

Leslie (Les) G. Butler

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EDUCATION

- California Institute of Technology** *Mar 1981 - Aug 1983*
Postdoctoral Fellow in Inorganic Chemistry
Advisor: Professor Harry B. Gray
- University of Illinois at Urbana-Champaign** *Jan 1977 - Feb 1981*
Doctoral of Philosophy in Inorganic Chemistry
Dissertation: Applications of Adiabatic Demagnetization with Level Crossing NMR Spectroscopy
Advisor: Professor Theodore L. Brown
- University of Arkansas** *Sept 1973 - Dec 1976*
Bachelor of Science in Chemistry
Graduated Phi Beta Kappa

TECHNICAL STRENGTHS

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|-----------------------------|---|
| Computer Languages | Mathematica, Matlab |
| Software & Tools | LaTeX, Instrument construction: NMR spectrometers and X-ray systems |

EXPERIENCE

- Louisiana State University - Department of Chemistry** Sep 1983 - present
- Leader in new educational technologies, e.g. contributor to LearningCatalytics question database for both undergraduate and graduate chemistry coursework.
 - [1983-1999] Developed solid-state NMR program in materials science.
 - Built four NMR spectrometers. Secured funds to purchase two commercial solid-state NMRs.
 - Made significant contributions in ^2H , ^{10}B , wideline and single crystal ^{27}Al , ^{29}Si , and zero-field ^{81}Br spectroscopy.
 - [2000-present] Developed X-ray & neutron tomography/interferometry program.
 - Built tomography/interferometry beamline at the LSU synchrotron.
 - Built laboratory tomography/interferometry instrument at LSU campus.
 - Subcontracted by Oak Ridge National Laboratory to construct Talbot-Lau interferometer at HFIR CG-1D beamline.
 - Made significant contributions in data analysis for materials science projects in polymer flame retardants, interferogram analysis, and measurement of defects and fatigue in additive manufactured articles.
- Refined Imaging LLC** Sep 2017 - present
- Co-Founder: Chief Technical Officer
- Sabbatical: Naval Research Laboratory, Washington, DC** Jan 1990 - Aug 1990
Solid-State NMR Imaging
- Developed density matrix analyses, including stereo visualizations, of pulse sequences for NMR of quadrupolar nuclei and for solid-state NMR imaging.
 - Applied solid-state NMR imaging to real-time monitoring of a gas-solid reaction.

Sabbatical: National Synchrotron Light Source, Brookhaven, NY Sep 1997 - Oct 1997
X-ray Tomography

- Tomography at X27C beamline. Matlab software development for image analysis.
- Applications to polymer flame retardants, microfabricated structures, and cements.

Sabbatical: National High Magnetic Field Laboratory, Tallahassee, FL Nov 1997 - Dec 1997
²⁷Al NMR

- Software for field-swept NMR at extremely high fields, up to 40 Tesla
- NMR of methylaluminumoxanes, including glove box sample loading of 2 mm MAS rotors.
- Software for optical spectroscopy in pulsed 1000 Tesla (Los Alamos Natl. Lab)

Program Officer: National Science Foundation, Washington, DC Jan 2001 - Dec 2002
Chemistry Division

- Responsible for approximately \$10M portfolio of analytical and surface science projects. Chaired panel review sessions for major instrumentation.

Sabbatical: Paul Scherrer Institute, Switzerland and FRM-II, Munich, Germany various extended visits from Jun 2009 - Aug 2010
Neutron Imaging Groups

- Studied neutron optical properties of metals. Developed imaging methods for commercial lithium-ion batteries as a function of charge state and wear.

Sabbatical: Advanced Photon Source, Chicago, IL various extended visits from Jun 2015 - Aug 2016
X-ray Optics Group, APS Visiting Scientist

- Software development for APS TomoPy project: LSU Mathematica codes for stepped-grating and single-shot interferogram analysis were converted into Python.

PUBLICATIONS

Complete List of Published Work in Web of Science:

Search terms: author=Butler LG and addresses = Baton Rouge or Pasadena or Urbana. h-index = 22

91. “Non-Destructive Evaluation of Additively Manufactured Polymer Objects using X-ray Interferometry”, Kio, O. J.; Yuan, J.; Brooks, A. J.; Knapp, G., L.; Ham, K.; Ge, J.; van Loo, D.; Butler, L. G., *Additive Manufacturing*, submitted, **2017**
90. “Early Detection of Fracture Failure in SLM AM Tension Testing with Talbot-Lau Neutron Interferometry”, Brooks, A. J.; Yao, H.; Yuan, J.; Lowery, C. G.; Moetter, H.; Kardjilov, N.; Guo, S.; Butler, L. G., *Additive Manufacturing*, submitted, **2017**
89. “Neutron Interferometry Detection of Early Crack Formation in Fatigued Additively Manufactured SS316 Dogbones”, Brooks, A. J.; Hussey, D. S.; Yao, H.; Haghshenas, A.; Yuan, J.; LaManna, J., M.; Jacobson, D. L.; Lowery, C. G.; Kardjilov, N.; Guo, S.; Khonsari, M. M.; Butler, L. G., *Materials & Design*, *140*, 420-30, **2018**; doi:10.1016/j.matdes.2017.12.001
88. “Neutron Imaging of Laser Melted SS316 Test Objects with Spatially Resolved Small Angle Neutron Scattering”, Brooks, A. J.; Knapp, G. L.; Yuan, J.; Lowery, C. G.; Pan, M.; Cadigan, B. E.; Guo, S.; Hussey, D. S.; Butler, L. G., *J. Imaging*, *3(4)*, 58, **2017**; doi:10.3390/jimaging3040058
87. “Porosity Detection in Electron Beam Melted Ti-6Al-4V using High-Resolution Neutron Imaging and Grating-Based Interferometry”. Brooks, A.J.; Ge, J.; Kirka, M.M.; Dehoff, R.R.; Bilheux,

- H.Z.; Kardjilov, N.; Manke, I.; Butler, L.G. *Progress in Additive Manufacturing*, *2*, 125-132, **2017**; doi:10.1007/s40964-017-0025-z
86. "Recent applications of X-ray grating interferometry imaging to evaluate flame retardancy performance of brominated flame retardant". Olatinwo, M. B.; Ham, K.; McCarney, J.; Marathe, S.; Ge, J.; Knapp, G.; Butler, L. G., *Polymer Degradation and Stability*, *138*, 1-11, **2017**; doi:10.1016/j.polymdegradstab.2017.02.001
85. "Analysis of Flame Retardancy in Polymer Blends by Synchrotron X-ray K-edge Tomography and Interferometric Phase Contrast Movies", Olatinwo, M. B.; Ham, K.; McCarney, J.; Marathe, S.; Ge, J. H.; Knapp, G.; Butler, L. G., *Journal of Physical Chemistry B*, *120*, 2612-2624, **2016**; doi:10.1021/acs.jpcc.5b12775
84. "Real-Time Observation of Hydrogen Absorption by LaNi₅ with Quasi-Dynamic Neutron Tomography: Establishing Time-Windows, Projection Weightings, and Image Processing", B. M. Wood, K. Ham, D. S. Hussey, D. L. Jacobson, A. Faradani, A. Kaestner, J. J. Vajo, P. Liu, T. A. Dobbens, and L. G. Butler, *Nucl. Instrum. Methods B*, **2014**, 324, 95101.
83. "Improved Algorithm for Processing Grating-Based Phase Contrast Interferometry Image Sets", Shashidhara Marathe, Lahsen Assoufid, Xianghui Xiao, Kyungmin Ham, Warren W. Johnson, and Leslie G. Butler, *Rev. Sci. Instr.* **2014**, 85, 013704.
82. "Study of Morphological Changes in MgH₂ Destabilized LiBH₄ Systems Using Computed X-ray Microtomography" Tabbetha Dobbins, Shathabish N. Gowda, Leslie G. Butler, *Materials*, *5(10)*, 1740-1751, **2012**.
81. "Spatio-temporal computed tomography of dynamic processes", A. Kaestner, B. Münch, P. Trtik, L. G. Butler, *SPIE Optical Engineering*, *50*, 123201, **2011**; doi:10.1117/1.3660298.
80. "High-resolution neutron microtomography with noiseless neutron counting detector", A. S. Tremisin, J. B. McPhate, J. V. Vallergera, O. H. W. Siegmund, W. B. Feller, E. Lehmann, L. G. Butler, M. Dawson, *Nucl. Instrum. Methods A*, *652*, 400-403 **2011**.
79. "Neutron Imaging of a Commercial Li-Ion Battery During Discharge: Application of Monochromatic Imaging and Polychromatic Dynamic Tomography", L. G. Butler, B. Schillinger, K. Ham, T. A. Dobbins, P. Liu, and J. J. Vajo, *Nucl. Instrum. Methods A.*, *651*, 320-328 **2011**.
78. "Synchrotron X-ray Tomography for 3D Chemical Distribution Measurement of a Flame Retardant and Synergist in a Fiberglass-Reinforced Polymer Blend", Barnett, H. A.; Ham, K.; Scorsone, J. T.; Butler, L. G. *J. Phys. Chem. C*, *114*, 2-9 **2010**.
77. "The Structure of the Cornified Claw Sheath in the Domestic Cat (*Felis catus*): Implications for the Claw Shedding Mechanism", Homberger, D.; Ham, K.; Ogunbakin, T.; Bonin, J.; Hopkins, B.; Osborn, M.; Hossein, I.; Barnett, H.; Matthews II, K.; Butler, L.; Bragulla, H., *J. Anatomy* **2009**, *214*, 620-643.
76. "Synchrotron X-ray Tomography for 3D Chemical Diffusion Measurement of a Flame Retardant in Polystyrene", Barnett, H. A.; Ham, K.; Butler, L. G., *Nucl. Instr. Methods A* **2007**, *582*, 202-204.
75. "Algorithms for three-dimensional chemical analysis via multi-energy synchrotron X-ray tomography", Ham, K.; Butler, L. G., *Nucl. Instrum. Methods B*, **2007**, *262*, 117-127.
74. "Structural Characterization of Isobutylaluminumhydride, A High Aluminum-Content Cluster: Further Studies of Methylaluminumhydride (MAO) and Related Aluminum Complexes", Wu, R.; Mrse, A. A.; Negureanu, L.; Gan, Z.; Fronczek, F. R.; Hall, R. W.; Simeral, L. S.; Butler, L. G., *Inorg. Chem.*, **2007**, *46*, 44-7.

73. "Methylaluminoxane (MAO) Polymerization Mechanism and Kinetic Model from Ab Initio Molecular Dynamics and Electronic Structure Calculations Negureanu, L.; Hall, R. W.; Butler, L. G.; Simeral, L. S. *J. Amer. Chem. Soc.*, **2006**, *128*, 16816-26.
72. "Three-Dimensional Chemical Analysis: Synchrotron Tomography at Multiple X-ray Energies of Brominated Aromatic and Antimony Oxide Additives in Polystyrene. Ham, K.; Jin, H.; Al-Raoush, R.; Xie, X.; Willson, C. S.; Byerly, G. R.; Simeral, L. S.; Rivers, M. L.; Kurtz, R. L.; Butler, L. G. *Chem. Mater.*, **2004**, *16*, 4032-42.
71. "High Field 19.6 T ^{27}Al Solid-State MAS NMR of in vitro Aluminated Brain Tissue", Bryant, P. L.; Lukiw, W. J.; Gan, Z.; Hall, R. W.; Butler, L. G. *J. Magn. Reson.* **2004**, *170*, 257-62.
70. "Tools and Strategies for Processing Diffusion Ordered 2D NMR Spectroscopy (DOSY) of a Broad, Featureless Resonance: An Application to Methylaluminoxane (MAO)" J. L. Eilertsen, R. W. Hall, L. S. Simeral, and L. G. Butler, *Analytical and Bioanalytical Chemistry*, **2004**, *378*, 1574-8.
69. "Solid-State NMR and XANES Studies of Lithium and Silver Silicate Gels Synthesized by the Sol-Gel Route", Mrse, A. A.; Bryant, P. L.; Hormes, F. J.; Butler, L. G.; Satyanarayana, N.; Rambabu, B., *J. Non-Crystalline Solids*, **2003**, *318*, 296-304.
68. "High Resolution Three-Dimensional Visualization and Characterization of Coronary Atherosclerosis in Vitro by Synchrotron Radiation X-ray Microtomography and Highly Localized X-ray Diffraction, H. Jin, K. Ham, J. Y. Chan, L. G. Butler, R. L. Kurtz, S. Thiam, J. W. Robinson, R. A. Agbaria, I. M. Warner; R. E. Tracy, *Physics in Medicine and Biology*, **2003**, *47*, 4345-4356.
67. "A Microtomography Beamline at the LSU CAMD Synchrotron", Kyungmin Ham, Hua Jin, Leslie G. Butler, and Richard L. Kurtz, *Rev. Sci. Instr.*, **2002**, *73*, 1521-3.
66. "Petrographic and Spectroscopic Characterization of Phosphate-Stabilized Mine Tailings from Leadville, Colorado", Eusden, J. D., Jr.; Gallagher, L.; Eighmy, T. T.; Crannell, B. S.; Krzanowski, J. E.; Butler, L. G.; Cartledge, F. K.; Emery, E. F.; Shaw, E. L.; Francis, C. A. *Waste Management*. **2002**, *22*, 117-35.
65. "Structural Characterization of MAO and Related Aluminum Complexes. I. Solid-State ^{27}Al NMR with Comparison to EFG Tensors from ab initio Molecular Orbital Calculations P. L. Bryant, C. R. Harwell, A. A. Mrse, E. F. Emery, Z. Gan, T. Caldwell, A. P. Reyes, P. Kuhns, D. W. Hoyt, L. S. Simeral, R. W. Hall, L. G. Butler *J. Amer. Chem. Soc.*, **2001**, *123*, 12009-17.
64. "Automated, Web-Based Second-Chance Homework", R. W. Hall, S. Y. McGuire, L. G. Butler, S. P. McGlynn, G. L. Lyon, and P. A. Limbach, *J. Chem. Ed.*, **2001**, *78*, 1704-8.
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62. "Solid-State ^2H MAS NMR Studies of TNT Absorption in Soil and Clays", Emery, E. F.; Junk, T.; Ferrell, Jr., R. E.; De Hon', R.; Butler, L. G. *Environ. Sci. Technol.*, **2001**, *35*, 2973-8.
61. "Synchrotron X-ray Microtomography, Electron Probe Microanalysis, and NMR of Toluene Waste in Cement Butler, L. G.; Owens, J. W.; Cartledge, F. K.; Kurtz, R. L.; Byerly, G. R.; Wales, A. J.; Bryant, P. L.; Emery, E. F.; Dowd, B.; Xie, X., *Environ. Sci. Technol.*, **2000**, *34*, 3269-75.
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59. "Ab Initio Calculation of ^{81}Br Nuclear Quadrupole Transition Frequencies for Brominated Aromatics (Flame Retardants)", Harwell, C. J.; Shelby, A. I.; Mrse, A. A.; Butler, L. G.; Hall, R. W. *J. Phys. Chem. A*, **1999**, *103*, 8088-92.

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53. "Heavy Metal Stabilization in Municipal Solid Waste Incineration Dry Scrubber Residue Using Soluble Phosphate", Eighmy, T. T.; Crannell, B. S.; Butler, L. G.; Cartledge, F. K.; Emery, E. F.; Oblas, D.; Krzanowski, J. E.; Eusden, J. D., Jr.; Shaw, E. L.; Francis, C. A. *Environ. Sci. & Technol.* **1997**, *31*, 3330-8.
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51. "Zeeman-Effect Studies of the Electronic Absorption Spectrum of Octachlorodirhenate(2-) ($\text{Re}=\text{Re}$) in Pulsed 50-Tesla Magnetic Fields", Maverick, A. W.; Butler, L. G.; Lewis, W.; Gallegos, C. H.; Goette, J. D.; Rickel, D. G.; Fowler, C. M. *Inorg. Chim. Acta*, **1996**, *243*, 309-16.
50. "Low-Temperature (4.2 K) ^{23}Na and ^{27}Al Field Swept NMR Spectroscopy of Hydrogen Faujasites: Observation of Nonframework Aluminum Sites", Wu, X.; Butler, L. G. *Microporous Materials*, **1995**, *4*, 265-71.
49. "Learning the Student Names in Large Classes: An Application of Multimedia Technology", Cordes, A. W.; Oliver, M. E.; Butler, L. G. *J. Chem. Ed.*, **1995**, *72*, 610-1.
48. "Field Cycling ^{14}N NQR Imaging with Spatial and Frequency Resolution", Lee, Y.; Butler, L. G. *J. Magn. Reson. A*, **1995**, *112*, 92-5.
47. "Olefin Rotation in the Solid State: A ^{13}C , ^1H , and ^2H NMR Study of $\text{Rh}(\text{acac})(\text{C}_2\text{H}_4)_2$ ", Vierkötter, S. E.; Barnes, C. E.; Garner, G. L.; Butler, L. G. *J. Am. Chem. Soc.*, **1994**, *116*, 7445-6.
46. " ^{29}Si and ^{27}Al MAS-NMR of NaOH-Activated Blast-Furnace Slag, Schilling, P. J.; Butler, L. G.; Roy, A.; Eaton, H. C. *J. Amer. Ceram. Soc.* **1994**, *77*, 2363-8.
45. "Interpretation of Electric Field Gradients at Deuterium as Measured by Solid-State NMR Spectroscopy", Butler, L. G.; Keiter, E. A. *J. Coord. Chem.*, **1994**, *32*, 121-34.
44. "Bond Breaking in the CVD Precursor (1,1,1,5,5,5-Hexafluoro-2,4-pentadionato- $(\eta^2$ -1,5-cyclooctadiene)copper(I) Studied by Variable-Temperature X-ray Crystallography and Solid-State NMR Spectroscopy", Kumar, R.; Fronczek, F. R.; Maverick, A. W.; Kim, A. J.; Butler, L. G. *Chem. Mater.* **1994**, *6*, 587-95.

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41. "Solid-State Deuterium NMR Spectroscopy of d_5 -Phenol in White Portland Cement: A New Method for Assessing Solidification/Stabilization", Janusa, M. A.; Wu, X.; Cartledge, F. K.; Butler, L. G. *Environ. Sci. Technol.* **1993**, *27*, 1426-33.
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38. "Solid-State ^{13}C NMR Chemical Shift Tensors in Square Planar Tetracyanometallates (M=Ni, Pd, Pt)", Kim, A. J.; Butler, L. G. *Inorg. Chem.* **1993**, *32*, 178-81.
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32. "NMR Imaging of Anisotropic Solid-State Chemical Reactions using Multiple-Pulse Line Narrowing Techniques and ^1H T₁ Weighting", Butler, L. G.; Cory, D. G.; Dooley, K. M.; Miller, J. B.; Garroway, A. N., *J. Am. Chem. Soc.* **1992**, *114*, 125-35. This publication won an Alan Berman Award at the Naval Research Laboratory, site of my 1990 sabbatical.
31. " ^{13}C NMR Chemical Shielding Tensor of the Bridging Methylene Unit in $\text{cis}-(\mu\text{-CH}_2)(\mu\text{-CO})[\text{FeCp}(\text{CO})]_2$ ", Kim, A. J.; Altbach, M. I.; Butler, L. G. *J. Am. Chem. Soc.* **1991**, *113*, 4831-8.
30. "Displaying the Results from NMR Pulse Sequence Simulations as Stereo Diagrams", Butler, L. G. *J. Magn. Reson.* **1991**, *91*, 396-9.
29. Chapter 1, "The NMR Parameters of Oxygen-17", Butler, L. G. In " ^{17}O NMR Spectroscopy in Organic Chemistry"; Boykin, D. W., Ed.: CRC Press, Boca Raton, FL, **1991**, p1-19.
28. "Immobilization of As, Cd, Cr and Pb-Containing Soils by Using Cement or Pozzolanic Fixing Agents", Akhter, H.; Butler, L. G.; Branz, S.; Cartledge, F. K.; Tittlebaum, M. E. *J. Hazard. Mater.* **1990**, *24*, 145-55.
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- Herrera, E.; Tittlebaum, M. E.; Yang, S.-L., *Environ. Sci. Technol.* **1990**, *24*, 867-73.
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5. "Spectroscopic Properties and Redox Chemistry of the Phosphorescent Excited State of Platinum Phosphite", Che, C. M.; Butler, L. G.; Gray, H. B. *J. Am. Chem. Soc.* **1981**, *103*, 7796-7.
4. "Nuclear Quadrupole Coupling Constants and Hydrogen Bonding: A Molecular Orbital Study of Oxygen-17 and Deuterium Field Gradients in Formaldehyde-Water Hydrogen Bonding", Butler, L. G.; Brown, T. L. *J. Am. Chem. Soc.* **1981**, *103*, 6541-9.
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2. "Oxygen-17 Nuclear Quadrupole Double Resonance. 6. Effects of Hydrogen Bonding", Butler, L. G.; Cheng, C. P.; Brown, T. L. *J. Phys. Chem.* **1981**, *85*, 2738-40.
1. "The Boron-10 and Boron-11 Nuclear Quadrupole Resonance Spectra of Boric Acid", Butler, L. G.; Brown, T. L. *J. Magn. Reson.* **1981**, *42*, 120-31.

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22. "Edge Enhancement in Cold Neutron Imaging: A Comparison of Experiments at Edges and Interfaces with Ray-Tracing based on Refraction and Reflection.", Leslie G. Butler, Eberhard H. Lehmann, *Physics Procedia*, **2013**, *43*, 149-160; doi:10.1016/j.phpro.2013.03.018
21. "Neutron radiography, tomography, and diffraction of commercial lithium-ion polymer batteries", Leslie G. Butler, Eberhard H. Lehmann, Burkhard Schillinger, *Physics Procedia*, **2013**, *43*, 331-336; doi:10.1016/j.phpro.2013.03.039
20. "Development of Grating-based X-ray Talbot Interferometry at the Advanced Photon Source", Shashidhara Marathe, Xianghui Xiao, Michael J. Wojcik, Ralu Divan, Leslie G. Butler, Kyungmin Ham, Kamel Fezzaa, Mark Erdmann, Han H. Wen, Wah-Keat Lee, Albert T. Macrander, Francesco De Carlo, Derrick C. Mancini and Lahsen Assoufid, *AIP Conf. Proc.*, *1466*, 249, **2012**; doi:10.1063/1.4742300
19. "Improving the Workflow of Tomography Studies for the Polymer Additives Industry", Kyungmin Ham, Kimberly White, Larry S. Simeral, and Leslie G. Butler *SPIE Conference*, **2012**, *8506*, 29; doi:10.1117/12.930193
18. "Progress Towards Neutron Tomography at the US Spallation Neutron Source", L. G. Butler in "Advances in Computed Tomography for Geomaterials: GEOX2010", ed K. Alshibli and A. Reed **2010**; 10.1002/9781118557723.ch43
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16. "Synchrotron X-ray Tomography of Flame Retardants in Polymers", Ham, K.; Barnett, H. A.; Butler, L. G., ACS Polymer Preprints, 234th ACS National Meeting, Boston, MA August 19-23, **2007**, 635,#1120501.
15. "The ride pattern of the cornified oral surface of the upper beak of parrots: Individual and genus-level character.", Homberger, D.G.; Hopkins, B. A.; Osborn, M.; Castille, A.; Bragulla, H. H.; Matthews, K. L.; Barnett, H.; Butler, L. G.; Tully, T. N. *J. Morphology*, **2007**, 268, 1086.
14. "The microarchitecture of the cornified epidermal sheath of the cat claw", Bragulla, H. H.; Barnett, H.; Okunbakin, T.; Osborn, M.; Ham, K.; Matthews, K. L.; Butler, L. G.; Homberger, D.G., *J. Morphology*, **2007**, 268, 1086
13. "The development and vascularization of the bony core (third phalanx) of the cat claw", Bragulla, H. H.; Barnett, H.; Okunbakin, T.; Osborn, M.; Ham, K.; Matthews, K. L.; Butler, L. G.; Homberger, D.G., *J. Morphology*, **2007**, 268, 1052.
12. "Imaging Tissue Structures: Assessment of Absorption and Phase-Contrast X-ray Tomography Imaging at 2-nd and 3-rd Generation Synchrotrons", Kyungmin Ham, Heath A. Barnett, Tolulope Ogunbakin, Dominique G. Homberger, Hermann H. Bragulla, Kenneth L. Matthews II, Clinton S. Willson, and Leslie G. Butler, Proceedings of the SPIE, **2006**, 6318, 631822; doi:10.1117/12.681202
11. "The 3D Chemical Distribution of a Flame Retardant in a Fiberglass-Reinforced Polymer Blend as Measured with Synchrotron X-ray Tomography, Heath A. Barnett, Kyungmin Ham, and Leslie G. Butler, Proceedings of the SPIE, **2006**, 6318, 631821; doi:10.1117/12.681120
10. "An Introduction to Solution, Solid-State, and Imaging NMR Spectroscopy", L. G. Butler, in "Handbook of Spectroscopy", G. Gauglitz and T. Vo-Dinh, Eds., John Wiley, **2005**; doi:10.1002/3527602305.ch
9. "Algorithms for three-dimensional chemical analysis with multi-energy tomographic data by L. G. Butler, K. Ham, C. S. Willson, M. L. Rivers, and R. L. Kurtz, in Proceedings of the SPIE, **2004**, 5535, 286-292: "Developments in X-Ray Tomography IV, Aug 2-6, Denver, CO; doi:10.1117/12.560225
8. "Tomography at the LSU CAMD Synchrotron: Applications to Polymer Blends", Butler, L. G.; Ham, K.; Jin, H.; Kurtz, R. L., in Proceedings of the SPIE, **2001**, 4503, 54-61: Developments in X-Ray Tomography III, Aug 2-3, San Diego, CA; doi:10.1117/12.452869
7. "Synchrotron X-ray Microtomography and Solid-State NMR of Environmental Wastes in Cement", Butler, L. G.; Cartledge, F. K.; Owens, J. W.; Dowd, B., in Proceedings of the SPIE, **1999**, 3772, 97-104: "Developments in X-Ray Tomography II", July 22-23, Denver, CO.
6. "If You Build It, Will They Come?", Kestner, N. R.; Limbach, P. A.; Hall, R. W.; Butler, L. G. *Campus-Wide Information Systems*, Volume 16, Number 5 **1999** pp. 175-8.
5. "Combining Feedback and Assessment Via Web-Based Homework", Randall W. Hall, Leslie G. Butler, Neil R. Kestner, and Patrick A. Limbach, *Campus-Wide Information Systems*, Volume 16, Number 1 **1999** pp. 24-6.
4. "NMR of Inorganic Solids" Butler, L. G. in "Encyclopedia of NMR", Grant, D. M.; Harris, R. K., Eds.: John Wiley and Sons, New York, invited contribution, **1996**.
3. "Applications of Solid-State NMR in Organometallic Chemistry", Altbach, M. I.; Kim, A. J.; Wu, X.; Garner, G. L.; Fronczek, F. R.; Butler, L. G. *Trans. American Crystallographic Association*, **1995**, 31, 39-44.
2. "NMR Imaging of Anisotropic Solid-State Chemical Reactions", Butler, L. G.; Cory, D. G.; Miller, J. B.; Dooley, K. M.; Garroway, A. N. In *Selectivity in Catalysis*, Suib, S. L.; Davis, M. E. Eds.: ACS Symposium Series 517, Washington, DC, **1993**, 260-71.

1. Butler, L. G.; Cartledge, F. K.; Eaton, H. C.; Tittlebaum, M. E. “ Microscopic and NMR Spectroscopic Characterization of Cement-Solidified Hazardous Wastes” In *Chemistry and Microstructure of Solidified Waste Forms*, Spence, R. D., Ed.: Lewis Publishers, Inc., Chelsea, MI, **1993**,151-167.

PATENTS

- L. G. Butler, K. Ham, and W. W. Johnson. Process for More Effective Performance of X-Ray Grating Interferometry at High Energy, USPTO non-provisional patent application US20160161427A1, filed December 3, 2015.
- J. Dey, N. Bhusal, L. Butler, K. Ham, J. Dowling, V. Singh, ”Phase Contrast X-ray Interferometry”, Provisional Patent, filed by LSU on July 24, 2017.

FUNDING

- “CHE-1610655 GOALI: Tomography and X-ray Interferometry of Flame Retardants and Additive Manufacturing”, L. G. Butler and J. McCarney (Albermarle Corp.), National Science Foundation, \$360,000, 9/16-8/19
- “Development of a Laboratory X-ray Tomography System with Stationary Sample and Phase Contrast Imaging”, L. G. Butler, J. Ge, K. Ham, W. S. Johnson, K. L. Matthews II, W.M. Keck Foundation, \$500,000, 1/14-12/18.
- “High Energy X-ray Optics for Clinical Imaging”, Leslie G. Butler, Louisiana Board of Regents Proof-of-Concept/Prototype Initiative program, \$40,000, 7/2017-6/2018/
- “Contrast-enhanced high-spatial resolution characterization of inhomogeneities in advanced manufacturing metals using neutron grating interferometry”, DOE (ORNL) \$350,000, 12/2017-11/2019,

POSITIONS AND HONORS (SELECTED)

- 2013-2016 User committee, Advanced Photon Source, Argonne National Laboratory
- 2013-present User committee, CAMD synchrotron, LSU
- 2011-present Beamtime allocation committee, Neutron Imaging Facility, NIST
- 1995-2012 Committee on Qualifications, Phi Beta Kappa
- 1998 LSU Phi Beta Kappa chapter president
- 2001-2002 Program Officer, Chemistry Division, National Science Foundation
- 2001 LSU Distinguished Faculty
- 1992 Alan Berman Award, Naval Research Laboratory (1992)
- 1989-1993 Alfred P. Sloan Fellow (1989-93)
- 1981 Sigma Xi

CONFERENCE PRESENTATIONS AND INVITED TALKS (LAST 10 YEARS)

60. (poster) “Voids and Cracks in Polymers and Metals made Visible with X-ray and Neutron Dark-Field Imaging”, XNPIG-2017, ETH, Zurich, Switzerland, Sept 11-15, 2017.
59. “Neutron Interferometry of Stressed Additive Manufacturing Samples” Les Butler, Tomography Society of America, University of Texas, June 7-8, 2017.
58. “Neutron Interferometry of Stressed Additive Manufacturing Samples” Les Butler, NEUWave-9, NIST, June 11-14, 2017.

57. “Integrating 2D Differential Phase Contrast Images with Harker-O’Leary Algorithm.” Les Butler, Neutron Imaging Group, Paul Scherrer Institute, Villigen, Switzerland, October 25, 2016.
56. (invited) “3D+ X-ray (and Neutron) Imaging of Plastics, Fire, Feathers, and AM.” Les Butler, Southeastern Louisiana University, September 30, 2016.
55. “A Comparison of X-ray and Neutron Grating-Based Interferometry of Batteries, Crystals, and Additive Manufacturing Samples”, Adam Brooks, Les Butler, Jinghua Ge, Kyungmin Ham, Michael Kirka, Ryan Dehoff, Hassina Bilheux, and Nikolay Kardjilov, 8th International Topical Meeting on Neutron Radiography (ITMNR-8), Peking University in Beijing, China, September 4-8, 2016.
54. (poster) “Quantitative X-ray grating-based Interferometry brown adipose tissue in mice”, M.B Olatinwo, Kyungmin Ham, Leslie G. Butler , Ping He, and Owen Carmichael, 12th International Conference on Biology and Synchrotron Radiation, SLAC National Accelerator Laboratory, August 21-24, 2016.
53. “Neutron Grating-Based Interferometry Imaging of Lithium Ion Batteries, Crystals, and Additive Manufacturing Samples”, Les Butler, 8th Workshop on Neutron Wavelength Dependent Imaging (NEUWave-8), Abingdon, England, June 12-15, 2016.
52. (poster) “Single-shot Grating Interferometry and X-ray K-edge Absorption Tomography Experiments for Analysis of Flame Retardants”, M.B Olatinwo, Jonathan McCarney, Kyungmin Ham, Jinghua Ge, and Leslie G. Butler , 2016 APS/CNM Users Meeting, Argonne National Laboratory, May 9-12, 2016.
51. (invited) “Chemical Applications of X-ray Interferometry” M. B. Olatinwo, Adam Brooks, Omoeffe Kio, Jumao Yuan, Kyungmin Ham, and Les Butler, International Symposium on BioMedical Applications of X-ray Phase Contrast Imaging, IMXP 2016, Garmisch-Partenkirchen, Germany, January 21-21, 2016.
50. “Construction and preliminary results from a 70 keV x-ray tomography beamline with a stepped-grating interferometer”, K. Ham, W. W. Johnson, K. L. Matthews II, G. Knapp, J. Yuan, J. Ge, A Brooks, M. B. Olatinwo, D. van Loo, L. G. Butler, SPIE X-ray and Neutron Phase Imaging with Gratings 2015”, NIH, Bethesda, MD, September 8-11, 2015.
49. (invited) “Construction and Future Applications of X-ray (and Neutron) Tomography with Stepped-Grating Interferometer”, Les Butler, CAMD User Meeting, LSU, April 24, 2015.
48. (invited) “Construction and Future Applications of X-ray (and Neutron) Tomography with Stepped-Grating Interferometer”, Les Butler, Amity Universty Gurgaon, India, April 9, 2015.
47. (invited) “Construction and Future Applications of X-ray (and Neutron) Tomography with Stepped-Grating Interferometer”, Les Butler, Department of Chemical Engineering, India Institute of Technology-Delhi, India, April 7, 2015.
46. “Understanding the Chemical Composition of a Small Li-ion Battery through X-ray and Neutron Imaging and Diffraction”, A. Brooks, J. Yuan and L. G. Butler, 10-th World Congress Neutron Radiography, 5-10 October 2014, Grindelwald, Switzerland
45. (invited) “Application of Grating-Based X-ray Interferometry to Burning Flame Retardants & Lithium Ion Batteries”, Leslie G. Butler, Compact Light Source Workshop, Optical Society of America, Washington DC, August 14, 2014.
44. (invited) “Comparison of single-shot and stepped-grating interferometry tomography”, Leslie G. Butler, Sandia National Lab, Albuquerque, NM, August 14, 2014.
43. (invited) “Comparison of single-shot and stepped-grating interferometry tomography”, Leslie G. Butler, CUNY, August 7, 2014.

42. (invited) “X-ray Tomography/Interferometry with Synchrotron and Lab Sources; Materials Science Workflows”, Leslie G. Butler, UC Davis, June 4, 2014.
41. (invited) “X-ray Tomography/Interferometry with Synchrotron and Lab Sources; Materials Science Workflows”, Leslie G. Butler, Raman Research Institute, May 26, 2014.
40. (co-organizer) “X-ray Interferometry”, Leslie G. Butler and Lahsen Assoufid, Advanced Photon Source User Meeting, May 14, 2014.
39. (invited) “Comparison of Stepped and Single-Shot Grating-Based Interferometry for Differential Phase Contrast Imaging of Flame Retardant/Polymer Blends”, Leslie G. Butler, Advanced Photon Source User Meeting, May 14, 2014.
38. (invited) “Design and Construction of an X-ray Interferometry System: How and Why”, Leslie G. Butler, Univ. of California-Merced, March 14, 2014.
37. (poster) “Comparison of Stepped and Single-Shot Grating-Based Interferometry for Differential Phase Contrast Imaging of Flame Retardant/Polymer Blends”, Leslie G. Butler, Shashidhara Marathe, Lahsen Assoufid, Kamel Fezzaa, Bolaji Olatinwo, and Kyungmin Ham, International Workshop on X-ray and Neutron Phase Imaging with Gratings (XNPIG), Garmisch-Partenkirchen, Germany, January 21-24, 2014.
36. (invited) “Improved Algorithm for Processing Grating-Based Phase Contrast Interferometry Image Sets”, Kyungmin Ham, Warren W. Johnson, Shashidhara Marathe, Xianghui Xiao, Lahsen Assoufid, and Leslie G. Butler, 1st International Conference on Tomography of Materials and Structures, Ghent, Belgium, July 1-5, 2013.
35. (poster) “Dynamic Tomography of Flame Retardants”, Kyungmin Ham, Mutairu Bolaji Olatinwo, Jonathan McCarney, Larry S. Simeral, and Leslie G. Butler, 1st International Conference on Tomography of Materials and Structures, Ghent, Belgium, July 1-5, 2013.
34. (poster) “Real-Time Observation of Hydrogen Absorption by LaNi₅ with Dynamic Neutron Tomography: Establishing Time-Windows, Projection Weighting, and Image Processing”, Bradley M. Wood, Kyungmin Ham, Daniel S. Hussey, David L. Jacobson, Adel Faridani, Anders Kaestner, John J. Vajo, Ping Liu, Tabbetha A. Dobbins, and Leslie G. Butler, 1st International Conference on Tomography of Materials and Structures, Ghent, Belgium, July 1-5, 2013.
33. (poster) “Comparison of Grating-Based Phase Contrast Methods for Static Tomography and Dynamic Radiography of Burning Flame Retardant/Polymer Blends”, Bolaji Olatinwo, Kyungmin Ham, Shashidhara Marathe, Lahsen Assoufid, Kamel Fezzaa, and Leslie G. Butler, 17th Pan-American Synchrotron Radiation Instrumentation Conference, NIST, Gaithersburg, MD, June 17, 2013.
32. (invited) “Introduction to Analysis of Grating-Based Phase Contrast Data”, Les Butler, 17th Pan-American Synchrotron Radiation Instrumentation Conference, NIST, Gaithersburg, MD, June 17, 2013.
31. (invited) “Neutron Radiography, Tomography and Diffraction of Intact, Commercial Lithium-Ion Polymer Batteries”, Les Butler, Oklahoma State University, Jan 17, 2013.
30. (invited) “Neutron Radiography, Tomography and Diffraction of Intact, Commercial Lithium-Ion Polymer Batteries”, Les Butler, UCLA DoE EFRC, Nov 15, 2012.
29. (invited) “Neutron Radiography, Tomography and Diffraction of Intact, Commercial Lithium-Ion Polymer Batteries”, Les Butler, UC Davis, Dept. of Nuclear Physics, Nov 14, 2012.
28. “Neutron Radiography, Tomography and Diffraction of Intact, Commercial Lithium-Ion Polymer Batteries”, Les Butler, ACS Southwest Regional Meeting, Baton Rouge, LA, Nov 5, 2012.

27. "Improving the Workflow of Tomography Studies for the Polymer Additives Industry", Kyungmin Ham, Kimberly White, Larry S. Simeral, and Leslie G. Butler, SPIE Conference, San Diego, CA, Aug 12-16, 2012.
26. "Neutron radiography, tomography, and diffraction of commercial lithium-ion polymer batteries", Leslie G. Butler, Eberhard H. Lehmann, Burkhard Schillinger, ITMNR-7, Kingston, Ontario, June 17-20, 2012.
25. "Edge Enhancement in Cold Neutron Imaging: A Comparison of Experiments at Edges and Interfaces with Ray-Tracing based on Refraction and Reflection", Leslie G. Butler, Eberhard H. Lehmann, ITMNR-7, Kingston, Ontario, June 17-20, 2012.
24. (invited) "Neutron Imaging and Energy: Intact Lithium Batteries and Hydrogen Storage Alloys", Leslie G. Butler, LANSCE User Group Meeting, Los Alamos National Lab, Jan 9-10, 2012.
23. "Neutron Tomography and Diffraction of Intact, Commercial Lithium-Ion Polymer Batteries", Leslie G Butler, Kyungmin Ham, Burkhard Schillinger, Eberhard Lehmann, Ping Liu, and John J. Vajo, MRS, Boston, Nov 29-Dec, 1, 2011.
22. (invited) "Neutron Tomography and Diffraction of Intact, Commercial Lithium-Ion Polymer Batteries", Leslie G Butler, Kyungmin Ham, Burkhard Schillinger, Eberhard Lehmann, Ping Liu, and John J. Vajo, NEUWAVE-4, ORNL SNS, Oct 3-6, 2011.
21. "Time-Dependent X-ray Tomography Imaging of Flame Retardants in Polymer Blends". L. G. Butler, K. Ham, R. W. Hall, ACS SE-SW Regional, Nov 30 - Dec 3, 2010, New Orleans, LA.
20. "Neutron Imaging of a Li-ion Polymer Battery During Discharge: Application of Monochromatic Imaging and Polychromatic Dynamic Tomography", Les Butler, Kyungmin Ham, Burkhard Schillinger, Tabbetha Dobbins, Ping Liu, and John Vajo, ACS SE-SW Regional, Nov 30 - Dec 3, 2010, New Orleans, LA.
19. "Neutron Imaging of a Li-ion Polymer Battery During Discharge: Application of Monochromatic Imaging and Polychromatic Dynamic Tomography", Les Butler, Kyungmin Ham, Burkhard Schillinger, Tabbetha Dobbins, Ping Liu, and John Vajo, 9-th World Conference on Neutron Radiography, Oct 3-8, 2010, Kwa Maritane, South Africa.
18. "Neutron Imaging of a Li-ion Polymer Battery During Discharge: Application of Monochromatic Imaging and Polychromatic Dynamic Tomography", Les Butler, Kyungmin Ham, Burkhard Schillinger, Tabbetha Dobbins, Ping Liu, and John Vajo, Gordon Research Conf. Ceramics-Solid State, Aug 15-20, 2010, Colby-Sawyer College.
17. (invited) "Phase contrast and dynamic imaging for polymer blends, batteries, and hydrogen storage", Les Butler, June 4, 2010, NSLS II, Brookhaven, NY.
16. (invited) "Neutron Imaging - Review and prospects for a beamline at the ORNL Spallation Neutron Source", May 26, 2010, ExxonMobil Central Research, Clinton, NJ.
15. (invited) "Review of GeoX Highlights", Les Butler, Neutron Imaging Group, PSI Switzerland.
14. "Progress towards Neutron Tomography at the US Spallation Neutron Source", Les Butler, GeoX 2010, Feb 28-March 3, 2010, New Orleans, LA.
13. (invited) "Tomography Tutorial: From Projections and Reconstruction to Object Counting", Les Butler, GeoX 2010, Feb 28-March 3, 2010, New Orleans, LA.
12. "Advanced Instrumentation and Techniques for the Proposed SNS VENUS Tomography Beamline", Leslie G. Butler, NEUWAV09, ISIS, England.

11. "Synchrotron X-ray and Neutron Tomography: 3D Imaging for Chemical and Materials Science Projects", Les Butler, Department of Chemistry, University of Arkansas at Little Rock, November 7, 2008.
10. "Synchrotron X-ray and Neutron Tomography: 3D Imaging for Chemical and Materials Science Projects", Les Butler, ACS Southwest Regional Mtg, Little Rock, AR, Oct 1-3, 2008.
9. "3D X-ray Tomography: A New Dimension in Flame Retardant Analysis", L. Butler, K. Ham, H. Barnett, T. Ogunbakin, L Simeral, Albemarle PDC, LSU Chemistry, LSU CAMD, Albemarle Technology Days, April 28, 2008.
8. (invited) "Comparison of X-ray and Neutron Tomography for Granitic Veins in Migmatite", Kyungmin Ham, Heath A. Barnett, Tolulope Ogunbakin, Rebecca Weber, Jason T. Scorsone, Geology, Darrell J. Henry, Erik B. Iverson, Burkhard Schillinger, Leslie G. Butler, Neutron Wavelength-Dependent Imaging, FRM II, Garching, Germany, April 20-24, 2008.
7. "Diffusion of Flame Retardants in Polystyrene: Simulations and Measurements with Synchrotron X-Ray Tomography", Heath Barnett, Kyungmin Ham, Cheri A. McFerrin, Randall Hall and Leslie G. Butler, ACS Natl. Mtg., New Orleans, LA, April 6-10, 2008.
6. "Synchrotron X-ray and Neutron Tomography: 3D Imaging for Chemical and Materials Science Projects", Les Butler, Department of Chemistry, University of Central Florida, March 17, 2008.
5. (invited) "Synchrotron X-ray and Neutron Tomography: 3D Imaging for Chemical and Materials Science Projects", Les Butler, 32-nd Southeastern Conf of Society for Industrial and Applied Mathematics, Orlando, FL, March 14-15, 2008.
4. "Synchrotron X-ray and Neutron Tomography: Comments on Design Specifications", H. A. Barnett, K. Ham, T. Ogunbakin, D. J. Henry, and L. G. Butler, SNS/HFIR User Mtg, Oak Ridge, TN, Oct 8-11, 2007.
3. "Synchrotron X-ray Tomography of Flame Retardants in Polymers", K. Ham, H. A. Barnett, and L. G. Butler, ACS Natl. Mtg., Boston, MA, August 19-23, 2007
2. "Synchrotron X-ray Tomography for 3D Chemical Diffusion Measurement of a Flame Retardant in Polystyrene", H. A. Barnett, K. Ham, and L. G. Butler, 14-th National Synchrotron Radiation Instrumentation Conference, Baton Rouge, LA, April 25-27, 2007.
1. (invited) "Albemarle Chemical Corporation: Three-Dimensional Chemical Analysis and Molecular Dynamics Simulations: Application to Flame Retardants in Polymers", Les Butler and Randall Hall, February 16, 2007.

STUDENT PRESENTATIONS (LAST 5 YEARS)

17. (poster) "Grating-Based X-Ray Phase-Contrast Interferometry: A Tool for Non-Destructive Evaluation of Additively Manufacturing", **Omoefe Kio**, J. Yuan, K. Ham, G. Knapp, L. Butler, Materials Research Society, November 26 - December 1, 2017, Boston, Massachusetts
16. (talk) "Detecting Flaws in Additive Manufacturing Using X-ray and Neutron Interferometry", **Adam J. Brooks**, International Conference on Tomography of Materials and Structures, Lund, Sweden, June 26-30, 2017
15. (poster) "Detecting Flaws In Additive Manufacturing And Lithium Polymer Batteries Through X-Ray And Neutron Interferometry And Tomography", **Adam J. Brooks**, Kyungmin Ham, Leslie G. Butler, Tomography Society of America, University of Texas, June 7-8, 2017.
14. (poster) "X-Ray Interferometry/Tomography of 3D Printed Flame Retardants/ABS Structures" **Omoefe Kio**, Godfrey Mills, Kyungmin Ham, Jonathan McCarney, and Les Butler, Tomography Society of America, University of Texas, June 7-8, 2017.

13. (poster) “Workflow for Tomography Inspection of Additive Manufacturing Samples” **Jumao Yuan**, Caroline Lowery, Jinghua Ge, and Les Butler Tomography Society of America, University of Texas, June 7-8, 2017.
12. “A Comparison of X-ray and Neutron Grating-Based Interferometry of Batteries, Crystals, and Additive Manufacturing Samples”, **Adam Brooks**, Les Butler, Jinghua Ge, Kyungmin Ham, Michael Kirka, Ryan Dehoff, Hassina Bilheux, and Nikolay Kardjilov, 8th International Topical Meeting on Neutron Radiography (ITMNR-8), Peking University, Beijing, China, September 4-8, 2016.
11. (poster) “Quantitative X-ray grating-based Interferometry brown adipose tissue in mice”, **M. Bolaji Olatinwo**, Kyungmin Ham, Leslie G. Butler, Ping He, and Owen Carmichael, 12th International Conference on Biology and Synchrotron Radiation, SLAC National Accelerator Laboratory, August 21-24, 2016.
10. (poster) “Single-shot Grating Interferometry and X-ray K-edge Absorption Tomography Experiments for Analysis of Flame Retardants”, **M. Bolaji Olatinwo**, Jonathan McCarney, Kyungmin Ham, Jinghua Ge, and Leslie G. Butler, 2016 APS/CNM Users Meeting, Argonne National Laboratory, May 9-12, 2016.
9. (poster) “Understanding the Chemical Composition of a Small Li-ion Battery through X-ray and Neutron Imaging and Diffraction”, **A. Brooks**, J. Yuan and L. G. Butler, 10-th World Congress Neutron Radiography, 5-10 October 2014, Grindelwald, Switzerland
8. (talk) “Chemical Analysis of Flame Retardancy of Brominated Flame Retardants/Antimony Oxide with the Use of X-ray Synchrotron, Phase Contrast Interferometry”, **M. Bolaji Olatinwo**, Kyungmin Ham, Jonathan McCarney, and L. G. Butler, International Conference on Tomography of Materials and Structures, Quebec City, Canada, June 29 - July 3, 2015.
7. (poster) “Commercial Lithium-Ion Batteries, Neutron Tomography and Diffraction, PCA-MCR, and SNARK”, **A. Brooks**, J. Yuan, and L. G. Butler, International Conference on Tomography of Materials and Structures, Quebec City, Canada, June 29 - July 3, 2015.
6. (poster) “Application of X-ray Interferometry to a Highly Structured Calcium Carbonate Shell (Foraminifera)” **Gerald Knapp**, Jumao Yuan, M. Bolaji Olatinwo, Jinghua Ge, L. G. Butler, International Conference on Tomography of Materials and Structures, Quebec City, Canada, June 29 - July 3, 2015.
5. (poster) “Proposed In situ analysis of 3D Printing Processes using Grating-Based X-ray Interferometry”, **Omoefe Kio**, Paige Davis, Xin Li, Jinghua Ge, Michael Mathis, Kyungmin Ham, L. G. Butler, International Conference on Tomography of Materials and Structures, Quebec City, Canada, June 29 - July 3, 2015.
4. (poster) “Use of Provenance Data Management System For K-Edge Analysis of Flame Retardant X-Ray Tomography”, **Gerald Knapp**, Jumao Yuan, Jinghua Ge, Warren Johnson, L. G. Butler, LSU Discovery Day, March, 2015.
3. (poster) “Understanding the Inner Workings of a Commercial Li Ion Battery Through Neutron Diffraction and SNARK09 Reconstruction”, **A. Brooks**, J. Yuan, K. Ham, and L. G. Butler, UC Davis, CA, June 4, 2014.
2. (poster) “Data Workflow and Visualization: X-Ray Interferometry, VisTrails and iPad/Android Collaboration”, **Jumao Yuan**, Gerald Knapp, M. Bolaji Olatinwo, Edidiong Ekpo, Shawn Liner, and Leslie G. Butler, La-SIGMA, Baton Rouge, LA, July, 2013.
1. (poster) “Dynamic Tomography of Flame Retardants”, Kyungmin Ham, **M. Bolaji Olatinwo**, Jonathan McCarney, Larry S. Simeral, and Leslie G. Butler, 1st International Conference on Tomography of Materials and Structures, Ghent, Belgium, July 1-5, 2013.

PEOPLE:**Graduate Students**

Name	Year	Where
William L. Jarrett	1988	Univ. of Southern Mississippi, School of Polymers and High Performance Materials
Maria I. Altbach	1988	University of Arizona, Cancer Center
Ker-Min Guo	1989	Soochow University, Dept. of Chemistry; postdoc with Prof. Eric Oldfield, UIUC
Margaret A. C. Jackisch	1989	SAIC; Defense Group
AeJa Woo (Kim)	1992	Ewha Womans University, Dept. of Science Education; postdoc at Texas A&M
Michael A. Janusa	1993	Stephen F. Austin, Dept. of Chemistry and Biochemistry
Xiao Wu	1994	Albemarle Corporation
Greta L. Garner	1999	Southern University;
Pamela L. Bryant	1999	Howard Payne University, Dean of Science; postdoc with Prof. Karen Gleason, MIT
Anthony A. Mrse	2001	Univ. of California San Diego, NMR Facility; postdoc with Prof. Stanley Opella, UCSD
Earl Emery		Tecmag, Inc. (http://www.tecmag.com)
Heath A. Barnett	2008	University of Louisiana at Monroe
M. Bolaji Olatinwo	2016	Intel
Adam J. Brooks	2017	TBD
Jumao Yuan	est. 2018	TBD
Omoeffe J. Kio	est. 2018	TBD

Postdocs

Name	Year	Where
Stephanie A. Vierkötter	1995-96	Quantum Magnetics; GE Infrastructure
Kyungmin Ham	1999-2001	LSU CAMD Synchrotron, beamline scientist
Hua Jin	est. 2000-01	Northwestern Univ., postdoc
Jan Lasse Eilertsen	2001-03	Trondheim University
Godfrey Mills	2017-present	TBD

Undergraduates (recent)

Name	Year	Where
Bradley Wood	2011-12	LSU biology; then to LSU biology for PhD
DJ Pleshinger	2012	REU; then to LSU physics & astronomy for PhD
Kameron Kilchrist	2012-13	LSU biological engineering; then to Vanderbilt biological engineering for PhD (with an NSF graduate fellowship)
Lisa Kam	2013	REU (Baton Rouge High); undergraduate at University of Southern California
Brian Sayre	2013	REU from Muskingum University; then to LSU biological engineering for PhD
Gerry Knapp	2013-16	LSU mechanical engineering; then to Penn State for PhD
Natasha Navejar	2014	REU (St. Louis Catholic, Lake Charles, LA); undergraduate at Tulane University
Max Pan	2016	REU (Baton Rouge High); TBD
Bridget Cadigan	2015-	LSU chemical engineering
Caroline Lowery	2016-	LSU chemical engineering

