2004**, 59, 4425–4432.
3. Walton, K. S., and M. D. LeVan. Adsorbed-Phase Heat Capacities: Thermodynamically Consistent Values Determined from Temperature-Dependent Equilibrium Models. *Industrial & Engineering Chemistry Research*, **2005**, 44, 178-182.
4. Walton, K. S., and M. D. LeVan. Development of Energy Balances for Fixed-Bed Adsorption Processes: Thermodynamic Paths, Heat Capacities, and Isothermic Heats. *Adsorption*, **2005**, 11, 555-559.
5. Walton, K. S., and M. D. LeVan. Effect of Energy Balance Approximations on Simulation of Fixed-Bed Adsorption. *Industrial & Engineering Chemistry Research*, **2005**, 44, 7474–7480.

6. Walton, K. S., C. L. Cavalcante Jr., and M. D. LeVan. Adsorption Equilibrium of Alkanes on a High Surface Area Activated Carbon Prepared from Brazilian Coconut Shells. *Adsorption*, **2005**, 11, 107–111.
7. Walton, K. S., C. L. Cavalcante Jr., and M. D. LeVan. Adsorption of Light Alkanes on Coconut Nanoporous Activated Carbon. *Brazilian Journal of Chemical Engineering*, **2006**, 23, 551–561.
8. Walton, K. S., and M. D. LeVan. A Novel Adsorption Cycle for CO₂ Recovery: Experimental and Theoretical Investigations of a Temperature Swing Compression Process. *Separation Science and Technology*, **2006**, 41, 485–500.
9. Walton, K. S., and M. D. LeVan. Natural Gas Storage Cycles: Influence of Nonisothermal Effects and Heavy Alkanes. *Adsorption*, **2006**, 12, 227–235.
10. Walton, K. S., M. B. Abney, and M. D. LeVan. Adsorption of CO₂ in Y and X Zeolites Modified by Alkali Metal Cation Exchange. *Microporous and Mesoporous Materials*, **2006**, 91, 78–84.

Postdoctoral Research:

11. Düren, T., F. Millange, G. Férey, K. S. Walton, and R. Q. Snurr. Calculating Geometric Surface Areas as a Characterization Tool for Metal-Organic Frameworks. *Journal of Physical Chemistry C*, **2007**, 111(42), 15350-15356.
12. Dubbeldam, D., H. Frost, K. S. Walton, D. E. Ellis, and R. Q. Snurr. Molecular Simulation of Adsorption Sites of Light Gases in the Metal-Organic Framework IRMOF-1. *Fluid Phase Equilibria*, **2007**, 261, 152-161.
13. Walton, K. S. and R. Q. Snurr. Applicability of the BET Method for Determining Surface Areas of Metal-Organic Frameworks. *Journal of the American Chemical Society*, **2007**, 129, 8552-8556.
14. Dubbeldam, D., K. S. Walton, D. E. Ellis, and R. Q. Snurr. Exceptional Negative Thermal Expansion in Metal-Organic Frameworks. *Angewandte Chemie*, **2007**, 46, 4496-4499.
15. Walton, K. S., A. R. Millward, D. Dubbeldam, H. Frost, J. J. Low, O. M. Yaghi, and R. Q. Snurr. Understanding Inflections and Steps in Carbon Dioxide Adsorption Isotherms in Metal-Organic Frameworks, *Journal of the American Chemical Society*, **2008**, 130, 406-407.
16. Akbar, S., M. Pukala, and K. S. Walton. Adsorption of Aqueous Solutions of Carboxylic Acids on Montmorillonite, Silicalite, H-ZSM-5 and their Na⁺ and Li⁺ Exchanged Forms, *Journal of the Chemical Society of Pakistan*, **2008**, 30, 546-548.

Walton Research Group:

17. Dubbledam, D., C. J. Galvin, K. S. Walton, D. E. Ellis, and R. Q. Snurr. Separation and Molecular-level Segregation of Complex Alkane Mixtures using Metal-Organic Frameworks, *Journal of the American Chemical Society*, **2008**, 130, 10884-10885.
18. Karra, J. R. and K. S. Walton. Effect of Open Metal Sites on Adsorption of Polar and Nonpolar Molecules in Metal-Organic Framework Cu-BTC, *Langmuir*, **2008**, 24, 8620-8626.
19. Mu, B., F. Li, K. S. Walton. A Novel Metal-Organic Coordination Polymer for Selective Adsorption of CO₂ over CH₄, *Chemical Communications*, **2009**, 2493-2495.
20. Bae, Y.-S., D. Dubbledam, A. Nelson, K. S. Walton, J. T. Hupp, R. Q. Snurr. Strategies for Characterization of Large-pore Metal-Organic Frameworks by Combined Experimental and Computational Methods, *Chemistry of Materials*, **2009**, 21, 4768-4777.

21. Mu, B., P. M. Schoenecker, K. S. Walton. Gas Adsorption Study on Mesoporous Metal-Organic Framework UMCM-1, *Journal of Physical Chemistry C*, **2010**, 114, 6464-6471.
22. Mu, B., Y. Huang, K. S. Walton. A Metal-Organic Framework with Coordinatively Unsaturated Centers and Nanoporous Structure, *CrystEngComm*, **2010**, 12, 2347-2349. (*New Talent themed issue*).
23. Karra, J. R. and K. S. Walton. Molecular Simulations and Experimental Studies of CO₂, CO, and N₂ Adsorption in Metal-Organic Frameworks, *Journal of Physical Chemistry C*, **2010**, 114, 15735-15740.
24. Huang, Y., B. Mu, P. M. Schoenecker, C. G. Carson, J. R. Karra, Y. Cai, and K. S. Walton. A Porous Flexible Homochiral Array of Single-Stranded Helical Nanotubes Exhibiting Single-Crystal-to-Single-Crystal Oxidation Transformation, *Angewandte Chemie*, **2011**, 50, 436-440.
25. Mu, B. and K. S. Walton. High Pressure Adsorption Equilibrium of CO₂, CH₄, and CO in an Impregnated Carbon, *Journal of Chemical & Engineering Data*, **2011**, 56, 390-397.
26. Mu, B. and K. S. Walton. Adsorption Equilibrium of Methane and Carbon Dioxide on Porous Metal-Organic Framework Zn-BTB, *Adsorption*, **2011**, 17, 777-782.
27. Lu, G., O. K. Farha, L. E. Kreno, P. M. Schoenecker, K. S. Walton, R. P. Van Duyne, and J. T. Hupp. Fabrication of Metal-Organic-Framework-containing Silica-Colloidal Crystals for Vapor Sensing, *Advanced Materials*, **2011**, 38, 4449-4452.
28. Mu, B. and K. S. Walton. Thermal Analysis and Heat Capacity Study of Metal-Organic Frameworks, *Journal of Physical Chemistry C*, **2011**, 115, 22748-22754.
29. Schoenecker, P. M., C. G. Carson, H. Jasuja, C. J. J. Flemming, and K. S. Walton. Effect of Water Adsorption on Retention of Structure and Surface Area of Metal-Organic Frameworks, *Industrial & Engineering Chemistry Research*, **2012**, 51 (18), 6513-6519.
30. Mu, B. and K. S. Walton. Breathing Effects of CO₂ Adsorption on a Flexible 3D Lanthanide Metal-Organic Framework, *Journal of Materials Chemistry*, **2012**, 22(20), 10172-10178. (Invited, special issue "Integrating Functionality into Metal-Organic Frameworks").
31. Han, S., Y.-G. Huang, T. Watanabe, K. S. Walton, S. Nair, D. S. Sholl, and C. Meredith. High-Throughput Screening of Metal Organic Frameworks (MOFs) for CO₂ Separation, *ACS Combinatorial Science*, **2012**, 14, 263-267.
32. Cai, Y., Y. Zhang, Y.-G. Huang, S. Marder, and K. S. Walton. Impact of Alkyl-Functionalized BTC on Properties of Copper-Based Metal-Organic Frameworks, *Crystal Growth & Design*, **2012**, 12 (7), 3709-3713.
33. Vilhelmsen, L., K. S. Walton, and D. S. Sholl. Structure and Mobility of Metal Clusters in MOFs: Au, Pd, and AuPd clusters in MOF-74, *Journal of the American Chemical Society*, **2012**, 134(30), 12807-12816.
34. Jasuja, H., Y.-G. Huang, and K. S. Walton, Adjusting the Stability of Metal-Organic Frameworks under Humid Conditions by Ligand Functionalization, *Langmuir*, **2012**, 28(49), 16874-16880.
35. Jasuja, H., J. Zang, D. S. Sholl, and K. S. Walton. Rational Tuning of Water Vapor and CO₂ Adsorption in Highly Stable Zr-Based MOFs, *Journal of Physical Chemistry C*, **2012**, 116(44), 23526-23532.
36. Cmarik, G. E., M. Kim, S. M. Cohen, and K. S. Walton. Turning the Adsorption Properties of UiO-66 via Ligand Functionalization, *Langmuir*, **2012**, 28(44), 15606-15613.

37. Karra, J. R., B. E. Grabicka, Y.-G. Huang, and K. S. Walton. Adsorption Study of CO₂, CH₄, N₂, and H₂O on an Interwoven Copper Carboxylate Metal-Organic Framework (MOF-14), *Journal of Colloid and Interface Science*, **2013**, 392, 331-336.
38. Jasuja, H., N. C. Burtch, Y.-G. Huang, Y. Cai, K. S. Walton. Kinetic Water Stability of an Isostructural Family of Zinc-Based Pillared Metal-Organic Frameworks, *Langmuir*, **2013**, 29(2), 633-642.
39. Karra, J. R., Y.-G. Huang, K. S. Walton. Synthesis, Characterization, and Adsorption Studies of Nickel (II), Zinc (II), and Magnesium (II) Coordination Frameworks of BTTB, *Crystal Growth & Design*, **2013**, 13(3), 1075-1081.
40. DeCoste, J. B., G. W. Peterson, H. Jasuja, T. G. Glover, Y. -G. Huang, and K. S. Walton. Stability and Degradation Mechanisms of Metal-Organic Frameworks Containing Zr₆O₄(OH)₄ Secondary Building Unit, *Journal of Materials Chemistry A*, **2013**, 1(18), 5642-5650.
41. Jasuja, H. and K. S. Walton. Experimental Study of CO₂, CH₄, and Water Vapor Adsorption on a Dimethyl-Functionalized UiO-66 Framework, *Journal of Physical Chemistry C*, **2013**, 117(14), 7062-7068.
42. Burtch, N. C., H. Jasuja, D. Dubbeldam, and K. S. Walton, Molecular-Level Insight into Unusual Low Pressure CO₂ Affinity in Pillared Metal-Organic Frameworks, *Journal of the American Chemical Society*, **2013**, 135(19), 7172-7180.
43. Han, S., Y. -G. Huang, T. Watanabe, S. Nair, K. S. Walton, D. S. Sholl, and J. C. Meredith. MOF Stability and Gas Adsorption as a Function of Exposure to Water, Humid Air, SO₂, and NO₂, *Microporous and Mesoporous Materials*, **2013**, 173, 86-91.
44. Schoenecker, P. M., G. A. Belancik, B. E. Grabicka, and K. S. Walton, Kinetic Study and Crystallization Process Design for Scale-Up of UiO-66-NH₂ Synthesis, *AIChE Journal*, **2013**, 59(4), 1255-1262.
45. Peterson, G. W., J. B. DeCoste, T. G. Glover, Y.-G. Huang, H. Jasuja, and K. S. Walton. Effects of Pelletization Pressure on the Physical and Chemical Properties of the Metal-Organic Frameworks Cu₃(BTC)₂ and UiO-66. *Microporous and Mesoporous Materials*, **2013**, in press, <http://dx.doi.org/10.1016/j.micromeso.2013.02.025>.

C. PRESENTATIONS

Invited:

1. LeVan, M.D.*, and K. S. Walton*. "Adsorption Research for Space Exploration," seminar given in celebration of 10 years of adsorption research at UFC, Departamento de Engenharia Química, Universidade Federal do Ceará, Fortaleza, Brazil, July 2004.
2. "Metal-Organic Frameworks for Adsorption Applications," Workshop on Porous Carbons: Adsorbent Materials for Chemical/Biological Protection, Seattle, WA, July 13-14, 2007.
3. "Challenges and New Directions in Nanostructured Porous Materials Research," Multidisciplinary University Research Initiative Workshop, Arlington, VA, September 3-4, 2007.
4. "Novel Nanoporous Materials for Adsorption Applications," Chevron Phillips, CPChem, Bartlesville, OK, September 25, 2007.

5. "Perspectives and Challenges in Adsorption Science and Nanoporous Materials," AIChE/ACS Joint Symposium: Thermodynamics in Chemical Engineering: Prospects and Perspectives, in honor of the 100th anniversary of AIChE, Spring Meeting, New Orleans, LA, April 6-10, 2008.
6. Mu, B.; F. Li; J.R. Karra; and K.S. Walton. "Adsorption of Light Gases in Porous Metal-Organic Frameworks," Revolutionary Approaches to Hazard Mitigation, Edinburgh, Scotland, July 29-30, 2008.
7. Seminar, Department of Chemical Engineering, University of Edinburgh, Edinburgh, Scotland, U.K., August 1, 2008.
8. "Design Strategies for Nanostructured Materials with Advanced Filtration Capabilities," Chemical/Biological Filtration Strategies Working Group, Arlington, VA, September 10-12, 2008.
9. Seminar, Department of Chemical Engineering, University of Virginia, Charlottesville, VA, October 16, 2008.
10. Seminar, Department of Chemical Engineering, Arizona State University, Tempe, AZ, October 31, 2008.
11. Seminar, School of Chemical & Biomolecular Engineering, Georgia Institute of Technology, January 7, 2009.
12. "Nanostructured Inorganic-Organic Hybrids: Engineering a New Class of Porous Materials," Midwest Thermodynamics and Statistical Mechanics Conference, Wayne State University, Detroit, MI, May 20, 2009.
13. Dynamics and Chemistry of Surfaces and Interfaces Basic Research Workshop, Army Research Office, Savannah, GA, 23-25 June 2009.
14. "Adsorption Properties of Porous Inorganic-Organic Hybrids," Gordon Conference in Solid State Chemistry: New Frontiers in Materials Synthesis and Characterization, Magdalen College, Oxford, UK, August 30 - September 4, 2009.
15. Seminar, Department of Chemical Engineering, West Virginia University, October 30, 2009.
16. Nonproliferation and Arms Control Technology Working Group, Washington, D. C., November 19, 2009.
17. Surface Science Colloquium, Edgewood Chemical Biological Center, Edgewood, MD, December 9, 2009.
18. "Functional Porous Materials for Adsorption Applications," 16th German-American Frontiers of Science Symposium, Alexander von Humboldt Foundation and U.S. National Academy of Sciences, Potsdam, Germany, June 2-5, 2010.
19. "Engineering Porous Materials for Air Purification," Chemical/Biological Filtration Strategies Working Group, Arlington, VA, September 1, 2010.
20. Seminar, Department of Chemical Engineering, University of Washington, Seattle, WA, January 10, 2011.
21. Seminar, Adsorption Research Group, Air Products & Chemicals, Allentown, PA, January 19, 2011.
22. Seminar, Quantachrome Instruments, Boynton Beach, FL, February 21, 2011.
23. "Structural Stability of Metal-Organic Frameworks," 17th German-American Frontiers of Science Symposium, Alexander von Humboldt Foundation and U.S. National Academy of Sciences, Irvine, CA, April 8-11, 2011.

24. "Multifunctional Metal-Organic Frameworks: Concepts for Second Skin Technologies", Dynamic Multifunctional Materials for a Second Skin Concept Workshop, Defense Threat Reduction Agency, Natick, MA, August 4-5, 2011.
25. "Development of Mixed-Matrix Hollow Fiber Membranes using MOFs for Carbon Dioxide Capture from Flue Gas," ACS Symposium on Greenhouse Gases, Denver, CO, August 29, 2011.
26. Seminar, Department of Chemistry, University of California-Berkeley, September 30, 2011.
27. Seminar, Department of Chemical Engineering, University of Arkansas, October 4, 2011.
28. Seminar, Department of Chemical and Biomolecular Engineering, Vanderbilt University, Feb 20, 2012.
29. Seminar, Adsorption Research Group, Quantachrome Instruments, Boynton Beach, FL, March 21, 2012
30. "Design of Metal-Organic Frameworks for Adsorption Separations and Chemical Sensing," 18th German-American Frontiers of Science Symposium, Alexander von Humboldt Foundation and U.S. National Academy of Sciences, Potsdam, Germany, May 8-11, 2012.
31. "Toward the Rational Design of Multifunctional Nanomaterials: Synthesis and Characterization of Nanostructured Metal-Organic Frameworks," NSF CBET Grantees Conference, Washington, D.C., June 6-8, 2012.
32. "Identifying Structural Features that Control Stability of MOFs," Metal-Organic Frameworks for Energy Applications, Division of Energy and Fuels, ACS Meeting, Philadelphia, PA, August 19-23, 2012.
33. "Metal-Organic Frameworks for Air Purification," Chem/Bio Filtration Workshop, Arlington, VA, August 28-29, 2012.
34. "MOF/Nanoparticle Composites for Carbon Monoxide Adsorption and Oxidation," ARO Reactive Chemical Systems Workshop, Providence, RI, October 3-4, 2012.
35. Seminar, Department of Chemistry, University of South Florida, October 11, 2012.
36. Seminar, Department of Chemistry, University of Vermont, November 29, 2012.
37. Seminar, Department of Chemical Engineering, University of Florida, March 11, 2013.
38. IAS Young Scientist Award Lecture, 11th Fundamentals of Adsorption Meeting, Baltimore, MD, May 19-24, 2013.
39. Keynote Speaker, International MOF Symposium, Dresden, Germany, September 16-17, 2013.

Other Conference Presentations: 55 presentations since 2002

D. OTHER SCHOLARLY ACCOMPLISHMENTS

- Provisional Patent Application: 61/616,746. Schoenecker, P. S. W. J. Koros, and K. S. Walton. "A Continuous-Flow Metal-Organic Framework Crystallization Reactor."

VI. SERVICE**A. PROFESSIONAL CONTRIBUTIONS****A1. International**

- Secretary/Treasurer, International Adsorption Society, 2010-present
- Board of Directors, International Adsorption Society, 2010-present
- Editorial Board, *Adsorption Journal*, 2013-present
- Editorial Board, *Separation Science and Technology*, 2012-present
- MOF Council to the International Zeolite Association, North America Representative, 2012-present
- US Representative, Global Young Academy, 2012-2016
- German-American Frontiers of Science, U.S. National Academies and Alexander von Humboldt Foundation: Participant (2010); Organizing committee (2011); Meeting Chair, U.S., (2012)

A2. National

- Director, Separations Division, American Institute of Chemical Engineers, 2008-present
- Vice-Chair, AIChE Separations Division Area 2e Adsorption and Ion Exchange, 2011-2013
- Chair, Area 2e, 2013-2015
- Programming Committee member, AIChE Area 2e Adsorption and Ion Exchange, 2006- present
- Session Chair, Area 2e AIChE Annual Meeting, > 15 sessions since 2006
- Study Committee member, National Research Council, Examining Activated Carbon Disposal at U.S. Army Chemical Demilitarization Sites, 2008-2009
- Panelist for Chemical Safety Summit organized by the National Academies Board on Chemical Sciences & Technology, Washington, D.C., November 2010.