- 2014-present, *physics exhibitor*, UTD Earth Day at the Dallas Arboretum. My research group has been a regular exhibitor of physics demos at this annual UTD outreach program to the public.

Other service contributions external to UT Dallas:

- 2014-present, *member--panel of judges*, elementary and high school science fairs (Dallas-Fort Worth ISDs). I have been invited as one of the judge for Uplift Education science fairs which showcase research projects ranging from grade school to high school students in the DFW area.
- 2015, *co-moderator*, Hyperpolarized $^{13}C$ Magnetic Resonance Imaging (MRI) Session, 23$^{RD}$ International Society for Magnetic Resonance in Medicine (ISMRM) Conference, Toronto, Ontario, Canada (May 30-June 5, 2016). I served as one of the 2 moderators on the MRI session in which my colleagues and peers in my field were presenting research talks.
- 2016-present, *member*, Users Advisory Committee, Electron Magnetic Resonance (EMR) Program, National High Magnetic Field Laboratory (NHMFL), Tallahassee, FL. As one of the 4 members of the Users Advisory Committee of NHMFL-EMR, I participate in the review and selection process of EMR proposals that request for measurements of samples in unique high-field EMR spectrometers available in the magnet lab. The committee also meets once or twice a year to discuss, suggest, and plan improvements of the capabilities of the EMR Users program.
- *Grant reviewer*: Agence Nationale de la Recherche (The French National Research Agency), American Chemical Society (ACS) Petroleum Research Fund, U.S. National Science Foundation (NSF)
- *Moderator*, Hyperpolarized 13C MRI Session, Symposium and Training XXIV: Dynamic Imaging of Metabolism in Health and Disease, UT Southwestern Medical Center, Dallas, Texas (February 1, 2017)
- *Chair*, Biophysics Session, 2018 Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS, October 19-20, 2018; University of Houston, Houston, Texas.

# PUBLICATIONS

## Publications

46. Hamilton Lee, Arezoo Shahrivarkevishahi, Jenica L. Lumata, Michael A. Luzuriaga, Laurel M. Hagge, Candace E. Benjamin, Olivia R. Brohlin, Christopher R. Parish, Hamid R. Firouzi, Steven O. Nielsen, Lloyd L. Lumata and Jeremiah J. Gassensmith, Supramolecular and Biomacromolecular Enhancement of Metal-Free Magnetic Resonance Imaging Contrast Agents, **Chemical Science** 11, 2045-2050 (2020).

45. Christopher Parish, Peter Niedbalski, Qing Wang, Fatemeh Khashami, Zahra Hayati, Mengtian Liu, Likai Song, and Lloyd Lumata*, *Effects of glassing matrix deuteration on the relaxation properties of hyperpolarized $^{13}C$ spins and free radical electrons at cryogenic temperatures*, **Journal of Chemical Physics** 150, 234307 (2019).

44. Peter Niedbalski, Andhika Kiswandhi, Christopher Parish, Qing Wang, Fatemeh Khashami, and Lloyd Lumata*, *NMR Spectroscopy Unchained: Attaining the Highest Signal Enhancements in Dissolution Dynamic Nuclear Polarization*, **The Journal of Physical Chemistry Letters** 9, 5481–5489 (2018).

43. Christopher Parish, Peter Niedbalski, Andhika Kiswandhi, and Lloyd Lumata*, *Dynamic nuclear polarization of carboxyl and methyl $^{13}C$ Spins of acetate using 4-oxo-TEMPO free radical*, **Journal of Chemical Physics** 149, 054302 (2018).

42. Peter Niedbalski, Qing Wang, Christopher Parish, Fatemeh Khashami, Andhika Kiswandhi, and Lloyd Lumata*, *Magnetic Field-Dependent Lifetimes of Hyperpolarized $^{13}C$ Spins at Cryogenic Temperature*, **Journal of Physical Chemistry B** 122, 1898-1904 (2018).

41. Peter Niedbalski, Qing Wang, Christopher Parish, Zahra Hayati, Likai Song, Andre Martins, A. Dean Sherry, and Lloyd Lumata*, *Transition Metal Doping Reveals Link between Electron $T_1$ Reduction and $^{13}C$ Dynamic Nuclear Polarization Efficiency*, **Journal of Physical Chemistry A** 121, 9221-9228 (2017).

40. Peter Niedbalski, Christopher Parish, Qing Wang, Zahra Hayati, Likai Song, Zackary I. Cleveland, and Lloyd Lumata*, *Enhanced Efficiency of $^{13}C$ Dynamic Nuclear Polarization by Superparamagnetic Iron Oxide Nanoparticle Doping*, **Journal of Physical Chemistry C** 121, 19505-19511 (2017).

39. Peter Niedbalski, Christopher Parish, Qing Wang, Andhika Kiswandhi, and Lloyd Lumata*, *$^{13}C$ dynamic nuclear polarization using derivatives of TEMPO free radical*, **Applied Magnetic Resonance** 48, 933-942 (2017).

38. Peter Niedbalski, Christopher Parish, Qing Wang, Andhika Kiswandhi, Zahra Hayati, Likai Song, and Lloyd Lumata*, *$^{13}C$ dynamic nuclear polarization using a trimeric gadolinium complex as an additive*, **Journal of Physical Chemistry A** 121, 5127-5135 (2017).

37. Andhika Kiswandhi, Peter Niedbalski, Qing Wang, Christopher Parish, and Lloyd Lumata*, *Assembly and performance of a 6.4 T cryogen-free dynamic nuclear polarization system*, **Magnetic Resonance in Chemistry-Rapid Communication** 55, 846-852 (2017).

36. Peter Niedbalski, Christopher Parish, Andhika Kiswandhi, Zoltan Kovacs, and Lloyd Lumata*, *Influence of $^{13}C$ isotopic labeling location on dynamic nuclear polarization of acetate*, **Journal of Physical Chemistry A** 121, 3227-3233 (2017).

35. Andhika Kiswandhi, Peter Niedbalski, Christopher Parish, Sarah Ferguson, David Taylor, George McDonald, and Lloyd Lumata*, *Construction and $^{13}C$ hyperpolarization efficiency of a 180 GHz dissolution dynamic nuclear polarization system*, **Magnetic Resonance in Chemistry** 55, 828-836 (2017).

34. Peter Niedbalski, Christopher Parish, Andhika Kiswandhi, Leila Fidelino, Chalermchai Khemtong, Zahra Hayati, Likai Song, Andre Martins, A. Dean Sherry, and Lloyd Lumata*, *Influence of $Dy^{3+}$ and $Tb^{3+}$-doping on $^{13}C$ dynamic nuclear polarization*, **Journal of Chemical Physics** 146, 014303 (2017).

33. Andhika Kiswandhi, Peter Niedbalski, Christopher Parish, Pavanjeet Kaur, Andre Martins, Leila Fidelino, Chalermchai Khemtong, Likai Song, A. Dean Sherry, and Lloyd Lumata*, *Impact of $Ho^{3+}$-doping on $^{13}C$ dynamic nuclear polarization using trityl OX063 free radical*, **Physical Chemistry Chemical Physics** 18, 21351-21359 (2016).

32. Peter Niedbalski, Christopher Parish, Andhika Kiswandhi, and Lloyd Lumata*, *$^{13}C$ dynamic nuclear polarization using isotopically-enriched 4-oxo-TEMPO free radicals*, **Magnetic Resonance in Chemistry** (2016), in press. DOI: 10.1002/mrc.4480

31. Andhika Kiswandhi, Bimala Lama, Peter Niedbalski, Mudrekh Goderya, Joanna Long, and Lloyd Lumata*, *The effect of glassing solvent deuteration and $Gd^{3+}$ doping on $^{13}C$ DNP at 5 T*, RSC Advances 6, 38855-38860 (2016).

30. Lloyd Lumata*, Chendong Yang, Mukundan Ragavan, Nicholas Carpenter, Ralph J. DeBerardinis,and Matthew E. Merritt, *Hyperpolarized $^{13}C$ magnetic resonance and its use in metabolic assessment of cultured cells and perfused tissues*, Methods in Enzymology 561, 73-106 (2015).

Publications Prior to Independent Career (Postdoc at UT Southwestern Medical Center):

29. Weina Jiang, Lloyd Lumata, Wei Chen, Shanrong Zhang, Zoltan Kovacs, Craig R. Malloy, A. Dean Sherry and Chalermchai Khemtong, *Hyperpolarized $^{15}N$-pyridine derivatives as pH-Sensitive MRI Agents*, Scientific Reports 5, 9104 (2015).

28. Lloyd L. Lumata, Richard Martin, Ashish K. Jindal, Zoltan Kovacs, Mark S. Conradi and Matthew E. Merritt, *Development and performance of a 129 GHz dynamic nuclear polarizer in an ultra-wide bore superconducting magnet*, Magnetic Resonance Materials in Physics, Biology and Medicine 98, 195-205 (2015).

27. Chalermchai Khemtong, Nicholas R. Carpenter, Lloyd L. Lumata, Matthew E. Merritt, Karlos X. Moreno, Zoltan Kovacs, Craig R. Malloy, and A. Dean Sherry, *Hyperpolarized $^{13}C$ NMR detects rapid drug-induced changes in cardiac metabolism*, Magnetic Resonance in Medicine 74, 312-319 (2015).

26. Chendong Yang, Bookyung Ko, Christopher Hensley, Lei Jiang, Ajla Wasti, Lloyd Lumata, Matthew Mitsche, Matthew Merritt and Ralph J. DeBerardinis, *Glutamine oxidation maintains the TCA cycle and cell survival during impaired mitochondrial pyruvate transport*, Molecular Cell 56, 414-424 (2014).

25. A.A. Gapud, A.P. Weber, J.A. Alexander, L. Pham, A. Khan, R.I. Leatherbury, A.P. Reyes, L. L. Lumata, P.L. Kuhns, E.J. Valente and R.E. Sykora, *New quasi-one-dimensional Tetracyanidoplatinate, Cs4[Pt(CN)4](CF3SO3)2: synthesis, structure, and physical characterization*, Journal of Physics and Chemistry of Solids 75, 447-452 (2014).

24. S. James Ratnakar, Todd C. Soesbe, Lloyd Lumata, Quyen Do, Subha Viswanathan, Chien-Yuan Lin, A. Dean Sherry, and Zoltan Kovacs, *Modulation of CEST images in vivo by $T_1$ relaxation: a new approach in the design of responsive PARACEST agents*, Journal of the American Chemical Society 135, 14904–14907 (2013).

23. Lloyd Lumata, Zoltan Kovacs, A. Dean Sherry, Craig Malloy, Stephen Hill, Johan van Tol, Lu Yu, Likai Song, and Matthew Merritt, *Electron spin resonance studies of trityl OX063 at optimal concentration for DNP*, Physical Chemistry Chemical Physics 15, 9800-9807 (2013).

22. Lloyd Lumata, Matthew E. Merritt, and Zoltan Kovacs, *Influence of deuteration in the glassing matrix on $^{13}C$ dynamic nuclear polarization*, Physical Chemistry Chemical Physics 15, 7032-7035 (2013).

21. Lloyd L. Lumata, Matthew E. Merritt, Craig R. Malloy, A. Dean Sherry, Johan van Tol, Likai Song, and Zoltan Kovacs, *Dissolution DNP-NMR spectroscopy using galvinoxyl as a polarizing agent*, Journal of Magnetic Resonance 227, 14-19 (2013)

20. Lloyd Lumata, Matthew Merritt, Chalermchai Khemtong, S. James Ratnakar, Johan van Tol, Lu Yu, Likai Song, and Zoltan Kovacs, *The efficiency of DPPH as a polarising agent for DNP-NMR spectroscopy*, **RSC Advances** 2, 12812-12817 (2012).

19. Elizabeth L. Green, Lloyd L. Lumata, James S. Brooks, Philip Kuhns, Arneil Reyes, Stuart E. Brown, and Manuel Almeida, *$^{1}H$ and $^{195}Pt$ NMR study of the parallel two-chain compound (Per)2[Pt(mnt)2]*, **Crystals** 2, 1116-1135 (2012).

18. Lloyd Lumata, Matthew E. Merritt, Craig R. Malloy, A. Dean Sherry, and Zoltan Kovacs, *Impact of $Gd^{3+}$ on DNP of [1-$^{13}$C]Pyruvate Doped with Trityl OX063, BDPA, or 4-oxo-TEMPO*, **Journal of Physical Chemistry A** 116, 5129-5138 (2012).

17. Lloyd Lumata, Matthew E. Merritt, Craig Malloy, A. Dean Sherry, and Zoltan Kovacs, *Fast Dissolution Dynamic Nuclear Polarization NMR of $^{13}$C-enriched $^{89}$Y-DOTA Complex: Experimental and Theoretical Considerations*, **Applied Magnetic Resonance** 43, 69-79 (2012).

16. Lloyd Lumata, Matthew E. Merritt, Zohreh Hashami, S. James Ratnakar, and Zoltan Kovacs, *Production and NMR Characterization of Hyperpolarized $^{107,109}$Ag Complexes*, **Angewandte Chemie International Edition** 51, 525-527 (2012). Note: This paper was featured as a **Cover Article** of the journal Angewandte Chemie International Edition.

15. E. L. Green, J. S. Brooks, P. L. Kuhns, A. P. Reyes, L. L. Lumata, M. Almeida, R. T. Henriques, J. A. Wright, and S. E. Brown, *Interaction of magnetic field-dependent Peierls and spin-Peierls ground states in (Per)2Pt[mnt]2*, **Physical Review B** (Rapid Communications) 84, 121101 (2011).

14. Lloyd Lumata, S. James Ratnakar, Ashish Jindal, Matthew Merritt, Arnaud Comment, Craig Malloy, A. Dean Sherry, and Zoltan Kovacs, *BDPA: An Efficient Polarizing Agent for Fast Dissolution Dynamic Nuclear Polarization NMR Spectroscopy*, **Chemistry--A European Journal** 17, 10825-10827 (2011).

13. Lloyd Lumata, Ashish Jindal, Matthew Merritt, Craig Malloy, A. Dean Sherry, and Zoltan Kovacs, *DNP by Thermal Mixing Under Optimized Conditions Yields >60,000-fold enhancement of $^{89}$Y NMR Signal*, **Journal of the American Chemical Society** 133, 8673-8680 (2011).

12. Lloyd Lumata, Zoltan Kovacs, Craig Malloy, A. Dean Sherry, and Matthew Merritt, *The effect of $^{13}$C enrichment in the glassing matrix on dynamic nuclear polarization of [1-$^{13}$C]pyruvate*, **Physics in Medicine and Biology** 56, N85-N92 (2011).

Publications Prior to Independent Career (PhD student at Florida State University):

11. H. D. Zhou, E. S. Choi, Y.-J. Jo, L. Balicas, J. Lu, L. L. Lumata, R. R. Urbano, P. L. Kuhns, A. P. Reyes, J. S. Brooks, R. Stillwell, S. W. Tozer, C. R. Wiebe, J. Whalen, and T. Siegrist, *Metamagnetic transition in Bi4Cu3V2O14 single crystal*, **Physical Review B** 82, 054435 (2010).

10. Jin Gyu Park, Nam Gyun Yun, Young Bin Park, Richard Liang, Lloyd Lumata, James S. Brooks, Chuck Zhang and Ben Wang, *Single-walled carbon nanotube buckypaper and mesopitch carbon/carbon composites*, **Carbon** 48, 4276-4282 (2010).

9. L. L. Lumata, T. Besara, P. L. Kuhns, A. P. Reyes, H. D. Zhou, C. R. Wiebe, L. Balicas, Y. J. Jo, J. S. Brooks, Y. Takano, M. J. Case, Y. Qiu, J. R. D. Copley, J. S. Gardner, K.-Y. Choi, N. S. Dalal, and

M. J. R. Hoch, *Low-temperature spin dynamics in the kagome system Pr3Ga5SiO14*, **Physical Review B** 81, 224416 (2010).

8. L. L. Lumata*, K.-Y. Choi, J. S. Brooks, P. L. Kuhns, A. P. Reyes, T. Wu, and X. H. Chen, *$^{77}$Se and 63Cu NMR studies of the electronic correlations in CuxTiSe2 (x=0.05, 0.07)*, **Journal of Physics: Condensed Matter** 22, 295601 (2010).

7. A. A. Gapud, R. P. Khadka, S. Moraes, P. C. Canfield, V. G. Kogan, A. P. Reyes, L. L. Lumata, D. K. Christen, and J. R. Thomson, *Flux quanta driven by high-density currents in low impurity V3Si and LuNi2B2C: free flux flow and flux core size effect*, **Physical Review B** 80, 134524 (2009).

6. H. D. Zhou, C. R. Wiebe, Y.-J. Jo, L. Balicas, R. R. Urbano, L. L. Lumata, J. S. Brooks, P. L. Kuhns, A. P. Reyes, Y. Qiu, R. D. Copley, and J. S. Gardner, *Chemical pressure-induced spin freezing phase transition in kagome Pr-Langasites*, **Physical Review Letters** 102, 067203 (2009).

5. H. D. Zhou, L. L. Lumata, P. L. Kuhns, A. P. Reyes, E. S. Choi, J. Lu, Y.-J. Jo, L. Balicas, J. S. Brooks, and C. R. Wiebe, *Ba3NbFe3Si2O14: a new multiferroic with a 2D triangular Fe3+ motif*, **Chemistry of Materials** 21, 156-159 (2009).

4. L. L. Lumata, J. S. Brooks, P. L. Kuhns, A. P. Reyes, H. B. Cui, S. E. Brown, R. C. Haddon, and J.-I. Yamada, *Angular and temperature-dependent $^{77}$Se NMR in the metallic, SDW, and field-induced spin density wave phases of (TMTSF)$_2$X (X=ClO4, PF6)*, **Journal of Physics: Conference Series** 132, 012014 (2008).

3. L. L. Lumata, J. S. Brooks, P. L. Kuhns, A. P. Reyes, S. E. Brown, H. B. Cui, and R. C. Haddon, *$^{77}$Se NMR investigation of the field-induced spin density wave transitions in (TMTSF)$_2$ClO$_4$*, **Physical Review B (Rapid Communications)** 78, 020407 (2008).

2. H. D. Zhou, E. S. Choi, J. A. Souza, J. Lu, Y. Xin, L. L. Lumata, B. S. Conner, L. Balicas, J. S. Brooks, J. J. Neumeier, and C. R. Wiebe, *Magnetic-polaron-driven magnetoresistance in the pyrochlore Lu2V2O7*, **Physical Review B (Rapid Communications)** 77, 020411 (2008).

1. Keesu Jeon, Lloyd Lumata, Takahisa Tokumoto, Eden Steven, James Brooks, and Rufina Alamo, *Low electrical conductivity threshold and crystalline morphology of single-walled carbon nanotubes-high density polyethylene nanocomposites characterized by SEM, Raman spectroscopy, and AFM*, **Polymer** 48, 4751-4764 (2007).

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# LECTURES

1. **Lloyd Lumata**, Invited Talk, *Homebuilt Hyperpolarizer Instrumentation to Increase Liquid-State NMR Spectroscopic Signals by >10,000-fold*, PITTCON Analytical Chemistry & Applied Spectroscopy Conference, McCormick Place, Chicago, Illinois (March 3, 2020).
2. **Lloyd Lumata**, Invited Lecture, *Generating Hyperpolarized Tracers*, Symposium and Training XXV: Frontiers in Brain Imaging, UT Southwestern Medical Center, Dallas, Texas (January 29, 2020)

3. **Lloyd Lumata**, Invited Talk, *Hyperpolarization: Increasing MRI Signals by >10,000-fold to Interrogate Cancer Metabolism,* Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS, Texas Tech University, Lubbock, Texas (October 25, 2019).
4. **Lloyd Lumata**, Invited Lecture, *Hyperpolarized Magnetic Resonance: Enhancing NMR and MRI Signals by >10,000-fold for Metabolic Assessment of Cancer*, Missouri State University, Springfield, Missouri (October 16, 2019).
5. **Lloyd Lumata**, Invited Lecture, *A Tale of Two Sugars: $^{13}$C NMR Tracking of the Metabolic Fates of Glucose and Fructose in Cancer*, EUROISMAR (Joint European and International Society for Magnetic Resonance) Conference, Freie University, Berlin, Germany (July 28, 2019).
6. **Lloyd Lumata**, Invited Lecture, *Quest for Faster, Higher, and Stronger Hyperpolarization*, UT Southwestern Medical Center, Dallas, Texas (March 5, 2019).
7. **Lloyd Lumata**, Invited Lecture, *Hyperpolarized Magnetic Resonance: Enhancing NMR Signals by >10,000-fold for Real-Time Tracking of Cellular Metabolism*, Pacific Northwest National Laboratory, Richland, Washington (February 28, 2019).
8. **Lloyd Lumata**, Invited Lecture, *Hyperpolarized Magnetic Resonance: Enhancing MRI Signals by >10,000-fold for Metabolic Assessment of Cancer*, University of Texas at San Antonio, San Antonio, Texas (February 8, 2019).
9. **Lloyd Lumata**, Invited Lecture, *Dynamic Nuclear Polarization: Increasing MRI Signals by >10,000-fold,* Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS, University of Houston, Houston, Texas (October 20, 2018).
10. **Lloyd Lumata**, Invited Lecture, *Basics of Dynamic Nuclear Polarization*, National High Magnetic Field Laboratory at University of Florida, Gainesville, Florida (February 8, 2019).
11. **Lloyd Lumata**, Invited Lecture, *Hyperpolarized Magnetic Resonance: Enhancing MRI Signals by >10,000-fold for Metabolic Assessment of* Cancer, 47th Winter Colloquium on the Physics of Quantum Electronics, Cliff Lodge, Snowbird Resort, Snowbird, Utah (January 8-13, 2017)
12. **Lloyd Lumata**, Invited Lecture, *Basics of Hyperpolarized Magnetic Resonance*, Symposium and Training XXIV: Dynamic Imaging of Metabolism in Health and Disease, UT Southwestern Medical Center, Dallas, Texas (February 1, 2017)
13. **Lloyd Lumata**, Invited Lecture, *Hyperpolarized Magnetic Resonance: Enhancing MRI Signals by >10,000-fold for Non-Invasive Metabolic Assessment of Cancer*, Joint Meeting of the Texas and Four Corners Sections of the American Physical Society (APS), New Mexico State University, Las Cruces, New Mexico (October 21-22, 2016).
14. **Lloyd Lumata**, Contributed Lecture**,** *Real-time tracking of dissociation of hyperpolarized $^{89}$Y-EDTA: a model for degradation of open-chain $Gd^{3+}$ MRI contrast agents*, American Physical Society (APS) meeting, Baltimore Convention Center, Baltimore, Maryland (March 18, 2016)
15. **Lloyd Lumata**, Invited Lecture, *Hyperpolarized magnetic resonance: enhancing MRI signals by >10,000-fold for metabolic assessment of cancer*, Physics Colloquium, John A. Wheeler Rm., University of Texas at Austin, Austin, Texas (February 24, 2016).
16. **Lloyd Lumata**, Invited Lecture, *Hyperpolarized magnetic resonance: enhancing MRI signals by >10,000-fold for metabolic assessment of cancer*, Lamar University, Beaumont, Texas (October 23, 2015).
17. **Lloyd Lumata**, Invited Lecture, *Hyperpolarization: Enhancing MRI Signals by >10,000-fold for Metabolic Assessment of Cancer*, Invited lecture, UT Dallas Biology Department, Richardson, TX (October 14, 2015).
18. **Lloyd Lumata**, Invited Lecture, *Hyperpolarized Magnetic Resonance: Amplifying MRI signals by >10,000-fold for Metabolic Assessment of Cancer*, University of Guanajuato, Campus Leon, Mexico (November 10, 2014).
19. **Lloyd Lumata**, Invited Lecture, *Hyperpolarization: Amplifying MRI signals by >10,000-fold via Non-Boltzmann Physics*, Southern Methodist University, Dallas, Texas (October 20, 2014).

20. **Lloyd Lumata**, Invited Lecture, *Hyperpolarized Magnetic Resonance: Improvement of MRI signals by >10,000-fold for Metabolic Assessment of Cancer*, University of Texas at Arlington, Arlington, Texas (October 8, 2014).
21. **Lloyd Lumata**, Invited Lecture, *Optimization methods of $^{13}C$ dynamic nuclear polarization*, International Conference on Magnetic Resonance in Biological Systems (ICMRBS) XXVI, Dallas, Texas (August 27, 2014).
22. **Lloyd Lumata**, Invited Lecture, *Supersensitive NMR Spectroscopy and Imaging (MRI) of Cancer using Non-Boltzmann Physics*, La Sierra University, Riverside, California (February 21, 2014).
23. **Lloyd Lumata**, Invited Lecture, *DNP: how to create a Texas-size nuclear polarization*, ACS Southwest Regional Meeting, Baylor University, Waco, Texas (November 17, 2013).
24. **Lloyd Lumata**, Invited Lecture, *Hyperpolarized Magnetic Resonance: Physics, Instrumentation, Optimization, and Biomedical Applications*, University of Texas at Dallas, Richardson, TX (September 25, 2013).
25. **Lloyd Lumata** and Zoltan Kovacs, Contributed Lecture, *Dynamic nuclear polarization of $^{107,109}Ag$ complexes*, 243rd ACS National Meeting, San Diego, California (March 25, 2012).
26. **Lloyd Lumata**, Contributed Lecture, *Producing >60,000-fold $^{89}Y$ NMR signal enhancement for NMR/MRI*, American Physical Society Meeting, Dallas, Texas (March 21-25, 2011).
27. **Lloyd Lumata**, Invited Lecture, *Everything's big in Texas: generating >60,000-fold $^{89}Y$ NMR signal enhancement for NMR/MRS/MRI*, National High Magnetic Field Laboratory, Tallahassee, Florida (March 15, 2011).
28. **Lloyd Lumata**, Contributed Lecture, *$^{69,71}Ga$ NMR probe of the spin dynamics in the rare-earth kagome $Pr_3Ga_5SiO_{14}$*, American Physical Society Meeting, Pittsburgh, Pennsylvania (March 18, 2009).
29. **Lloyd Lumata**, Invited Lecture, *Spin dynamics of density wave and frustrated spin systems probed by NMR*, Department of Physics and Astronomy, University of California at Riverside, Riverside, California (January 21, 2009).
30. **Lloyd Lumata**, Invited Lecture, *Spin dynamics of density wave and frustrated spin systems probed by NMR*, Department of Physics, Washington University, St. Louis, Missouri (November 6, 2008).
31. **Lloyd Lumata** and James Brooks, Contributed Lecture, *Spin dynamics in the field-induced spin-density-wave phases of $(TMTSF)_2ClO_4$*, American Physical Society (APS) meeting, New Orleans, Louisiana (March 12, 2008).
32. **Lloyd Lumata**, Invited Lecture, *Student Teaching in the FSU Department of Physics: An Introduction*, FSU Physics TA Workshop, Tallahassee, Florida (August 22, 2007).
33. **Lloyd Lumata**, James S. Brooks, and Philip Kuhns, Contributed Lecture, *Angular and Temperature-dependent $^{77}Se$ NMR in the metallic and spin-density-wave phases in $(TMTSF)_2ClO_4$*, American Physical Society Meeting, Denver, Colorado (March 7, 2007).

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## STUDENT CONTRIBUTED TALKS AND POSTERS

**Note**: These are contributed talks and poster by my UTD research groups, mainly by PhD students. **Names in bold fonts are undergraduate student researchers in my lab**.

1. *Dynamic nuclear polarization of carbonyl and methyl 13C spins in acetate using trityl OX063*, Peter Niedbalski, Christopher Parish and Lloyd Lumata, American Physical Society (APS) March Meeting, San Antonio, TX (March 2-6, 2015).
2. *Influence of 13C isotopic labeling location of 13C DNP of acetate using TEMPO free radical,* Christopher Parish, Peter Niedbalski and Lloyd Lumata, American Physical Society (APS) March Meeting, San Antonio, TX (March 2-6, 2015).

3. *Electron relaxation of DNP free radicals BDPA and DPPH at W-band*, **Armin Khamoshi**, Pavanjeet Kaur, Likai Song and Lloyd Lumata, American Physical Society (APS) March Meeting, San Antonio, TX (March 2-6, 2015).
4. *W-band ESR studies of DNP free radicals BDPA and DPPH*, **Armin Khamoshi**, Pavanjeet Kaur, Likai Song and Lloyd Lumata, UTD Undergraduate Research Symposium, University of Texas at Dallas, Richardson, TX (April 7, 2015).
5. *Study of the effect of glassing matrix deuteration and Gd3+ doping on 13C hyperpolarization at 5 T*, Bimala Lama, Andhika Kiswandhi, Peter Niedbalski, **Mudrekh Goderya**, Joanna Long and Lloyd Lumata, 44th Southeastern Magnetic Resonance Conference (SEMRC), Daytona Beach, FL (October 9-11, 2015).
6. *Real-time spectroscopic detection of yttrium ion and ligand binding via hyperpolarized 89Y NMR*, Sarah Ferguson, Andhika Kiswandhi, Zoltan Kovacs and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, Baylor University, Waco, TX (October 29-31, 2015).
7. *Optimization of 13C dynamic nuclear polarization at 5 Tesla*, Andhika Kiswandhi, Bimala Lama, Peter Niedbalski, **Mudrekh Goderya**, Joanna Long and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, Baylor University, Waco, TX (October 29-31, 2015).
8. *The effect of isotopic labeling on 4-oxo-TEMPO free radical on 13C dynamic nuclear polarization*, Peter Niedbalski, Andhika Kiswandhi, Christopher Parish and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, Baylor University, Waco, TX (October 29-31, 2015).
9. *Dynamic nuclear polarization of 13C-labeled amino acids*, Christopher Parish, Peter Niedbalski, Sarah Ferguson, Andhika Kiswandhi and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, Baylor University, Waco, TX (October 29-31, 2015).
10. *Electron relaxation of DNP free radical DPPH at W-band*, **Armin Khamoshi**, Pavanjeet Kaur, Peter Niedbalski, Likai Song and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, Baylor University, Waco, TX (October 29-31, 2015).
11. *Dynamic nuclear polarization of carbonyl and methyl 13C spins: 13C acetate samples doped with trityl OX063*, Peter Niedbalski, Christopher Parish and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, Baylor University, Waco, TX (October 29-31, 2015).
12. *Novel Earth's field magnetic resonance imaging of copper-doped water for inexpensive detection of disease*, **Anagha Khrisnan**, Andhika Kiswandhi, Peter Niedbalski, Christopher Parish and Lloyd Lumata, American Association for the Advancement of Science (AAAS) 2016 Annual Meeting, Washington, D.C. (February 11-15, 2016).
13. *Construction and 13C NMR signal efficiency of a dynamic nuclear polarizer at 6.4 T and 1.4 K*, Andhika Kiswandhi, Peter Niedbalski, Christopher Parish, Sarah Ferguson, David Taylor, George MacDonald, and Lloyd Lumata, American Physical Society (APS) meeting, Baltimore Convention Center, Baltimore, Maryland (March 14-18, 2016).
14. *Optimization of 13C dynamic nuclear polarization: isotopic labeling of free radicals*, Peter Niedbalski, Christopher Parish, Andhika Kiswandhi, and Lloyd Lumata, American Physical Society (APS) meeting, Baltimore Convention Center, Baltimore, Maryland (March 14-18, 2016).
15. *Temperature dependence of proton NMR relaxation times at Earth's magnetic field*, Peter Niedbalski, Christopher Parish, Andhika Kiswandhi, Sarah Ferguson, **Eduardo Cervantes**, **Anisha Oomen**, **Anagha Khrishnan**, **Aayush Goyal**, and Lloyd Lumata, American Physical Society (APS) meeting, Baltimore Convention Center, Baltimore, Maryland (March 14-18, 2016).
16. *Production and NMR signal optimization of hyperpolarized 13C-labelled amino acids*, Christopher Parish, Peter Niedbalski, Sarah Ferguson, Andhika Kiswandhi, and Lloyd Lumata, American Physical Society (APS) meeting, Baltimore Convention Center, Baltimore, Maryland (March 14-18, 2016).
17. *Impact of Gd3+ doping and glassing solvent deuteration on 13C DNP at 5 T*, Andhika Kiswandhi, Bimala Lama, Peter Niedbalski, **Mudrekh Goderya**, Joanna Long, and Lloyd Lumata, American Physical Society (APS) meeting, Baltimore Convention Center, Baltimore, Maryland (March 14-18, 2016).
18. *Hyperpolarized 89Y NMR spectroscopic detection of Yttrium ion and DOTA macrocyclic ligand complexation: pH dependence and YDOTA intermediates*, Sarah Ferguson, Peter Niedbalski, Christopher Parish, Andhika Kiswandhi, Zoltan Kovacs, and Lloyd Lumata, American Physical Society (APS) meeting, Baltimore Convention Center, Baltimore, Maryland (March 14-18, 2016).

19. *Hyperpolarized 13C NMR lifetimes in the liquid-state: relating structures and T1 relaxation times*, Christopher Parish, Peter Niedbalski, Zohreh Hashami, Leila Fidelino, Zoltan Kovacs, and Lloyd Lumata, American Physical Society (APS) meeting, Baltimore Convention Center, Baltimore, Maryland (March 14-18, 2016).
20. *Novel earth's field magnetic resonance imaging of copper chloride-doped water*, Anagha Krishnan and Lloyd Lumata, oral presentation, 30th National Council on Undergraduate Research (NCUR), University of North Carolina at Ashville, Ashville, NC (April 7-9, 2016).
21. *Real-time tracking of dissociation of hyperpolarized 89Y-DTPA: a model for degradation of open-chain Gd3+ MRI contrast agents*, Christopher Parish, Sarah Ferguson, Peter Niedbalski, Andhika Kiswandhi, Zoltan Kovacs, and Lloyd Lumata, Experimental NMR Conference (ENC), Wyndham Grand Hotel, Pittsburgh, Pennsylvania (April 10-15, 2016)
22. *The effects of Ho3+-DOTA doping on 13C dynamic nuclear polarization: ESR and hyperpolarization studies*, Andhika Kiswandhi, Christopher Parish, Peter Niedbalski, Pavanjeet Kaur, Zahra Hayati, Andre Martins, A. Dean Sherry, Chalermchai Khemtong, Likai Song, and Lloyd Lumata, Experimental NMR Conference (ENC), Wyndham Grand Hotel, Pittsburgh, Pennsylvania (April 10-15, 2016)
23. *Influence of 13C isotopic labeling location on 13C DNP of acetate using TEMPO free radical*, Christopher Parish, Peter Niedbalski, Zoltan Kovacs, and Lloyd Lumata, Experimental NMR Conference (ENC), Wyndham Grand Hotel, Pittsburgh, Pennsylvania (April 10-15, 2016)
24. *13C Dynamic Nuclear Polarization Using Isotopically-Enriched 4-oxo-TEMPO Free Radicals*, Peter Niedbalski, Christopher Parish, Andhika Kiswandhi, and Lloyd Lumata, Experimental NMR Conference (ENC), Wyndham Grand Hotel, Pittsburgh, Pennsylvania (April 10-15, 2016)
25. *Development and Performance of a 180 GHz Dissolution DNP Hyperpolarizer*, Andhika Kiswandhi, Peter Niedbalski, Christopher Parish, Sarah Ferguson, David Taylor, George MacDonald, and Lloyd Lumata, Experimental NMR Conference (ENC), Wyndham Grand Hotel, Pittsburgh, Pennsylvania (April 10-15, 2016)
26. *Dynamic Nuclear Polarization of Carbonyl and Methyl 13C Spins in Acetate Using Trityl OX063*, Peter Niedbalski, Christopher Parish, Zoltan Kiswandhi, and Lloyd Lumata, Experimental NMR Conference (ENC), Wyndham Grand Hotel, Pittsburgh, Pennsylvania (April 10-15, 2016)
27. *Influence of Glassing Matrix Deuteration and Gd3+ Doping on 13C Dynamic Nuclear Polarization at B = 5 Tesla*, Andhika Kiswandhi, Bimala Lama, Peter Niedbalski, Mudrekh Goderya, Joanna Long, and Lloyd Lumata, Experimental NMR Conference (ENC), Wyndham Grand Hotel, Pittsburgh, Pennsylvania (April 10-15, 2016)
28. *Temperature dependence of proton NMR relaxation times at Earth's magnetic field*, Peter Niedbalski, Christopher Parish, Andhika Kiswandhi, Sarah Ferguson, Eduardo Cervantes, Anisha Oomen, Anagha Khrishnan, Aayush Goyal, and Lloyd Lumata, Experimental NMR Conference (ENC), Wyndham Grand Hotel, Pittsburgh, Pennsylvania (April 10-15, 2016)
29. *Ho-DOTA as a polarization enhancer for dissolution dynamic nuclear polarization*, Andhika Kiswandhi, Christopher Parish, Peter Niedbalski, Pavanjeet Kaur, Zahra Hayati, Andre Martins, A. Dean Sherry, Chalermchai Khemtong, Likai Song, and Lloyd Lumata, NSF Site Visit Symposium for Early Career Scientists, National High Magnetic Field Laboratory (NHMFL), Tallahassee, FL (August 29-31, 2016).
30. *Construction and performance of a homebuilt 180 GHz dissolution dynamic nuclear polarizer*, Andhika Kiswandhi, Peter Niedbalski, Christopher Parish, Sarah Ferguson, David Taylor, George MacDonald, and Lloyd Lumata, Southwest Regional Meeting of the American Chemical Society (ACS), Galveston Convention Center, Galveston, Texas (November 10-13, 2016)
31. *13C dynamic nuclear polarization using a mixture of trityl OX063 and 4-oxo-TEMPO free radicals*, Christopher Parish, Peter Niedbalski, Qing Wang, Andhika Kiswandhi, and Lloyd Lumata, Southwest Regional Meeting of the American Chemical Society (ACS), Galveston Convention Center, Galveston, Texas (November 10-13, 2016)
32. *Influence of Dy3+ and Tb3+ on 13C dynamic nuclear polarization*, Peter Niedbalski, Christopher Parish, Andhika Kiswandhi, Zara Hayati, Andre Martins, Leila Fidelino, Chalermchai Khemtong, Likai Song, A. Dean Sherry, and Lloyd Lumata, Southwest Regional Meeting of the American Chemical Society (ACS), Galveston Convention Center, Galveston, Texas (November 10-13, 2016)

33. *Dynamic nuclear polarization of low-gamma nuclei*, Qing Wang, Christopher Parish, Peter Niedbalski, Andhika Kiswandhi, Zoltan Kovacs, and Lloyd Lumata, Southwest Regional Meeting of the American Chemical Society (ACS), Galveston Convention Center, Galveston, Texas (November 10-13, 2016)
34. *Influence of Ho3+-doping on 13C dynamic nuclear polarization*, Andhika Kiswandhi, Peter Niedbalski, Christopher Parish, Pavanjeet Kaur, Andre Martins, Leila Fidelino, Chalermchai Khemtong, Likai Song, A. Dean Sherry, and Lloyd Lumata, Joint Meeting of the Texas and Four Corners Sections of the American Physical Society (APS), New Mexico State University, Las Cruces, New Mexico (October 21-22, 2016).
35. *Magnetic field-dependent lifetimes of 13C spins at cryogenic temperature*, Peter Niedbalski, Qing Wang, Christopher Parish, Fatemeh Khashami, and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, University of Texas at Dallas, Richardson, Texas (October 20-21, 2017)
36. *Hyperpolarized 89Y-EDTP and 89Y-DTPP as pH sensitive MRI agents*, Qing Wang, Peter Niedbalski, Christopher Parish, James Ratnakar, Zoltan Kovacs, and Lloyd Lumata, 50th Annual American Chemical Society-DFW meeting, Texas Christian University, Fort Worth, Texas (April 29, 2017)
37. *Mechanisms of dynamic nuclear polarization using a mixture of two free radicals*, Christopher Parish, Peter Niedbalski, Qing Wang, and Lloyd Lumata, 50th Annual American Chemical Society-DFW meeting, Texas Christian University, Fort Worth, Texas (April 29, 2017)
38. *Dynamic nuclear polarization: boosting MRI signals by >10,000-fold*, Peter Niedbalski, Christopher Parish, Qing Wang, and Lloyd Lumata, 50th Annual American Chemical Society-DFW meeting, Texas Christian University, Fort Worth, Texas (April 29, 2017)
39. *Contrast-enhanced MRI at earth's magnetic field using gadolinium complexes*, Alan Zanders, Daniel Carlton, Peter Niedbalski, and Lloyd Lumata, UT Dallas Undergraduate Scholars Symposium, VCB Atrium, UTD, Richardson, Texas (April 18, 2017)
40. *Hyperpolarized 89Y-EDTP and 89Y-DTPP as pH sensitive MRI agents*, Qing Wang, Peter Niedbalski, Christopher Parish, James Ratnakar, Zoltan Kovacs, and Lloyd Lumata, 58th Experimental NMR Conference (ENC), Asilomar, California (March 26-31, 2017)
41. *13C dynamic nuclear polarization using a mixture of trityl OX063 and 4-oxo-TEMPO at 3.35 T and 1.2 K*, Christopher Parish, Peter Niedbalski, Qing Wang, Zahra Hayati, Likai Song, Andhika Kiswandhi, and Lloyd Lumata, 58th Experimental NMR Conference (ENC), Asilomar, California (March 26-31, 2017)
42. *A 180 GHz dynamic nuclear polarization system using a cryogen-free and sweepable superconducting magnet*, Andhika Kiswandhi, Peter Niedbalski, Christopher Parish, Qing Wang, and Lloyd Lumata, 58th Experimental NMR Conference (ENC), Asilomar, California (March 26-31, 2017)
43. *13C dynamic nuclear polarization using derivatives of TEMPO free radical*, Peter Niedbalski, Christopher Parish, Qing Wang, Andhika Kiswandhi, and Lloyd Lumata, 58th Experimental NMR Conference (ENC), Asilomar, California (March 26-31, 2017)
44. *Influence of Tb3+ and Dy3+ doping on 13C dynamic nuclear polarization*, Peter Niedbalski, Christopher Parish, Andhika Kiswandhi, Zahra Hayati, Likai Song, Leila Fidelino, Chalermchai Khemtong, Andre Martins, A. Dean Sherry, and Lloyd Lumata, 58th Experimental NMR Conference (ENC), Asilomar, California (March 26-31, 2017)
45. *13C dynamic nuclear polarization using trimeric gadolinium complex*, Peter Niedbalski, Christopher Parish, Qing Wang, Andhika Kiswandhi, Zahra Hayati, Likai Song, Magnus Karlsson, Mathilde Lerche, and Lloyd Lumata, 58th Experimental NMR Conference (ENC), Asilomar, California (March 26-31, 2017)
46. *13C dynamic nuclear polarization using a mixture of BDPA and trityl OX063*, Christopher Parish, Peter Niedbalski, Qing Wang, Fatemeh Khashami, and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, University of Texas at Dallas, Richardson, Texas (October 20-21, 2017)
47. *Transition metal doping reveals link between electron T1 reduction and 13C dynamic nuclear polarization efficiency*, Peter Niedbalski, Christopher Parish, Qing Wang, Zahra Hayati, Likai Song, Andre Martins, A. Dean Sherry, and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, University of Texas at Dallas, Richardson, Texas (October 20-21, 2017)
48. *The stability of reactivity of DNP-NMR polarizing agents galvinoxyl, DPPH, 4-oxo-TEMPO, and trityl OX063*, Luke Davis, Peter Niedbalski, and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, University of Texas at Dallas, Richardson, Texas (October 20-21, 2017)

49. *Contrast-enhanced imaging at earth's magnetic field*, Alan Zanders, Qing Wang, Peter Niedbalski, and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, University of Texas at Dallas, Richardson, Texas (October 20-21, 2017)
50. *Tracking leucine metabolism in prostate cancer cells via 13C NMR spectroscopy*, Christopher Parish, Peter Niedbalski, Qing Wang, Fatemeh Khashami, and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, University of Texas at Dallas, Richardson, Texas (October 20-21, 2017)
51. *Temperature-dependent proton relaxation time T1 of water:glycerol solutions at earth's magnetic field*, Fatemeh Khashami, Qing Wang, Peter Niedbalski, and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, University of Texas at Dallas, Richardson, Texas (October 20-21, 2017)
52. *Hyperpolarized 89Y-EDTP and 89Y-DTPP as pH sensitive MRI agents*, Qing Wang, Peter Niedbalski, Christopher Parish, James Ratnakar, Zoltan Kovacs, and Lloyd Lumata, Texas Section of the American Physical Society (APS) meeting, University of Texas at Dallas, Richardson, Texas (October 20-21, 2017)
53. *Temperature Dependence of Proton NMR Relaxation Times at Earth's Magnetic Field*, Fatemeh Khashami, Peter Niedbalski, Christopher Parish, David Clark, Qing Wang, and Lloyd Lumata, 59th Experimental Nuclear Magnetic Resonance Conference (ENC), Hyatt Regency Grand Cypress, Orlando, Florida (April 29-May 4, 2018).
54. *13C Dynamic Nuclear Polarization using BDPA and trityl OX063*, Christopher Parish, Peter Niedbalski, Andhika Kiswandhi, Qing Wang, Fatemeh Khashami, and Lloyd Lumata, 59th Experimental Nuclear Magnetic Resonance Conference (ENC), Hyatt Regency Grand Cypress, Orlando, Florida (April 29-May 4, 2018)
55. *Effect of Solvent Deuteration upon Nuclear and Electronic Spin-Lattice Relaxation Times*, Christopher Parish, Peter Niedbalski, Qing Wang, Likai Song, and Lloyd Lumata, 59th Experimental Nuclear Magnetic Resonance Conference (ENC), Hyatt Regency Grand Cypress, Orlando, Florida (April 29-May 4, 2018)
56. *Transition metal doping reveals link between electron T1 reduction and 13C dynamic nuclear polarization efficiency*, Qing Wang, Peter Niedbalski, Christopher Parish, Zahra Hayati, Likai Song, Andre Martins, A. Dean Sherry, and Lloyd Lumata, 59th Experimental Nuclear Magnetic Resonance Conference (ENC), Hyatt Regency Grand Cypress, Orlando, Florida (April 29-May 4, 2018)
57. *Magnetic field-dependent lifetimes of 13C spins at cryogenic temperature*, Qing Wang, Peter Niedbalski, Christopher Parish, Fatemeh Khashami, and Lloyd Lumata, 59th Experimental Nuclear Magnetic Resonance Conference (ENC), Hyatt Regency Grand Cypress, Orlando, Florida (April 29-May 4, 2018).
58. *Temperature Dependence of Proton NMR Relaxation Times at Earth's Magnetic Field*, Fatemeh Khashami, Peter Niedbalski, David Clark, Christopher Parish, Yusef Maleki, Alan Zanders, Qing Wang, and Lloyd Lumata, 2018 Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS, University of Houston, Houston, Texas (October 19–20, 2018).
59. *Relaxivities of Lanthanide-based MRI Contrast Agents at Low Magnetic Field*, David Williams Clark, Christopher Parish, and Lloyd Lumata, 2018 Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS, University of Houston, Houston, Texas (October 19–20, 2018).
60. *Tracking Branched Chain Amino Acid Transferase (BCAT) Activity in Cancer Cells via 13C NMR Spectroscopy*, Christopher Parish, Peter J Niedbalski, Fatemeh Khashami, Qing Wang, Aya Cloyd, and Lloyd Lumata, 2018 Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS, University of Houston, Houston, Texas (October 19–20, 2018).
61. *NMR Spectroscopy of Alanine Metabolism in Glioblastoma Cells*, Qing Wang, Sarah Chieng, Christopher Parish, Fatemeh Khashami, and Lloyd Lumata, 2018 Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS, University of Houston, Houston, Texas (October 19–20, 2018).
62. *Nuclear Spin Diffusion Effects in Hyperpolarized [1-13C] Pyruvic Acid*, Christopher Parish, Qing Wang, Joseph Griesbauer, Fatemeh Khashami, and Lloyd Lumata, 2018 Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS, University of Houston, Houston, Texas (October 19–20, 2018).
63. *A tale of two sugars: fructose and glucose metabolism in glioblastoma cells*, Fatemeh Khashami, Christopher Parish, Brianna Royer, and Lloyd Lumata, invited talk, 61st Experimental Nuclear Magnetic Resonance Conference (ENC), Pacific Grove, Asilomar, California (April 7-12, 2019).

64. *Tracking alanine metabolism by 13C NMR spectroscopy*, Qing Wang, Christopher Parish, **Sarah Chieng**, Fatemeh Khashami, and Lloyd Lumata, 60th Experimental Nuclear Magnetic Resonance Conference (ENC), Pacific Grove, Asilomar, California (April 7-12, 2019).
65. *Probing Branched-Chain Amino Acid Transferase (BCAT) Activity in Cancer Using 13C NMR spectroscopy*, **Aya Cloyd**, Christopher Parish, Fatemeh Khashami, Qing Wang, Peter Niedbalski, and Lloyd Lumata, UT Dallas Undergraduate Research Symposium, Richardson, Texas (April 16, 2019).
66. *Tracking the Metabolic Fates of 13C and 15N-alanine in Glioblastoma*, Qing Wang, **Sarah Chieng**, Christopher Parish, Fatemeh Khashami, and Lloyd Lumata, 2019 Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS, Texas Tech University, Lubbock, Texas (October 25, 2019).
67. *13C NMR Spectroscopic Studies of High-Fructose Corn Syrup Metabolism in Cancer*, Fatemeh Khashami, **Chelsea Sanchez, Brianna Royer**, Christopher Parish, **David Clark**, Qing Wang, **Kathleen Domalogdog**, and Lloyd Lumata, 2019 Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS, Texas Tech University, Lubbock, Texas (October 25, 2019).
68. *Tracking the Glutamine and Ammonia Metabolism in Renal Cell Carcinoma Using NMR Spectroscopy*, Asiye Asaadzade, Fatemeh Khashami, and Lloyd Lumata, 2019 Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS, Texas Tech University, Lubbock, Texas (October 25, 2019).
69. *Real-Time Monitoring of Cellular Metabolism Using a Bioreactor in a Benchtop NMR Spectrometer*, **James Mulhern**, **Khoa Nguyen, Brianna Royer, Kathleen Domalogdog, Stuart Malina, Esha Bansal**, Qing Wang, Fatemeh Kashami, Lloyd Lumata, 2019 Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS, Texas Tech University, Lubbock, Texas (October 25, 2019).
70. *Carbon-13 NMR Spectroscopy of Aberrant Beta-Galactosidase and Arginase Activities in Cancer*, **Chelsea Sanchez**, Fatemeh Khashami, Qing Wang, Aya Cloyd, Lloyd Lumata, 2019 Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS, Texas Tech University, Lubbock, Texas (October 25, 2019).

# SERVICE

## Journal Peer-Review Service:

- Journal reviewer: Magnetic Resonance in Medicine, Physical Chemistry Chemical Physics, RSC Advances, Journal of Chemical Physics, Journal of Physical Chemistry A/B/C, Applied Physics Letters, Analytical Chemistry, Chemical Physics Letters, Journal of Magnetic Resonance, Scientific Reports, Journal of Medicinal Chemistry, Journal of Physical Chemistry Letters, Magnetic Resonance, Chemical Science

## Service in UTD Committees:

- Chair, UT Dallas Institutional Biosafety and Chemical Safety Committee (IBCC). IBCC reviews the safety protocols of biological/chemical aspects of research done by PIs at UT Dallas.
- Chair, UTD Physics Department Margie Renfrow Scholarship Committee
- Member, UTD Physics Department Website and Dissemination Committee
- Advisor, UT Dallas Biophysical Society (undergraduate students from physics and biology)

## Service in Ph.D. Proposal/Dissertation Defense Committees

- Member (2020), PhD Proposal Committee for **Xurui Zhang** (PhD Physics, Advisor: Dr. Xiaoyan Shi, NSM). Thesis: *Magnetotransport Properties of 2D Materials*.
- Chair (2019), PhD Proposal Committee for **Fatemeh Khashami** (PhD Physics, Advisor: Dr. Lloyd Lumata, NSM). Thesis: *13C NMR of Cancer Metabolism*.
- Chair (2019), PhD Proposal Committee for **Qing Wang** (PhD Physics, Advisor: Dr. Lloyd Lumata, NSM). Thesis: *Optimization and Biomedical Applications of Hyperpolarized Biosensors*.
- Member (2018), PhD Dissertation Committee for **Rita Bhui** (PhD Physics, Advisor: Dr. Heather Hayenga, ECS). Thesis: *A Multiscale Model of Leukocyte Transendothelial Migration During Atherogenesis*.
- Member (2017), PhD Dissertation Committee for **Edward Graef** (PhD, Physics 2017, Advisor: Dr. Sharini Prasad). Thesis: *Empirical investigation of CO2 utilizing room temperature ionic liquids*.
- Member (2017), PhD Dissertation Committee for **Dimithree Kahanda** (PhD, Physics, 2017, Advisor: Dr. Jason Slinker). Thesis: *Electrochemical measurements on self-assembled monolayers of dna to follow anti-cancer drug activity and helicase interactions*.
- Outside Chair (2017), PhD Dissertation Committee for **Kasim Ziya Cologlu** (PhD, Political Economics, 2017). Thesis: *The price dynamics in lng spot markets: an econometric analysis*.

- Outside Chair (2017), PhD Dissertation Committee for **Sahila Pernananthan** (PhD, Chemistry, 2017, Advisor: Dr. John Ferraris). Thesis: *Preparation of free standing carbon nanofiber electrodes for supercapacitor applications*.
- Outside Chair (2016), PhD Dissertation Committee for **Kristina Ehrhardt** (PhD Bioengineering, 206, Advisor: Dr. Leonidas Bleris) Thesis: Nuclear Acid Research.
- Member (2015), PhD Dissertation Committee for **Hector de Pedro** (PhD Physics, 2015, Advisor: Dr. Robert Glosser, NSM). Thesis: *Optical Absorbance and Fluorescence Characteristics of Burned Rat Skin*.
- Outside Chair (2015), PhD Dissertation Committee for **Baojie Mu** (PhD Electrical Engineering, Advisor: Dr. Yaoyu Li, ECS). Thesis: *Self-Optimizing Control for Building Ventilation and Air Conditioning Systems*.

Community outreach:

- 2014-present, *physics exhibitor*, UTD Scholars' Day. My research group demonstrates Earth's field MRI to prospective senior high school and transfer students to UTD to showcase a part of the research that we do here in the university.
- 2014-present, *physics exhibitor*, Eureka Program for middle school students. We demonstrate Earth's field MRI to middle school students to get them to engage in science.