

CURRICULUM VITAE

Contact Information & Public Profiles

College of Arts, Sciences, and Education (CASE)
Missouri University of Science and Technology (Missouri S&T)
301 West 14th Street, Rolla, MO 65409
(573) 341-4432
woelk@mst.edu
<https://sites.mst.edu/woelkk/>

Education

“Habilitation” (formerly required for securing tenure in Germany) in Physical Chemistry, Thesis: *Toroid Cavity Detectors in NMR Spectroscopy and NMR Microscopy*, University of Bonn, Germany
PhD, *Summa cum laude*, Physical Chemistry, University of Bonn, Germany, Thesis: *Induced Nuclear Spin Polarization During Catalytic Hydrogenations with Parahydrogen* (advisor: Joachim Bargon)
M.S. in Chemistry, *Summa cum laude*, University of Bonn, Germany, Thesis: *Nuclear-Magnetic-Resonance Investigations of Chemical Reactions with Spin-Polarized Hydrogen* (advisor: Joachim Bargon)
B.S. in Chemistry, *Summa cum laude*, University of Bonn, Germany

Employment

2023 – present *Associate Dean for Academic Affairs*, College of Arts, Sciences, and Education (CASE), Missouri S&T
2014 – 2016 *Associate Department Chair*, Chemistry, Missouri S&T
2011 – 2014 *Department Chair (interim)*, Chemistry, Missouri S&T
2009 – 2011 *Assistant Department Chair*, Chemistry, Missouri S&T
2003 – present *Tenured Associate Professor*, Chemistry, Missouri S&T
2000 – 2003 *Associate Professor*, Physical Chemistry, University of Bonn, Germany
1994 – 2000 *Assistant Professor*, Physical Chemistry, University of Bonn, Germany
1992 – 1994 *Postdoctoral Research Associate*, Chemical Technology Division, Argonne National Laboratory, Argonne, IL
1988 – 1992 *Graduate Teaching/Research Assistant*, Physical Chemistry, University of Bonn, Germany

Administrational and Professional Responsibilities

2016 – 2023 *Coordinator*, General Chemistry Laboratory Education, Missouri S&T
2015 *Conference Organization & Fundraising*, 2nd Branson NMR Meeting (January 17-18, 2015)
2014 – 2016 *Team Leader*, General Chemistry Blended Laboratory Course Redesign, Missouri S&T
2014 *Conference Organization*, 1st Branson NMR Meeting (February 22-23, 2014)
2014 *Conference Organization and Chairman*, LEAD@S&T, Missouri S&T
2011 – 2013 *Team Leader*, General Chemistry I Buffet-Model Course Redesign, Missouri Course Redesign Initiative, Missouri Learning Commons & National Center for Academic Transformation (NCAT)
2011 – 2012 *Scholar*, Leadership Development Program (LDP), University of Missouri System, Columbia, MO
2011 *Acting Director*, Freshman Faculty Forum (FFF), Missouri S&T
2009 – present *Director*, Institute for Applied Chemistry and Nuclear Magnetic Resonance, Missouri S&T
2009 – 2023 *Division Head*, Physical Chemistry, Missouri S&T
2006 *Symposium Organization*, 16th Annual Teaching Renewal Conference, University of Missouri, Columbia, MO
2005 – 2009 *Coordinator*, General Chemistry Education, UMR/Missouri S&T
2005 – 2006 *UMR Acting Director*, New Faculty Teaching Scholarship (NFTS) program, University of Missouri System, Columbia, MO
2001 *Symposium Organizer and Chairman*, 21st Nordrhine-Westfalia Spring Symposium on Magnetic Resonance, University of Bonn, Germany.

Membership and Offices in Professional Societies

American Chemical Society, Physical Chemistry Division
Salute to Excellence Award “Continued Contribution to the American Chemical Society” (2011)
Treasurer, South Central Missouri Local Section (2007 – 2012)
Chairman, South Central Missouri Local Section (2006)
German Chemical Society (GDCh), Magnetic Resonance Spectroscopy Division

Research Fellowships & Awards

- "Make a Difference" Award, Society of American Military Engineers (SAME), Fort Leonard Wood, MO (2014)
— *single award given annually*
- Nobel Laureate Richard R. Ernst Award for "Best Subscribed Manuscript and Breakthrough in NMR Spectroscopy", German Chemical Society (GDCh) (2002)
— *three awards given annually*
- Visiting Scientist, Chemical Technology Division, Argonne National Laboratory, Argonne, IL (*Summer Appointments 1995, 1997, 1998, 1999, 2001*)
- R&D100 Award "Toroid Cavity Imager", R&D Magazine, Rockaway, NJ (1994)
- Outstanding Achievement Award, Argonne National Laboratory, Argonne, IL (1994)
- Geheimrat Dr. Edmund ter Meer PhD Thesis Award, University of Bonn, Germany (1992)
— *single award given annually*
- Research Group Scholar "Spectroscopy with Isolated and Condensed Molecules", German Research Foundation (DFG) (1991 – 1992)
- Graduate Fellowship, Konrad Adenauer Foundation, Sankt Augustin, Germany (1989 – 1991)
- Heinrich Hörlein Memorial Master's Thesis Award, University of Bonn, Germany (1989)
- Theodor Laymann Master's Fellowship, University of Bonn, Germany (1987 – 1988)

Teaching Fellowships & Awards

- Outstanding Teacher Award, Committee for Effective Teaching (CET), Missouri S&T (2020)
- Faculty Teaching Award, Missouri S&T (2020, 2017, 2010)
— *inaugural year (2010), maximum of eight awards given annually*
- Wilbur Tappmeyer Excellence in Teaching Undergraduates Award, Chemistry Department, UMR/Missouri S&T (2019, 2007)
- Excellence in Teaching Graduate-Level Courses, Chemistry Department, Missouri S&T (2014, 2009)
- Missouri Learning Commons Scholar, Missouri Learning Commons, Columbia, MO (2013)
— *inaugural year, four scholars elected*
- President's Award for Innovative Teaching, University of Missouri System, Columbia, MO (2011)
— *inaugural year, single award given annually*
- "We love your class" Award, Freshman Engineering, Missouri S&T (2009, 2008)
- Faculty Teaching Scholar, Office for Undergraduate and Graduate Studies, UMR (2008)

Service Awards

- Faculty Service Award, Missouri S&T (2017)
— *maximum of 4 awards given annually*
- Outstanding Contribution to Service Award, Chemistry Department, Missouri S&T (2017)

Recent Media Coverage and Public Reports (2019 – 2024)

- "Labs don't stop for pandemics" <https://news.mst.edu/2021/03/labs-dont-stop-for-pandemics/> (published March 29, 2021).
- "Livestreamed Chemistry Labs Keep Learning Real — Mistakes, Spills and All", Campus Technology, <https://campustechnology.com/articles/2020/09/17/livestreamed-chemistry-labs-keep-learning-real-mistakes-spills-and-all.aspx> (published September 17, 2020)
- "New chemistry online labs show teaching, learning success" <https://econnection.mst.edu/2020/09/new-chemistry-online-labs-show-teaching-learning-success/> (published September 1, 2020)
- "How to livestream your lab – Woelk shares best practices" <https://econnection.mst.edu/2020/03/how-to-livestream-your-lab-woelk-shares-best-practices/> (published March 26, 2020)

Recently Funded Projects as Principal Investigator (2019 – 2024)

- P. D. Whitefield, K. Woelk, ASCENT 002 – Understanding Changes in Aviation Emissions due to SAF with New Combustor Engine Technology (Additional Funding), US Department of Transportation (FAA), \$2,523,003 (50%), 11/16/2023 – 07/31/2025.
- P. D. Whitefield, K. Woelk, ASCENT 002 – Understanding Changes in Aviation Emissions due to SAF with New Combustor Engine Technology, US Department of Transportation (FAA), \$3,050,812 (50%), 07/27/2023 – 03/31/2025.
- M. Fitch, K. Woelk, Lignocellulosic Determination for a Biochemical Reactor Treating Mine Impacted Water, Alloy Group, \$8,800, Co-PI, 11.6%, 03/14/2022 – 09/01/2022.

- J. P. Hogan, K. Woelk, Evaluating the Impact of 3D-Virtual Representations in Achieving Object-Based Learning Outcomes Across Diverse Learning Environments, Missouri S&T Provost's eFellows Program (52%), Missouri S&T Department of Geosciences and Geological and Petroleum Engineering (39%), Missouri S&T Department of Chemistry (9%), \$9574.95, PI, 50%, 08/01/2020 – 05/31/2021.
- K. Woelk, UM System Affordable & Open Educational Resources (A&OER) initiative award to convert CHEM 3410 (Chemical Thermodynamics) to OER, \$11,000, PI, 100%, 05/01/2018 – 04/30/2019
- J. Huang, K. Woelk, OBI: Acquisition of Preliminary Data to Support NIH Resubmission Proposal for Turbo Mohs with Novel Acupuncture-MRI Probe, \$12,500, PI, 40%, 04/01/2018 – 03/31/2019.
- K. Woelk, High-resolution NMR Relaxometry for the Characterization of Fluid Flow in Porous Materials, Materials Research Foundation, \$5,000, PI, 100%, 01/01/2018 – 12/31/2019.

Recent Peer-Reviewed Journal Articles (2019 – 2024)

- R. M. Herndon, J. Balasubramanian, M. Abdelrahman, K. Woelk, Nuclear Magnetic Resonance (NMR) Assessment of Bio and Crude Oil-Based Rejuvenation, *Physchem* **2024**, *4*, 344-355; <https://doi.org/10.3390/physchem4030024>
- R. M. Herndon, J. Balasubramanian, M. Abdelrahman, K. Woelk, Asphalt-Binder Mixtures Evaluated by T_1 NMR Relaxometry, *Physchem* **2024**, *4*, 285-295; <https://doi.org/10.3390/physchem4030020>
- R. M. Herndon, J. Balasubramanian, K. Woelk, M. Abdelrahman, Physical and Chemical Methods to Assess Performance of TPO-Modified Asphalt Binder, *Appl. Sci.* **2024**, *14*, 3300; <https://doi.org/10.3390/app14083300>
- R. Herndon, J. Balasubramanian, K. Woelk, M. Abdelrahman, Investigating the Physical and Chemical Effects of UV Aging on TPO-Modified Asphalt Binder, *Mod. Concept Material Sci.* **2024**, *6*, 000629 (1-8), <https://doi.org/10.33552/MCMS.2024.05.000629>
- Z. G. Mayes, W. H. Rice IV, L. Chi, K. Woelk, A robust Freeman-Hill-inspired pulse protocol for ringdown-free T_1 relaxation measurements, *J. Magn. Reson.* **2023**, *352*, 107490, <https://doi.org/10.1016/j.jmr.2023.107490>
- N. T. Moon, K. Woelk, G. S. Grubbs II, Construction and Demonstration of a 6–18 GHz Microwave Three-Wave Mixing Experiment Using Multiple Synchronized Arbitrary Waveform Generators, *Symmetry* **2022**, *14*, 848, <https://doi.org/10.3390/sym14050848>
— *Featured Article and Journal Cover Art*
- A. Priester, R. Waters, A. Abbott, K. Hilmas, K. Woelk, H. A. Miller, A. W. Tarudji, C. C. Gee, B. McDonald, F. M. Kievit, A. J. Convertine, Theranostic Copolymers Neutralize Reactive Oxygen Species and Lipid Peroxidation Products for the Combined Treatment of Traumatic Brain Injury, *Biomacromolecules* **2022**, *23*, 1703–1712, <https://doi.org/10.1021/acs.biomac.1c01635>
- K. Woelk, P. D. Whitefield, As close as it might get to the real lab experience – Live-streamed laboratory activities, in “Insights Gained While Teaching Chemistry in the Time of COVID-19” (Special Issue), *J. Chem. Educ.* **2020**, *97*, 2996-3001, <https://doi.org/10.1021/acs.jchemed.0c00695>
- M. Huang, S. Chen, J. Huang, R. E. Gerald II, K. Woelk, NMR Studies of Materials Loaded into Porous-Wall Hollow Glass Microspheres, *Mater. Sci. Eng. C* **2020**, *116*, 111177, <https://doi.org/10.1016/j.msec.2020.111177>
- T. R. McDowell, E. T. Schmitzhe, A. J. Duerden, D. Cernusca, H. Collier, K. Woelk, A Student-Choice Model to Address Diverse Needs and Promote Active Learning, *J. Sci. Educ. Technol.* **2019**, *28*, 321-328, <https://doi.org/10.1007/s10956-019-9768-2>

Patents

- M. Huang, L. Chi, R. E. Gerald II, J. Huang, A. R. Pfaff, K. Woelk, In situ NMR Parameter Monitoring Systems and Methods for Measuring pH and Temperature, US Patent 10,295,487 (issued May 21, **2019**).
- L. Chi, M. Huang, R. E. Gerald II, K. Woelk, Solid State NMR Spectroscopy/Imaging in situ Measuring Devices and Methods for Calibration and Determining one or more Quantitative Properties of a Target Sample, US Patent 10,067,079 (issued September 4, **2018**).
- D. A. Summers, K. Woelk, K. D. Oglesby, G. Galecki, Method and Apparatus for Jet-Assisted Drilling or Cutting, US Patent 8,475,230 (issued July 2, **2013**).
- *licensed to Impact Technologies, Rochester, NY (2012 – 2016)*
- H. G. Niessen, K. Woelk, A. Eichhorn, J. Bargon, Colloid-Catalyzed Gas Transfer in Supercritical Phases, European Patent EP 1404725 B1 (issued November 18, **2005**) & US Patent 7,193,120 (issued March 20, **2007**).
- J. W. Rathke, R. J. Klingler, K. Woelk, R. E. Gerald II, Near Electrode Imager, US Patent 6,046,592 (issued April 4, **2000**).
- K. Woelk, J. W. Rathke, R. J. Klingler, Nuclear Resonance Tomography with a Toroid Cavity Detector, US Patent 5,574,370 (issued November 12, **1996**).

Recent Poster Presentations (2019 – 2024)

- R. M. Herndon, J. Balasubramanian, Z. G. Mayes, M. Abdelrahman, K. Woelk, Asphalt Rejuvenation Potential of Tire Pyrolysis Oil Evaluated by NMR Relaxometry and DSR Testing, Infrastructure Innovation & Adaptation for a Sustainable & Resilient World Conference (ASCE INSPIRE 2023), Arlington, VA (November 16-18, **2023**).
— *Best Poster Award.*
- R. M. Herndon, J. Balasubramanian, K. L. Miles, Z. G. Mayes, M. Abdelrahman, K. Woelk, NMR Characterization of Pyrolysis Oil for Asphalt Rejuvenation, American Chemical Society (ACS) Fall National Meeting, San Francisco, CA (August 14-15, **2023**).
- G. A. Riddle, R. M. Herndon, K. Woelk, Where the Rubber Meets the Road, 2023 Missouri Academy of Science Annual Meeting, Joplin, MO (April 22, **2023**).
- H. M. Bahn, A. Q. Hermelink, Z. G. Mayes, K. Woelk, Investigating Industrial Methanol Production with Nuclear Magnetic Resonance, 2023 Missouri Academy of Science Annual Meeting, Joplin, MO (April 22, **2023**).
- G. A. Riddle, R. M. Herndon, K. Woelk, Where the Rubber Meets the Road, Undergraduate Research Conference, Missouri S&T, Rolla, MO (April 13, **2023**).
- K. L. Miles, K. Woelk, Materials Properties Evaluated by Nuclear Magnetic Resonance (NMR) Relaxation Studies, Undergraduate Research Conference, Missouri S&T, Rolla, MO (April 13, **2023**).
- G. A. Riddle, R. M. Herndon, K. Woelk, Where the Rubber Meets the Road, Undergraduate Research Day at the Capitol, Jefferson City, MO (April 6, **2023**).
- R. M. Herndon, Z. G. Mayes, M. Abdelrahman, K. Woelk, Characterization of Pyrolysis Oils for Asphalt Fortification, ACS Midwest Regional Meeting (MWRM2022), Iowa City, IA (October 19-21, **2022**).
- H. M. Bahn, Z. G. Mayes, K. Woelk, Interactions of Hydrogen Gas with Cu-ZnO/Al₂O₃ Catalysts Used in Industrial Methanol Synthesis, ACS Midwest Regional Meeting (MWRM2022), Iowa City, IA (October 19-21, **2022**).
- Z. G. Mayes, K. Woelk, Development and analysis of ringdown-free T₁ relaxation methods, ACS Midwest Regional Meeting (MWRM2022), Iowa City, IA (October 19-21, **2022**).
- R. M. Herndon, Z. G. Mayes, M. Abdelrahman, K. Woelk, Characterization of Pyrolysis Oils for Asphalt Fortification, Graduate Women in Science, 2022 Annual National Conference, Madison, WI (June 25, **2022**).
- C. R. Murray, R. M. Herndon, Z. G. Mayes, M. Abdelrahman, K. Woelk, Characterization of Pyrolysis Oils for Asphalt Fortification, 2022 Missouri Academy of Science Annual Meeting, Fayette, MO (April 23, **2022**).
- A. Q. Hermelink, H. M. Bahn, Z. G. Mayes, K. Woelk, Investigating Industrial Methanol Production with Nuclear Magnetic Resonance Relaxometry, 2022 Missouri Academy of Science Annual Meeting, Fayette, MO (April 23, **2022**).
- G. A. Riddle, Z. G. Mayes, K. Woelk, The Influence of Dissolved Metal Ions on Nuclear Magnetic Relaxation Times in Aqueous Solutions, 2022 Missouri Academy of Science Annual Meeting, Fayette, MO (April 23, **2022**).
- M. R. Sly, L. M. Kehoe, B. Salunkhe, T. P. Schuman, K. Woelk, Chemical-shift-resolved High-resolution NMR Relaxometry of Polymer Hydrogels, ACS Midwest Regional Meeting (MWRM2021), Springfield MO (October 20-22, **2021**).
- M. Parker, L. J. Albrecht, M. Huang, J. Huang, R. E. Gerald II, K. Woelk, Low-Cost Solution for Optically Induced NMR Hyperpolarization, Undergraduate Research Conference, Missouri S&T, Rolla, MO (April 16, **2019**).
- K. E. Brakensiek, K. Woelk, Relaxation of Hyperpolarized Nuclear Magnetic Resonance (NMR) Spin States, 51st Annual Southeastern Undergraduate Research Conference (SURC), University of Tennessee, Martin, TN (February 7-8, **2019**).
- M. Huang, M. Parker, K. Woelk, J. Huang, R. E. Gerald II, Simple Laser System for Hyperpolarized NMR Experiments, 51st Annual Southeastern Undergraduate Research Conference (SURC), University of Tennessee, Martin, TN (February 7-8, **2019**).

Recent Research Talks and Conference Lectures (2019 – 2024)

- K. Lai, K. Woelk, Reducing Experimental Time for NMR Asphalt Performance Analysis, 2024 Missouri Academy of Science Annual Meeting, St. Joseph, MO (April 13, **2024**).
- R. P. Brown, K. Woelk, Quantifying Asphalt Binder UV Effects with Relaxometry, Undergraduate Research Conference, Missouri S&T, Rolla, MO (April 10, **2024**).
— *First Place, Sciences Oral Presentations*
- K. L. Miles, K. Woelk, Effect of Heat on Virgin and UV-Aged Asphalt Binders Determined by Nuclear Magnetic Resonance Relaxometry, Undergraduate Research Conference, Missouri S&T, Rolla, MO (April 10, **2024**).
- R. M. Herndon, M. Abdelrahman, K. Woelk, NMR Relaxometry: A New Asphalt Parameter, American Chemical Society (ACS) Fall National Meeting, San Francisco, CA (August 15, **2023**).
- K. Woelk, Toroid-cavity NMR Investigations to Study Catalytic Reactions Under Elevated Temperature and Pressure, Great Plains Catalysis Society (GPCS) Webinar Series (June 9, **2023**).

- K. Woelk, Syngas-to-Methanol Conversion, Department of Analytical and Material Science, BASF Corporation, Webinar & Online Workshop (May 3, 2023).
- K. L. Miles, K. Woelk, Materials Properties Evaluated by Nuclear Magnetic Resonance (NMR) Relaxation Studies, 2023 Missouri Academy of Science Annual Meeting, Joplin, MO (April 22, 2023).
- H. M. Bahn, K. Woelk, Investigating Industrial Methanol Production with Nuclear Magnetic Resonance, Undergraduate Research Conference, Missouri S&T, Rolla, MO (April 13, 2023).
- K. Lai, K. Woelk, Refinement of Relaxation Coefficients in Nuclear Magnetic Resonance, 2022 Missouri Academy of Science Annual Meeting, Fayette, MO (April 23, 2022).
- A. Q. Hermelink, K. Woelk, NMR Relaxometry of Syngas-to-methanol Conversion, Undergraduate Research Conference, Missouri S&T, Rolla, MO (April 14, 2022).
- *Second Place, Sciences Oral Presentations*
- K. Woelk, Materials Characterizations Using High-resolution NMR Relaxometry, Department of Chemistry and Biochemistry, Kennesaw State University, Kennesaw, GA (February 2, 2022).
- Z. G. Mayes, M. R. Sly, P. O. Aina, K. Woelk, RAPTOR – Rapid Acquisition Pulse-Train for Observing Relaxation in NMR, ACS Midwest Regional Meeting (MWRM2021), Springfield, MO (October 22, 2021).
- K. Woelk, High-resolution NMR relaxometry with a benchtop NMR spectrometer, ACS Midwest Regional Meeting (MWRM2021), Springfield, MO (October 21, 2021).
- L. M. Kehoe, M. R. Sly, B. P. Salunkhe, T. J. Schuman, K. Woelk, Chemical-shift Resolved High-resolution Nuclear Magnetic Resonance Relaxometry of Polymer Hydrogels, 2021 Missouri Academy of Science Annual Meeting, Columbia, MO (April 24, 2021).
- M. R. Sly, K. Woelk, Chemically Resolved Nuclear Spin Relaxation, Undergraduate Research Conference, Missouri S&T, Rolla, MO (April 14, 2021).
- K. E. Brakensiek, K. Woelk, Nuclear Spin Relaxation in NMR Spectroscopy, Undergraduate Research Conference, Missouri S&T, Rolla, MO (April 16, 2019).
- *First Place, Sciences Oral Presentations*
- K. M. Lee, K. Woelk, Optimizing D₂O/H₂O Ratio for NMR pH Measurements, Undergraduate Research Conference, Missouri S&T, Rolla, MO (April 16, 2019).
- *Second Place, Sciences Oral Presentations*
- L. M. Kehoe, M. Huang, R. E. Gerald II, K. Woelk, Saturation-transfer Difference Nuclear Magnetic Resonance (NMR) Experiments to Probe into Interactions Between Small Molecules and Colloidal Polymers, 51st Annual Southeastern Undergraduate Research Conference (SURC), University of Tennessee, Martin, TN (February 8, 2019).
- E. L. Wideman, L. M. Kehoe, L. Chi, M. Huang, B. Gamelin, R. E. Gerald II, K. Woelk, T₁ CapPack™ (Capillary-tube Package) Devices for Determining the Effects of Spin-Lattice Relaxation on Nuclear Magnetic Resonance (NMR) Pulse Sequences, 51st Annual Southeastern Undergraduate Research Conference (SURC), University of Tennessee, Martin, TN (February 8, 2019).
- K. M. Lee, M. Huang, K. Woelk, ¹⁹F Nuclear Magnetic Resonance (NMR) Measurements Using 2-Fluoro-3-hydroxymethylpyridine as a pH-sensitive Compound, 51st Annual Southeastern Undergraduate Research Conference (SURC), University of Tennessee, Martin, TN (February 8, 2019).

Courses Taught

Courses taught include lectures and lab instructions in general, physical, and analytical chemistry. Enrollment numbers varied from 20 to 70 students in sophomore- and junior-level physical-chemistry courses to about 450 in general-chemistry lectures for majors and non-majors. Typical enrollment in graduate-level courses was between 5 and 15 students.

Undergraduate Courses (Grundstudium), University of Bonn:

Physical Chemistry I-IV (Structure of Matter, Thermodynamics, Kinetics, Spectroscopy); Physical Chemistry I (Structure of Matter) for secondary-education majors; Modern Methods in Physical Chemistry; Instrumental Analysis

Graduate Courses (Hauptstudium), University of Bonn:

The Physics of Modern Spectroscopic Methods in Chemistry; Modern Methods of NMR Spectroscopy and Imaging + Lab; Advanced Instrumental Analysis + Lab; Advanced Physical Chemistry Lab; Principles of Catalysis

Undergraduate Courses, Missouri S&T:

Orientation for Chemistry Majors; Introduction to Laboratory Safety and Hazardous Materials; General Chemistry I; General Chemistry Laboratory; Chemical Thermodynamics; Practical Aspects of Nuclear Magnetic Resonance

Graduate Courses, Missouri S&T

Advanced Chemical Thermodynamics; Chemical Spectroscopy; Quantum Chemistry; Advanced NMR Spectroscopy

Advisement and Mentorship (beyond degree-program advisement of undergraduates)

<u>Visiting Scientists:</u>	Argonne National Laboratory (2)
<u>Postdoctoral Trainee:</u>	University of Amsterdam, The Netherlands (1)
<u>Ph.D. Students:</u>	Theses in NMR Spectroscopy and Imaging (10), Chemical Catalysis (3), Chemical Education (2), Drug Delivery (1), Asphalt Quality Assessment (1), Aviation Emissions (1)
<u>Master's Students:</u>	Theses in NMR Spectroscopy and Imaging (4); Non-Thesis (5)
<u>Visiting Graduate Students:</u>	The University of Queensland, Australia (1), Technical University Munich, Germany (1)
<u>Graduate Committees:</u>	Departments: Chemistry (28), Geosciences (4), Physics (1), Material Sciences (1), Electrical Engineering (1), Nuclear Engineering (1)
<u>Undergraduate Students:</u>	Research Honor's thesis (1); OURE (Opportunity for Undergraduate Research Experience, https://undergrad.mst.edu/experientiallearning/oure/) in Chemistry (16), Chemical and Biological Engineering (6), Biological Sciences (2), Physics (1), Mechanical Engineering (1), Architectural Engineering (1), English and Technical Communications (1); OURE Fellowship in Architectural Engineering (1); FYRE (First Year Research Experience, https://case.mst.edu/research/fyre/) in Chemistry (4), Physics (1); Summer Research Scholarship in Chemistry (4); Summer Research Internship in Chemistry (3); Research for Credit (14); Research Co-op for Credit (3); Research Volunteers (9)
<u>High-School Students:</u>	Summer Research Internship in Chemistry (5); Science Paper and Project Support (1)
<u>Middle-School Students:</u>	Science Olympiad Project Support (3)