

Department of Physics

Summary

The Department of Physics was established in 1935. Our mission is “the advancement of Physics through excellence in research and the extension of scientific heritage through education.” Over the years the department has created and nurtured a unique blend of applied and fundamental research to improve our understanding of the world around us and to respond to the needs of our region and community. Our research efforts are primarily in the areas of acoustics, computational physics, cosmochemistry and laboratory astrophysics, Earth and planetary sciences, environmental physics, ion beam physics and accelerator technologies, geophysics, magnetism and magnetic materials, materials science, sensor technology, and space physics (physics.louisiana.edu). The department consists of nine research-track faculty, two instructors, four emeritus professors, and about 40 undergraduate and graduate students. The department of Physics offers a Bachelor of Science (B.S.) degree in Physics, a Master of Science (M.S.) degree in Physics, and the interdisciplinary Doctor of Philosophy (Ph.D.) degree in Earth and Energy Sciences. Our first College of Sciences interdisciplinary Ph.D. program (commenced in 2019) prepares students to embrace a multidisciplinary understanding of issues central to meeting the energy and environmental challenges of today and tomorrow. The four integrated disciplines that contribute to the program include chemistry, environmental science, geology, and physics.

This report summarizes the professional accomplishments of the Physics faculty from 2015 to 2020. Since 2015, the physics faculty have served as Principal or Co-Principal Investigators and Senior Researchers on 44 research grants totaling \$22,355,254 which, on average, amounts to over \$413K per year per faculty in externally funded research. Since 2015, we have published 63 peer-reviewed journal articles (1.2 peer-reviewed articles per faculty per year), 9 book chapters, and 47 conference proceedings papers. The expertise of the physics faculty is recognized by invitations to deliver 46 plenary and invited conference talks and to serve as referees of 69 scientific journals, including *Science* and *Nature*. The faculty also authored and co-authored 47 conference presentations and organized 16 special sessions and meetings. Our faculty pride themselves in educating and mentoring future scientists and innovators: they served as chairs and co-chairs on 39 M.S. and Ph.D. committees. Our faculty holds two commercial patents.

Publications, Presentations, Editorships, and Talks

Refereed Journal Papers (Published)

1. Jin, L., Koulialias, D., Schneider, M., Gehring, A. U., Posfai, M., Ebert, P., **Charilaou, M.**, Schäublin, R. E., Jia, C.-L., Löffler, J. F., Dunin-Borkowski, R. E. (2020). Atomic-scale characterization of commensurate and incommensurate vacancy superstructures in natural pyrrhotites. *American Mineralogist* **106**, 82-96. doi:10.2138/am-2020-7479CCBY
2. **Charilaou, M.** (2020). Prediction of confined and controllable Bloch points in nanocubes of chiral magnets. *Physical Review B*, **102**, 014430. doi:10.1103/PhysRevB.102.014430
3. Pierobon, L., Kovács, A., Schäublin, R.E., Gerstl, S.S.A., Caron, J., Wyss, U., Dunin-Borkowski, R.E., Löffler, J.F., **Charilaou, M.** (2020). Unconventional magnetization textures and domain-wall pinning in Sm-Co magnets. *Scientific Reports*, **10**, 21209. doi:10.1038/s41598-020-78010-0
4. Li, Y., Pierobon, L., **Charilaou, M.**, Braun, H.-B., Walet, N.R., Löffler, J.F., Miles, J.J., Moutafis, C. (2020) Tunable terahertz oscillation arising from Bloch-point dynamics in chiral magnets. *Physical Review Research*, **2**, 033006. doi:10.1103/PhysRevResearch.2.033006
5. Blattman, T.M., Lesniak, B., García-Rubio, I., **Charilaou, M.**, Wessels, M., Eglinton, T.I., Gehring, A.U. (2020). Ferromagnetic resonance of magnetite biominerals traces redox changes. *Earth and Planetary Science Letters*, **545**, 116400. doi:10.1016/j.epsl.2020.116400
6. Gunawardana, P.M., **Morra, G.**, Chowdhury, P., Cawood, P.A. (2020). Calibrating the Yield Strength of Archean Lithosphere Based on the Volume of Tonalite Trondhjemite Granodiorite Crust. *Special Volume: Unusual Subduction Processes. Frontiers in Earth Sciences*, **8**, 548724. doi:10.3389/feart.2020.548724
7. Dye, B. & **Morra, G.** (2020). Machine learning as a detection method of Strombolian eruptions in infrared images from Mount Erebus, Antarctica. *Physics of the Earth and Planetary Interiors*, **305**, 106508. doi:10.1016/j.pepi.2020.106508
8. Mora, P., **Morra, G.**, Yuen, D.A. (2020). A concise python implementation of the lattice Boltzmann method on HPC for geo-fluid flow. *Geophysical Journal International*, **220**(1), 682-702. doi:10.1093/gji/ggz423
9. Trahan, A.J. & **Petculescu, A.** (2020). Absorption of infrasound in the lower and middle clouds of Venus. *Journal of the Acoustical Society of America*, **148**(1), 141-152. doi:10.1121/10.0001520
10. Guilment, T., **Sidorovskaia, N.**, & Li, K. (2020). Modeling the acoustic repertoire of Cuvier's beaked whale clicks. *The Journal of the Acoustical Society of America*, **147**(5), 3605-3612. doi:10.1121/10.0001266
11. Li, K., **Sidorovskaia, N.**, & Tiemann, C. (2020). Model-based unsupervised clustering for distinguishing Cuvier's and Gervais' beaked whales in acoustic data. *Ecological Informatics*, **58**, 101094. doi:10.1016/j.ecoinf.2020.101094

12. **Whitlow H.J.**, Deoli, N., De Vera, A., Morgan, K., Villinger, F. (2020). Heavy Elements Revealed in Jejunum of Simian Immunodeficiency Virus Infected Monkeys by Microparticle Induced X-Ray Emission. [Special Issue] *Physica Status Solidi (A), Radiation and Emission in Materials*, **218**(1), 2000107. doi:10.1002/pssa.202000107
13. Mlella, M., Ma, M., **Zhang, R.** & Mokhtari, M. (2020) Machine learning for geophysical characterization of brittleness: Tuscaloosa marine shale case study. *Interpretation*, **8**(3), T589-T597. doi:10.1190/INT-2019-0194.1
14. Sun, Y., Luo, G., Li, Y., Wang, M., Jia, X., Chang, C., & **Zhang, R.** (2020). Near-salt stress-induced seismic velocity changes and seismic anisotropy and their impacts on salt imaging: A case study in the Kuqa depression, Tarim Basin, China. *Interpretation*, **8**(3), T487-T499. doi:10.1190/INT-2019-0167.1
15. Zhou, Q., Yang, X., **Zhang, R.**, Hosseini, S.A., Ajo-Franklin, J.B., Freifeld, B.M., Daley, T.M. & Hovorka, S.D. (2020). Dynamic Processes of CO₂ Storage in the Field: 1. Multiscale and Multipath Channeling of CO₂ Flow in the Hierarchical Fluvial Reservoir at Cranfield, Mississippi. *Water Resources Research*, **56**(2), e2019EF001360. doi:10.1029/2019WR025688
16. Terzopoulou, A., Hoop, M., Chen, X.-Y., Hirt, A.M., **Charilaou, M.**, Shen, Y., Mushtaq, F., del Pino, A.P., Logofatu, C., Simonelli, L., de Mello, A.J., Doonan, C.J., Sort, J., Nelson, B.J., Pané, S. Puigmartí-Luis, J. (2019). Mineralization-Inspired Synthesis of Magnetic Zeolitic Imidazole Framework Composites. *Angewandte Chemie*, **58**(38), 13550-13555. doi:10.1002/anie.201907389
17. Pitre, K. & **Petculescu, A.** (2019). Porous domes as wind-noise filters for infrasound sensing on Mars. *Planetary and Space Science*, **167**, 33-41. doi:10.1016/j.pss.2019.01.004
18. Dias, J.D., Deoli, N.T., Rogers, D., de Vera, A., Smith, K.M., Schneider-Broussard, R., & **Whitlow H.J.** (2019). Development of a biosafety level-2 facility for irradiation of biological cells using MeV ions. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, **447**, 50-64. doi:10.1016/j.nimb.2019.03.002
19. **Whitlow H.J.**, Jeanneret, P., Guibert, E., Wang, L., & Van Der Meer, M. (2019). Time detector design for Time-of-Flight Elastic Recoil Detection Analysis (ToF-ERDA). *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, **450**, 385-389. doi:10.1016/j.nimb.2018.11.010
20. Sudprasert, W., Meesat, R., **Whitlow, H.J.**, Udeogu, H., De Vera, A.B. & Deoli, N. (In Press). Investigation of mercury pathways from dental amalgam by micro-PIXE. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, **450**, 347-352. doi:10.1016/j.nimb.2018.10.029
21. **Whitlow H.J.**, Wang, L., Guibert, E., & Degriigny, C. (2019). Investigation of minor elements in early aluminium artefacts; *Nuclear Instruments & Methods in Physics Research. Section B, Beam Interactions with Materials and Atoms*, **450**, 291-293. doi:10.1016/j.nimb.2018.08.019
22. Malemi, F., Soonthondecha, P., Khawmodjo, P., Chunchakorn, V., **Whitlow H.J.**, Chienthavorn, O. (2019). Occurrence of phthalate esters in the eastern coast of Thailand. *Environmental Monitoring and Assessment*, **191**(10), 627.

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23. Vasco, D.W., Alfi, M., Hosseini S.A., **Zhang, R.**, Daley, T., Ajo-Franklin, J.B., & Hovorka, S. (2019). The seismic response to injected carbon dioxide: Comparing observations to estimates based upon fluid flow modeling. *Journal of Geophysical Research: Solid Earth*, **124**(7), 6880-6907. doi:10.1029/2018JB016429
 24. Ma, M., **Zhang, R.**, Liu, Y., Gao, H., & Guo, Y. (2019). Nonconvex optimization-based inverse spectral decomposition. *Journal of Geophysics and Engineering*, **16**(4), 764-772. doi:10.1093/jge/gxz046
 25. Wang, M., Sun, Y., Luo, G., & **Zhang, R.**, (2019). Stress perturbations around the deep salt structure of Kuqa depression in the Tarim Basin. *Interpretation*, **7**(3), T647-T656. doi:10.1190/INT-2018-0177.1
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 27. Lee, K.J., Oldenburg, C.M., Doughty, C.A., Jung, Y., Borgia, A., Pan, L., **Zhang, R.**, Daley, T.M., Altundas, B., Chugunov, N., Ramakrishnan, T.S. (2018). Simulations of carbon dioxide push-pull into a conjugate fault system modeled after Dixie Valley—Sensitivity analysis of significant parameters and uncertainty prediction by data-worth analysis. *Geothermics*, **74**, 121-134. doi:10.1016/j.geothermics.2018.02.011
 28. Jung, Y., Doughty, C., Borgia, A., Lee, K.J., Oldenburg, C.M., Pan, L., Daley, T.M., **Zhang, R.**, Altundas, B., Chugunov, N., Ramakrishnan, T.S. (2018). Pressure transient analysis during CO₂ push-pull tests into faults for EGS characterization. *Geothermics*, **75**, 180-191. doi:10.1016/j.geothermics.2018.05.004
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 32. Killion, K., Kumar, R., Taylor, C.J., **Morra, G.** (2018). Seismology and Volcanology: Exploration of Volcanoes, Long-Periods, and Machines-Predicting Volcano Eruption Using Signature Seismic Data. *SMU Data Science Review*, **1**(1), 11.
 33. **Charilaou, M.**, Braun, H.-B., Löffler, J.F. (2018). Monopole-Induced Emergent Electric Fields in Ferromagnetic Nanowires. *Physical Review Letters*, **121**, 097202. doi:10.1103/PhysRevLett.121.097202
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- manufactured CoFe rods using the LENSTM system. *AIP Advances*, **8**(5), 056403. doi:10.1063/1.5007673
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 41. Wang, L., Meyer, C., Guibert, E., Homsy, A., & **Whitlow, H.J.** (2017). Fabrication of high-transmission microporous membranes by proton beam writing-based molding technique. [Special Issue] *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms, Proceedings of the 15th International Conference on Nuclear Microprobe Technology and Applications*, **404**, 224-227, doi:10.1016/j.nimb.2017.04.069
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- Proceedings of the 15th International Conference on Nuclear Microprobe Technology and Applications*, **404**, 87-91. doi:10.1016/j.nimb.2017.01.054
44. Krammer, A., Magrez, A., Vitale, W.A., Mocny, P., Jeanneret, P., Guibert, E., **Whitlow, H.J.**, Ionescu, A.M., & Schüler, A. (2017). Elevated transition temperature in Ge doped VO₂ thin films. *Journal of Applied Physics*, **122**(4), 045304. doi:10.1063/1.4995965
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 50. **Petculescu, A.** (2016). Acoustic properties in the low and middle atmospheres of Mars and Venus. *Journal of the Acoustical Society of America*, **140**, 1439-1446. doi:10.1121/1.4960784
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 53. Fontenot, R.S., Bhat, K.N., Owens, C.A., **Hollerman, W.A.**, & Aggarwal, M.D. (2015). Effects of added dibutyl phosphate on the luminescent properties of europium tetrakis dibenzoylmethide triethylammonium. *Journal of Luminescence*, **158**, 428-434. doi:10.1016/j.jlumin.2014.10.026
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57. Jones, N.J., **Petculescu, G.**, Wun-Fogle, M., Restorff, J.B., Clark, A.E., Hathaway, K. B., Schlagel, D., & Lograsso, T.A. (2015). Effects of Zn Additions to Highly Magnetoelastic FeGa Alloys. *Journal of Applied Physics*, **117**(17), 17E701. doi:10.1063/1.4907181
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59. Dyer, S., Pierpoint, C., **Sidorovskaia, N.** (2015). ASVs for Passive Acoustic Monitoring: Keeping Track of Marine Wildlife in the Gulf Post-Deepwater Horizon. *Sea Technology*, **56**, 15-18.
60. Wang, S., Yuan, S., Ma, M., **Zhang, R.**, & Luo, C. (2015). Wavelet phase estimation using ant colony optimization algorithm. *Journal of Applied Geophysics*, **122**, 159-166. doi:10.1016/j.jappgeo.2015.09.013
61. **Zhang, R.**, Vasco, D., Daley, T.M., & Harbert, W. (2015). Characterization of a fracture zone using seismic attributes at the In Salah CO₂ storage project. [Special Section] *Interpretation*, **3**(2), SM37-SM46. doi:10.1190/INT-2014-0141.1
62. **Zhang, R.**, Vasco, D. & Daley, T.M. (2015). Improving thin-bed resolution: Application of a sparse-layer inversion on 3D seismic observations from the In Salah carbon dioxide storage project. [Special Section] *Interpretation*, **3**(3), SS65-SS71. doi:10.1190/INT-2014-0204.1
63. **Zhang, R.**, Vasco, D. & Daley, T.M. (2015). Study of seismic diffractions caused by a fracture zone at In Salah carbon dioxide storage project. *International Journal of Greenhouse Gas Control*, **42**, 75-86. doi:10.1016/j.ijggc.2015.07.033
64. Fontenot, R.S., Owens, C.A., Bhat, K.N., **Hollerman, W.A.**, & Aggarwal, M.D. (2015). Magnesium tetrakis dibenzoylmethide triethylammonium: A novel blue emitting phosphor. *Materials Letters*, **146**(5), 9-11. doi:10.1016/j.matlet.2015.01.141

Refereed Journal Papers (Accepted)

1. Brunsvik, B., **Morra, G.**, Cambiotti, G., Chiaraluce, L., Di Stefano, R., De Gori, P., Yuen, D.A. Three-Dimensional Fault Morphology Obtained from Unsupervised Machine Learning of Clusters of Aftershocks. *Tectonophysics*.
2. Mora, P., **Morra, G.**, Yuen, D.A. Optimized surface tension isotropy in the Rothman-Keller colour gradient Lattice Boltzmann Method for multi-phase flow. *Physical Review E*.
3. Mora, P., **Morra, G.**, Yuen, D.A., Juanes, R. Optimal wetting angles in Lattice Boltzmann simulations of viscous fingering. *Transport in Porous Media*.

Book Chapters

1. Braun, H.-B., **Charilaou, M.**, & Löffler, J.F. (2020). Skyrmion lines, monopoles, and emergent electromagnetism in nanowires. In: Vasquez M. (ed). *Magnetic Nano- and Microwires*, 381-401. Elsevier. doi:10.1016/B978-0-08-102832-2.00013-X
2. **Morra, G.**, Yuen, D.A., Tufo, H.R., Knepley, M.G. (2020). Fresh Outlook in Numerical Methods for Geodynamics. Part 1: Introduction and Modeling. In: Alderton, D. & Elias, S.A. (eds). *Encyclopedia of Geology (Second Edition)*. 826-840. Elsevier. doi:10.1016/B978-0-08-102908-4.00110-7
3. **Morra, G.**, Yuen, D.A., Tufo, H.R., Knepley, M.G. (2020). Fresh Outlook in Numerical Methods for Geodynamics. Part 2: Big Data, HPC, Education. In: Alderton, D. & Elias, S.A. (eds). *Encyclopedia of Geology (Second Edition)*. 841-855. Elsevier. doi:10.1016/B978-0-08-102908-4.00111-9
4. Vasco, D.W., Bissell, R.C., Bohlooli, B., Daley, T.M., Ferretti, A., Foxall, W., Goertz-Allmann, B.P., Korneev, V., Morris, J.P., Oye, V., Ramirez, A., Rinaldi, A.P., Rucci, A., Rutqvist, J., White, J., & **Zhang, R.** (2018). Chapter 12: Monitoring and Modeling Caprock Integrity at the In Salah Carbon Dioxide Storage Site, Algeria. In: Vialle, S., Ajo-Franklin, J. & Carey, J.W. (eds). *Geophysical Monograph Series. Geological Carbon Storage: Subsurface Seals and Caprock Integrity*, **238**, 243-269. Hobokn, NJ: Wiley. doi:10.1002/9781119118657.ch12
5. Fontenot, R.S., Bhat, K.N., **Hollerman, W.A.**, Aggarwal, M.D. (2016). Europium Tetrakis Dibenzoylmethide Triethylammonium: Synthesis, Additives, and Applications. In: Olawale, D. O., Okoli, O., Fontenot, R.S., & **Hollerman, W.A.**, (eds). *Triboluminescence: Theory, Synthesis, and Applications*. 147-235. Cham, Switzerland: Springer International. doi:10.1007/978-3-319-38842-7_7
6. Goedeke, S.M., **Hollerman, W.A.** Allison, S.W., Fontenot, R.S. (2016). Detection of Low-Velocity-Impact Triboluminescent Emissions. In: Olawale, D.O., Okoli, O., Fontenot, R.S., & **Hollerman, W.A.** (eds). *Triboluminescence: Theory, Synthesis, and Applications*. 333-350. Cham, Switzerland: Springer International. doi:10.1007/978-3-319-38842-7_11
7. Fontenot, R.S., **Hollerman, W.A.**, Bergeron, N.P. (2016) Triboluminescence at Speeds Greater than 100 m/s. In: Olawale, D.O., Okoli, O., Fontenot, R.S., & **Hollerman, W.A.** (eds). *Triboluminescence: Theory, Synthesis, and Applications*. 441-444. Cham, Switzerland: Springer International. doi:10.1007/978-3-319-38842-7_14
8. **Sidorovskaia, N.A.**, Ackleh, A.S., Tiemann, C.O., Ma, B., Ioup, J.W., Ioup, G.E. (2016). Passive Acoustic Monitoring of the Environmental Impact of Oil Exploration on Marine Mammals in the Gulf of Mexico. In: Popper, A., Hawkins, A. (eds). *The Effects of Noise on Aquatic Life II: Advances in Experimental Medicine and Biology*, **875**, 1007-1014. New York, NY: Springer. doi:10.1007/978-1-4939-2981-8_125
9. Ioup, G.E., Ioup, J.W., **Sidorovskaia, N.A.**, Tiemann, C.O., Kuczaj, S.A., Ackleh, A.S., Newcomb, J.J., Ma, B., Paulos, R., Ekimov, A., Rayborn, G.H., Stephens, J.M., Tashmukhambetov, A.M. (2016). Environmental Acoustic Recording System (EARS) in the Gulf of Mexico. In: Au, W., Lammers, M. (eds). *Listening in the Ocean*. New York, NY: Springer-Verlag. doi:10.1007/978-1-4939-3176-7_6

10. **Morra, G.**, Yuen, D.A., Lee, S.M., & Zhang, S. (2015). Chapter 5: Source of the Cenozoic Volcanism in Central Asia. In: Morra, G., Yuen, D.A., King, S.D., Lee, S.-M., & Stein, S. (eds). *Subduction Dynamics: From Mantle Flow to Mega Disasters. AGU Geophysical Monograph Series. 211*, 97-113. Hoboken, NJ: Wiley. doi:10.1002/9781118888865.ch5
11. **Morra, G.**, Yuen, D.A., Lee, S.M., & King, S.D. (2015). Introduction: The Impact of Subduction Dynamics on Mantle Flow, Continental Tectonics and Seismic Hazard. In: Morra, G., Yuen, D.A., King, S. D., Lee, S.-M., & Stein, S. (eds). *Subduction Dynamics: From Mantle Flow to Mega Disasters. AGU Geophysical Monograph Series. 211*, 1-4. Hoboken, NJ: Wiley.

Conference Proceeding Papers

1. **Hollerman, W.A.**, Miller, J., Darby, P. J., & Pugh, N. (2020). Using Luminescent Materials Like EuD₄TEA to Monitor Radiation Exposure in Space. In: Norton, C.D., Pagano, T.S, & Babu, S.R. (eds.), *Proceedings SPIE 11505, CubeSats and SmallSats for Remote Sensing IV*, 115050E. SPIE. doi:10.1117/12.2570645
2. **Hollerman, W.A.**, Miller, J., & Williams, S. (2020). Using Video Photometry to Measure the 3 MeV Proton Half Brightness Fluence for Tetrakis (Dibenzoylmethide) Europium (III) Triethylammonium. *ECS PRIME Proc Hawaii 2020*. ECSarXiv. doi:10.1149/osf.io/mb7h4
3. **Sidorovskaia, N.** (2020). *Assessment of ocean ambient sound levels in the northern Gulf of Mexico, November 2019 - June 2020: Autonomous Environmental Acoustic Recording System (EARS) buoys*. Preliminary Data Processing Report. Prepared for the Bureau of Ocean Energy Management (BOEM), United States Department of the Interior under Contract No. M17PC00001, Task Order M17PD00011, issued to HDR Inc., Vienna, VA, USA. Prepared by University of Louisiana at Lafayette, Lafayette, LA, USA. November 2020, 41 p.
4. **Sidorovskaia, N.**, & Bhattarai, K. (2020). *Assessment of ocean ambient sound levels in the northern Gulf of Mexico, April 2019 - November 2019: Autonomous Environmental Acoustic Recording System (EARS) buoys*. Preliminary Data Processing Report. Prepared for the Bureau of Ocean Energy Management (BOEM), United States Department of the Interior under Contract No. M17PC00001, Task Order M17PD00011, issued to HDR Inc., Vienna, VA, USA. Prepared by University of Louisiana at Lafayette, Lafayette, LA, USA. March 2020, 44 p.
5. Mlella, M., Ma, M., **Zhang, R.**, & Mokhtari, M. (2020). Machine Learning for Geophysical Characterization of Brittleness: Tuscaloosa Marine Shale Case Study. *SEG20 Online Experience, International Exhibition 90th Annual Meeting*. doi:10.1190/segam2020-3421111.1
6. Ma, M., **Zhang, R.** & Ajo-Franklin, J. (2020). A workflow of separating and imaging diffraction wave by using deep learning network: an application of GPR data (Rank top 25 of 764). *SEG20 Online Experience, International Exhibition 90th Annual Meeting*. doi:10.1190/segam2020-3427448.1
7. Darby, P., **Hollerman, W.A.**, & Miller, J. (2019). Exploring the Potential Utility of Unmanned Aerial Vehicles for Practical Bridge Inspection in Louisiana. *MATEC Web*

- of Conferences, 2019 Tran-SET Annual Conference*, **271**, 01001.
doi:10.1051/mateconf/201927101001
8. **Hollerman, W.A.**, Fontenot, R.S., Williams, S., Deoli, N., DeVera, A.B., & Miller, J. (2019). New Half Brightness Fluence Measurements for Large-Grained ZnS:Mn, EuD₄TEA, and MnD₄TEA Samples. *AIP Conference Proceedings, 25th International Conference on the Application of Accelerators in Research and Industry*, **2160**, 060005. AIP. doi:10.1063/1.5127722
 9. **Hollerman, W.A.**, Fontenot, R.S., & Miller, J. (2019). Differences in Emission Properties for Triboluminescent EuD₄TEA Synthesized Using Europium Nitrate or Europium Acetate. *ECSarXiv Preprints*. ESCarXiv. doi:10.1149/osf.io/mu2ya
 10. Deoli, N.T., de Vera, A.B., Coutee, K.L., Dias, J.D., Udeogu, H.E., Banerjee, S., Klerks, P.L., **Hollerman, W.A.**, & Hasenstein, K.H. (2019). Status of the Louisiana Accelerator Center. *25th International Conference on the Application of Accelerators in Research and Industry, AIP Conference Proceedings*, **2160**, 040005. AIP. doi:10.1063/1.5127685
 11. **Jadhav, M.**, Haenecour, P., Amari, S., Davidson, J., & Zega, T.J. (2019). *A preliminary search for presolar grains in a new acid residue of the Tagish Lake meteorite*, Abstract #3121 (Poster). 50th Lunar and Planetary Science Conference. The Woodlands, TX, March 2019.
 12. McCleskey, S., Boudreaux, K., Udeogu, H., Deoli, N., Whitlow, H., & **Jadhav, M.** (2019). *Micro-PIXE analysis of a chondrite*. UL System Schools Academic Summit. Grambling State University, Grambling, LA.
 13. **Sidorovskaia, N.**, & Bhattarai, K. (2019). Assessment of ocean ambient sound levels in the northern Gulf of Mexico, October 2018 - April 2019: autonomous Environmental Acoustic Recording System (EARS) buoys. Preliminary Data processing Report. Prepared for the Bureau of Ocean Energy Management (BOEM), United States Department of the Interior under Contract No. M17PC00001, Task Order M17PD00011, issued to HDR Inc., Vienna, VA, USA. Prepared by University of Louisiana at Lafayette, Lafayette, LA, USA. November 2019, 39 p.
 14. **Sidorovskaia, N.**, & Bhattarai, K. (2019). Assessment of ocean ambient sound levels in the northern Gulf of Mexico, May 2018 - October 2018: autonomous Environmental Acoustic Recording System (EARS) buoys. Preliminary Data processing Report. Prepared for the Bureau of Ocean Energy Management (BOEM), United States Department of the Interior under Contract No. M17PC00001, Task Order M17PD00011, issued to HDR Inc., Vienna, VA, USA. Prepared by University of Louisiana at Lafayette, Lafayette, LA, USA.
 15. Ma, M. & **Zhang, R.** (2019). *Multichannel block sparse Bayesian learning reflectivity inversion with l_p -norm criterion-based Q estimation*, S51B-07. AGU Fall Meeting. San Francisco, December 2019.
 16. Scates, A. & **Zhang, R.** (2019). *Mapping and Evaluation of Faulting and Subsidence in Holocene Mississippi River Delta Strata through Cone Penetrometer Tests, Shallow Wells, and Deep Seismic Interpretations in Golden Meadow, Louisiana* (Poster). Gulf Coast Association of Geological Societies (GCAGS) 2019. Houston, TX, October 2019.

17. Ma, M. & **Zhang, R.** (2019). Nonconvex optimization-based inverse spectral decomposition (Poster). *SEG19 International Exposition 89th Annual Meeting, August 2019*, 2034-2038. doi:10.1190/segam2019-3214972.1
18. Ma, M. & **Zhang, R.** (2019). Synchronous prestack inversion for automatic extracting the correlation of elastic parameters using block sparse Bayesian learning (Poster). *SEG19 International Exposition 89th Annual Meeting, August 2019*, 649-653. doi:10.1190/segam2019-3200980.1
19. **Zhang, R.** & Deng, Z. (2019). A depth domain adaptive seismic wavelets extraction method. *SEG19 International Exposition 89th Annual Meeting, August 2019*, 3304-3308. doi:10.1190/segam2019-3214077.1
20. **Zhang, R.** & Deng, Z. (2019). Depth domain pre-stack seismic inversion with depth and angle variant wavelets. *SEG19 International Exposition 89th Annual Meeting, August 2019*, 1843-1847. doi:10.1190/segam2019-3214113.1
21. Ma, M. & **Zhang, R.** (2019). Nonconvex optimization-based inverse spectral decomposition. *Conference Proceedings, 81st EAGE Conference and Exhibition 2019, 2019*, 1-5. doi:10.3997/2214-4609.201901162
22. Scates, A. & **Zhang, R.** (2019). *Evaluation of vertical motion of faulting and subsidence of Quaternary Mississippi River Delta Strata using deep and shallow seismic imaging, Gulf Coast, Louisiana*. Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) 2019. Portland, OR, March 2019.
23. **Hollerman, W.A.**, Fontenot, R.S., Darby, P., Pugh, N., & Miller, J. (2018). Using Exotic Materials Like EuD₄TEA and MgD₄TEA to Monitor Damage and Radiation Exposure in Extreme Environments. In: *ECS Transactions, Selected Proceedings from the 233rd ECS Meeting: Seattle, WA - Spring 2018*, **85**(13), 1615-1623. Pennington, NJ: The Electrochemical Society. doi:10.1149/osf.io/94ujn
24. **Hollerman, W.A.**, Fontenot, R.S., Williams, S., Deoli, N., DeVera, A.B., & Miller, J. (2018). *New Half Brightness Fluence Measurements for Large-Grained ZnS:Mn, EuD₄TEA, and MnD₄TEA Samples* (Poster). 25th International Conference on the Application of Accelerators in Research and Industry. Grapevine, TX, August 2018.
25. Ma, M. * & **Zhang, R.** (2018). *Multichannel impedance inversion for nonstationary seismic data based on modified alternating direction method of multipliers* (Poster). SEG International Exposition 88th Annual Meeting, Anaheim, CA, October 2018. doi:10.1190/segam2018-2970902.1
26. Locci-Lopez, D., **Zhang, R.**, Oyem, A. & Castagna, J. (2018). *The multiscale Fourier transform* (Poster). SEG International Exposition 88th Annual Meeting, Anaheim, CA, October 2018. doi:10.1190/segam2018-2994723.1
27. **Hollerman, W.A.**, Miller, J., Deoli, N., & Enk, J. (2018). *Evidence of a Simple Damage Energy Scaling Rule for Proton Irradiation of Luminescent Materials* (Poster). 25th International Conference on the Application of Accelerators in Research and Industry. Grapevine, TX, August 2018.
28. Deoli, N.T., de Vera, A.B., Coutee, K.L., Dias, J.D., Udeogu, H.E., Klerks, P.L., **Hollerman, W.A.**, & Hasenstein, K.H. (2018). *Status of the Louisiana Accelerator Center*. 25th International Conference on the Application of Accelerators in Research and Industry. Grapevine, TX, August 2018.

29. **Zhang, R.** & Deng, Z. (2018). *A depth variant seismic wavelets extraction method for inversion of post-stack depth domain seismic data*. 80th EAGE Conference and Exhibition. Copenhagen, Denmark, June 2018. doi:10.3997/2214-4609.201800728
30. **Zhang, R.** & Deng, Z. (2018). *A depth variant seismic wavelets extraction method for inversion of post-stack depth domain seismic data*. CPG/SEG Beijing 2018 International Geophysical Conference and Exposition. Beijing, China, April 2018.
31. **Sidorovskaia, N.**, Comeaux, D., Greenhow, D., Griffin, S., Heimlich, S., Pierpoint, C., Richter, C., & Scala, L. (2017). *Proceedings of the LADC-GEMM 2017 Gulf of Mexico Experiment*. LADC-GEMM, Lafayette, LA.
32. **Sidorovskaia, N.**, Griffin, S., & Richter, C. (2016). *Proceedings of the LADC-GEMM 2016 Gulf of Mexico experiment*. Long-term mooring deployment cruise. LADC-GEMM, Lafayette, LA.
33. **Hollerman, W.A.**, Fontenot, R.S., Williams, S., & Miller, J. (2016). Using Luminescent Materials as the Active Element for Radiation Sensors. In: Pham, K.D., Chen, G. (eds). *Proceedings of SPIE 9398, Sensors and Systems for Space Applications IX*, **9838**, 98380Z. doi:10.1117/12.2228934
34. Ziegwied, V. Dobbin, C. Pierpoint, **Sidorovskaia N.**, & Dyer S. (2016). Using Autonomous Surface Vehicles for Passive Acoustic Monitoring (PAM). In: *Proceedings of Oceans 2016/16, MTS/IEEE. Monterey, CA, September 19-23, 2016*. doi:10.1109/OCEANS.2016.7761380
35. Daley, T.M., Oldenburg, C.M., Borgia, A., **Zhang, R.**, Doughty, C., Jung, Y., Altundas, B., Chugunov, N., & Ramakrishnan, T.S. (2016). Enhanced characterization of faults and fractures at EGS sites by CO₂ injection coupled with active seismic monitoring, pressure-transient testing, and well logging. *AGU Fall Meeting, San Francisco, CA, December 12-16, 2016*.
36. Wood, W., Runyan, T., & **Zhang, R.** (2016). A machine learning approach to quantifying geologic similarities between sites of gas hydrate accumulation. *AGU Fall Meeting, San Francisco, CA, December 12-16, 2016*.
37. **Zhang, R.**, Zhang, K., & Alekhue, J.E. (2016). Depth domain seismic reflectivity inversion with compressed sensing technique. *SEG International Exposition and 86th Annual Meeting. Dallas, TX, October 16-21, 2016*.
38. **Zhang, R.** & Fomel, S. (2016). Application of predictive painting to well-log data interpolation and seismic inversion. *SEG International Exposition and 86th Annual Meeting. Dallas, TX, October 16-21, 2016*. doi:10.1190/segam2016-13577612.1
39. **Zhang, R.** & Fomel, S. (2016). Time-variant wavelet extraction with spectral decomposition for seismic inversion. *SEG International Exposition and 86th Annual Meeting. Dallas, TX, October 16-21, 2016*. doi:10.1190/segam2016-13531166.1
40. Karimi, P., Fomel, S., & **Zhang, R.** (2016). Time-lapse image registration using the stratigraphic-coordinate system. *SEG International Exposition and 86th Annual Meeting. Dallas, TX, October 16-21, 2016*. doi:10.1190/segam2016-13870797.1
41. Oldenburg, C.M., Daley, T.M., Borgia, A., **Zhang, R.**, Doughty, C., Ramakrishnan, T.S., Altundas, B., & Chugunov, N. (2016). Preliminary simulations of carbon dioxide injection and geophysical monitoring to improve imaging and characterization of faults and fractures at EGS sites. *Stanford Geothermal Workshop 41st Annual. Stanford, CA, February 2016*.

42. **Morra, G.**, Yuen, D. ., Justo, F.J., & Wentzcovitch, R. (2015). Upwelling through the iron spin transition in the lower mantle and a volatile rich upper mantle transition zone. *Central Asian Tectonics and Western Pacific Geodynamics International Conference. Wuhan, Hubei, China, June 6, 2015.*
43. **Morra, G. & Sidorovskaia, N.** Acoustic Detection and Numerical Models of Landslide Induced Tsunamis in The Gulf of Mexico. *GSA South East, 64th Annual Meeting. Chatanooga, TN, March 20, 2015.*
44. **Sidorovskaia, N.**, Griffin, S., Kusel, E., & Richter, C. (2015). Proceedings of LADC-GEMM 2015 Gulf of Mexico Experiment. Part II: Recovery Cruise. *LADC-GEMM. Lafayette, LA.*
45. Borgia, A., Oldenburg, C.M., **Zhang, R.** & Ramakrishnan, T.S. (2015). *TOUGH Symposium 2015, Lawrence Berkeley National Laboratory, Berkley, CA, September 28-30, 2015.*
46. **Zhang, R.** & Zhang, B. (2015). Seismic reflectivity attributes. *SEG International Exposition and 85th Annual Meeting, New Orleans, LA, October 18-23, 2015.*
doi:10.1190/segam2015-5746900.1
47. **Zhang, R.**, Vasco, D.W., Daley, T.M., & Harbert, W. (2015). Characterization of a fracture zone using seismic attributes at the In Salah CO₂ storage project. *SEG International Exposition and 85th Annual Meeting, New Orleans, LA, October 18-23, 2015.* doi:10.1190/segam2015-5737359.1

Plenary and Keynote Presentations

- **Morra, G.** *The Physics of the Deepest Subduction Earthquakes.* International Workshop: From Swarms to Slabs. University of Tokyo, Tokyo, Japan, May 2017.
- Yuen, D.A. & **Morra, G.** *Vital Role of Training and Education in Big Data Applications DMESS (Data Mining in Earth System Science).* Workshop at ICDM 2017: IEEE International Conference on Data Mining, New Orleans, November, 2017.
- **Whitlow, H.J.**, Guibert, E., Wang, L., Van Der Meer, M., & Jeanneret, P. *Time detector design for Time-of-Flight Elastic Recoil Detection Analysis (ToF-E ERDA) revisited.* International conference on Ion Bam Analysis. Fundan University, Shanghai, China, 8-13 October, 2017.
- **Morra, G.**, Yuen, D.A., & Mook Lee, S. *Computational Methods for Volcanology: Application to Central Asian Volcanism.* Invited 1 hour talk, Institute of Geodesy and Geophysics, Chinese Academy of Sciences. Wuhan, Hubei, China, June 11, 2015.

Invited Conference / Workshop Talks

Michalis Charilaou

- *Dynamical pair-creation of Bloch points upon magnetization reversal in ferromagnetic nanoparticles* (Invited Speaker). 12th International Symposium on Hysteresis Modeling and Micromagnetics. Heraklion, Crete, Greece, May 2019.
- *Ferromagnetic resonance of biogenic magnetic nanoparticle assemblies*(Invited Speaker). International Conference on Fine-Particle Magnetism. Gijón, Spain, May 2019.

William A. Hollerman

- *Differences in Emission Properties for Triboluminescent EuD₄TEA Synthesized Using Europium Nitrate or Europium Acetate* (Invited Talk). Luminescent and Display Materials: Fundamentals and Applications (J01), 236th Electrochemical Society Meeting. Atlanta, GA, October 2019.
- *Using Exotic Material Like EuD₄TEA to Monitor Damage and Radiation Exposure in Space* (Invited Talk). Engineering Technology Symposium, Northwestern State University. Natchitoches, LA, October 17, 2018.
- *Use of Phosphors to Detect Debris Impacts and Proton Irradiation in Space* (Invited Talk). Inaugural International Conference on Phosphor Thermometry, University of Strathclyde. Glasgow, Scotland, July 27, 2018.
- Invited Talk with Paul Darby, Engineering. NASA Academy of Aerospace Quality (AAQ): Supporting Quality Assurance for Payloads Developed by Student Teams. NASA Quality Leadership Forum. Cape Canaveral, FL, March 14, 2018
- *Potential of Using EuD₄TEA for Space-Based Damage and Radiation Sensors*. 232nd Electrochemical Society Meeting, Luminescence and Display Materials: Fundamentals and Applications (J01). National Harbor, MD, October 4, 2017.
- *Using Luminescent Materials as the Active Element for Radiation Sensors*. SPIE Defense + Commercial Sensing, Conference 9838, Space Payload Technologies for Dual Military-Civil Operations. Baltimore, MD, April 19, 2016.
- *Using Luminescent Materials as the Active Element for Radiation Sensors*. Naval Surface Warfare Center Carderock Division. West Bethesda, MD, April 20, 2016.
- Research Opportunities at the Louisiana Accelerator Center, Naval Surface Warfare Center Carderock Division. West Bethesda, MD, May 25, 2016.
- Collaborations on EuD₄TEA Research. Army Research Laboratory, Sensors and Electron Devices (SEDD). Adelphi, MD, July 26, 2016.
- *Using Luminescent Materials for Space Radiation Sensors*. International Conference on the Application of Accelerators in Research & Industry. Fort Worth, TX, November 3, 2016.

Manavi Jadhav

- *Microanalytical investigations of stardust from meteorites*. UL Institute for Materials Research and Innovation (IMRI). Lafayette, LA, 2018

Gabriele Morra

- *Machine Learning Identification of Lava Lake Images of the Erebus Volcano, Antarctica* (Poster Presentation). Workshop. Princeton, NJ, 2018.
- *Machine Learning Identification of Lava Lake Images of the Erebus Volcano, Antarctica* (Poster Presentation). Workshop. Santa Fe, New Mexico, 2018.
- One Hour Webinar. Computational Infrastructure for Geodynamics. February 2018.
- *Python and Jupyter Notebooks in Geodynamics and Education*. CIDER Summer School on Deep Earth Interiors, Kavli Institute for Theoretical Physics, UC Santa Barbara. Santa Barbara, CA, July 2018.
- Invited talk. Workshop for the 70th birthday of David A. Yuen. Sardinia, Italy, June 2018.

- *On the origin of the deep Earthquakes in the Earth and other research* (Invited Presentation). Seminar, Department of Earth and Environmental Sciences, Tulane University. New Orleans, LA, September 2018.
- *Pythonic Parallel Implementation of 3D Lattice Boltzmann Method for Geophysical and Geological Applications*. AGU Fall Meeting. Washington DC, December 2018.
- *Reconstruction of Fault Geometry Through Hypocenter Clustering for Coulomb Stress Analysis During the L'Aquila Earthquake Swarm* (Poster). AGU Fall Meeting. Washington DC, December 2018.
- *Thermochemical Evolution of Mantle Plumes Observed Spatially (TEMPOS)* (Poster). AGU Fall Meeting. Washington DC, December 2018.
- *Machine Learning on Infrared Images of Strombolian Eruptions atop Mount Erebus, Antarctica* (Poster). AGU Fall Meeting. Washington DC, December 2018.

Andi Petculescu

- *An acoustic approach to assess natural gas quality in real time*. 174th Meeting of the Acoustical Society of America. December 4-8, 2017, New Orleans, LA.

Gabriela Petculescu

- *Acoustic Monitoring of Aluminum-Alloy Sensitization*. ASA 174th Meeting, Session 2aPA. New Orleans, December 5, 2017.

Natalia Sidorovskaia

- *Big data paradigm in ocean acoustic ecology*. Applications of Big Data and High-Performance Computing in Earth Sciences, AGU Workshop. December 2019
- *George Ioup's contribution to the Gulf of Mexico acoustic research: paving the path into the future*. 174th Meeting of the Acoustical Society of America. December 4-8, 2017, New Orleans, LA.
- *Passive acoustic monitoring in the Northern Gulf of Mexico using ocean gliders*. 174th Meeting of the Acoustical Society of America. December 4-8, 2017, New Orleans, LA.
- *2000-2017 acoustic research in the Gulf of Mexico: approaches, lessons, and look into the future*. The 42nd IEEE International Conference on Acoustics, Speech and Signal Processing. New Orleans, LA, March 5-9, 2017.
- *Acoustic Assessment of Cetacean Population Responses to the Deepwater Horizon Oil Spill*. 2016 Gulf of Mexico Oil Spill & Ecosystem Science Conference. Tampa, FL, February 1-4, 2016.

Harry Whitlow

- *Development of digital nuclear and particle spectroscopy: intrigues, misdemeanors and pitfalls*. Seminar (Virtual), Department of Physics University of Louisiana at Lafayette. Lafayette, LA, September 2020.
- **Whitlow, H.J.**, Deoli, N., de Vera, A., Udeogu, H., Sajan Bhandari, S., Conerly, J., Rafael Hernandez, R., Holmes, W., Smith, K., Morgan, K., Villinger, F. *MeV ion microbeam development and research at the Louisiana Accelerator Center*. 17th International Conference on Nuclear Microprobe Technology and Applications. Virtual Conference. September 2020.

- Deoli, N.T., Fusilier, Z., Mikolajczyk, A., Zappi, M., Whitlow, H.J. *Elemental composition of alligator eggshell and eggshell membrane using micro PIXE* (Poster). 17th International Conference on Nuclear Microprobe Technology and Applications. Virtual Conference. September 2020.
- **Whitlow, H.J.**, De Vera, A., Deoli, N., Morgan, K., & Villinger, F. *Application of μ -PIXE studies for identification of HIV/SIV infection and Pb intoxication: A progress report*. International Conference on Radiation Effects in Materials. Bangkok, Thailand. December 2019.
- *Ion Beam Analysis: a tool for analytical chemistry*. Department Colloquium, Applied Radiation and Isotopes, Faculty of Sciences, Kasetsart University. Bangkok, Thailand. August 2019.
- *Simulating the effects of charged particles in space using ≤ 10 MeV accelerators*. Department Colloquium, Applied Radiation and Isotopes, Faculty of Sciences, Kasetsart University. Bangkok, Thailand. August 2019.
- *Ion accelerator based research at the Louisiana Accelerator Center*. Louisiana State University. Baton Rouge, LA. September 2019.
- *Simulating the effects of charged-particle radiation in space with a small accelerator*. Department of Physics, University of Louisiana at Lafayette. Lafayette, LA. September 2019.
- *Ion Accelerators: a key tool not only for helping Fusion Research get more energy out than in, but even in other economically essential research areas for Thailand* (Invited Expert Colloquium). Thailand Institute of Nuclear Technology. Bangkok, Thailand. August 2019.
- *Frontier research at the Louisiana Accelerator Center: present and future plans*. Online Seminar, University of Oslo. Oslo, Norway. April 2019.
- **Whitlow, H.J.**, Banerjee, S., Udegou, H., Deoli, N., deVera, A., Klerks, P.L. *Can we use the invasive Apple Snail *Pomacea maculata* for biomonitoring of lead contamination in freshwater wetlands?* (Invited). International Conference on Nuclear Microprobe Technology and Applications, Surrey Ion Beam Centre at the University of Surrey. Guildford, England, July 2018.

Colloquia and Seminar Talks

Michalis Charilaou

- *Skyrmions and emergent monopoles in magnetic nanostructures* (Invited).
- Physics Seminar, University of New Orleans. New Orleans, LA. October 2019.
- *Dynamic monopoles in ferromagnetic nanoparticles*. Louisiana Consortium for Neutron Scattering. Baton Rouge, October 2018.
- *Magnetization dynamics and emergent fields in ferromagnetic nanoparticles*. Department of Physics Seminar, UL Lafayette. Lafayette, LA, September 2018.

William A. Hollerman

- *Using Tetrakis (Dibenzoylmethide) Europium (III) Triethylammonium to Monitor Ionizing Radiation Exposure in Space* (J01-2746). Recent Advances in Wide-

Bandgap III, Nitride Devices and Solid State Lighting, PRiME 2020. Video Conference. October 2020.

- *Upgrading the EMCO LabKit to Measure the Spectral Emission Properties of Phosphors*. 2nd International Conference on Phosphor Thermometry. Otto-von-Guericke-Universität Magdeburg, Online Conference. July 2020.
- *Rockets and Starships: An Overview of Space Travel for the 21st Century*. Louisiana Engineering Society. Lafayette, LA, October 19, 2016.
- *Triboluminescent Materials: Uses in Smart Sensors and Technology*. Department of Physics, Auburn University. Auburn, AL, November 20, 2015.
- *A Research Review of Highly Triboluminescent Europium Tetrakis Dibenzoylmethide Triethylammonium Phosphors*. 61st International Instrumentation Symposium. Huntsville, AL, May 13, 2015.
- *Potential of Using Triboluminescence to Detect Damage or Impacts in Spacecraft*. 61st International Instrumentation Symposium. Huntsville, AL, May 13, 2015.

Manavi Jadhav

- *Laboratory investigations of stardust and other extraterrestrial materials*. Sciences Interdisciplinary Monthly Meeting (SIMM), College of Sciences, University of Louisiana at Lafayette. Lafayette, LA. September 2020
- *Stardust from Primitive Meteorites*. UL Geosciences Seminar. Lafayette, LA, 2018.
- *Deciphering Isotopic and Elemental Clues in Stardust from Meteorites*. UL Physics Seminar. Lafayette, LA, 2018.

Gabriele Morra

- *Hierarchical Plate Tectonics and Plate Reorganizations*. Invited Department Seminar, Ludwig Maximilian University of Munich. Munich, Germany, 2016
- Invited department seminar, University of Minnesota in Minneapolis. Minneapolis, MN, 2015.
- Morra, G., Yuen, D.A., Lee, S.M. *Computational Methods for Volcanology: application to Central Asian Volcanism*. 20-minute seminar at the School of Geosciences, University of Wuhan. Hubei, China, June 10, 2015.

Gabriela Petculescu

- *Acoustics: a powerful tool for materials exploration*. Timbuktu Academy, Southern University. Baton Rouge, LA, October 2018
- *Nontraditional uses of resonant ultrasound spectroscopy (RUS)*. ONR Summer Faculty Seminar Series, NSWC-CD. Carderock, MD, August 2018.
- *Acoustics: a powerful tool for materials exploration*. Sciences Interdisciplinary Monthly Meeting Series (SIMM), Ray P. Authement College of Sciences, UL Lafayette. Lafayette, LA, November 21, 2017.
- *Sensitization in aluminum alloys and ultrasonic parameters*. ONR Summer Faculty Program - Seminar Series. NSWC-CD and sister NSWC centers (by broadcast), Carderock, MD, August 8, 2017.
- *Acoustics: a powerful tool for materials exploration*. LA-Tech University Physics Seminar. Ruston, LA, October 2016.

- *Ultrasonic probe for sensitization* (Presentation). ONR and NSWC-CD NDE branch. Carderock, MD, July 16, 2015.
- *Sensitization of Aluminum Alloys - Ultrasound as a Possible Characterization Tool*. ONR Summer Faculty Program - Seminar Series. NSWC-CD and sister NSWC centers (by broadcast), Carderock, MD, July 15, 2015.

Natalia Sidorovskaia

- *Gulf of Mexico soundscapes as indicators of ecological stressors*. Department of Physics, East Carolina University. Greenville, NC. April 2019.
- **Sidorovskaia, N.A.**, & Veprauskas, A. *Studying the impact of environmental stresses on marine mammals: acoustic monitoring, data analytics, and population models*. LADC-GEMM Consortium, GoMRI Research Webinar. Lafayette, LA, May 30, 2018.
- **Sidorovskaia, N.A.**, & Ackleh, A.S. *Marine Mammal Passive Acoustic Research and Modeling*. Webinar in prep. for Marine Mammal Synthesis Workshop, LADC-GEMM Consortium. October 2018.

Harry J. Whitlow

- *Potential capabilities for analysis of fuel cell materials with MeV ion beam analysis*. Materials Research Institute Colloquium, UL Lafayette. Lafayette, LA, December 10, 2018
- *Simulating the effect of space radiation using a few MeV energy ion accelerator*. Colloquium, University of North Texas. Denton, TX, November 26, 2018.
- *Ion accelerators in animal based research*. Colloquium, Faculty of Veterinary Technology, Kasetsart University. Bangkok, Thailand, August 12, 2018.
- *Frontier research at the Louisiana Accelerator Center: present and future plans*. Geophysical Lunch, Petroleum Club. Lafayette, LA, May 8, 2018.
- *Frontier research at the Louisiana Accelerator Center: Present and Future Plans*. Department of Physics, UL Lafayette. Lafayette, LA, March 28, 2018.
- *Practical Research Ethics: A Guide for Researchers and Students*. Faculty of Sciences Seminar, Kasetsart University. Bangkok, Thailand, January 10, 2017.
- *From Space Radiation Simulation to Healthier Prawn Sandwiches: Engineering Research Possibilities Using the Louisiana Accelerator Center*. LSU Mechanical Engineering Faculty. Baton Rouge, LA, February 3, 2017
- *Simulating the effect of space radiation using a few MeV ion accelerator*. Nuclear Society of Thailand. January 9, 2017
- *Research in ion beam science and applications from fighting disease to space technology*. Ion Physics colloquium. May 18, 2017

Rui Zhang

- University of Oklahoma. Norman, OK. 2020
- Missouri University of Science and Technology. Rolla, MO. 2019
- Colorado School of Mines. Golden, CO, 2018
- University of Chinese Academy of Sciences. Beijing, China, 2018
- Sinopec Houston LLC. Houston, TX, 2016.
- The University of Texas at Austin. Austin, TX, 2015.

Contributed Talks

Michalis Charilaou

- *Dynamics of emergent magnetic monopoles in ferromagnetic nanoparticles.* 2019 Magnetism and Magnetic Materials Conference. Washington, DC. January 2019.
- *Magnetic nanoparticle chain-assemblies in magnetotactic bacteria.* 2019 Magnetism and Magnetic Materials Conference. Washington, DC. January 2019.
- *Skymion-antiskyrmion phase transition and topological charge melting in thin films.* Meeting of the American Physical Society. Boston, MA. March 2019.
- *Quantitative magnetic analysis of magnetotactic bacteria by means of ferromagnetic resonance spectroscopy.* 6th International Meeting on Magnetotactic Bacteria. Kanazawa, Japan, September 2018.

William A. Hollerman

- *Using Exotic Materials Like EuD₄TEA to Monitor Damage and Radiation Exposure in Extreme Environments.* 233rd Electrochemical Society Meeting, Solid State Topics General Session. Seattle, WA, May 16, 2018.

Manavi Jadhav

- *Combined nano-computed tomography and x-ray fluorescence experiments: A powerful, non-destructive technique for in-situ chemical analyses of extraterrestrial materials.* The Geological Society of America 130th Annual Meeting. Indianapolis, IN, November 2018.

Gabriele Morra

- **Morra, G.**, Brunsvik, B., Privat, T., & Yuen, D.A. *How does laboratory earthquake prediction transfer to real earthquakes?* S21F-0573. AGU Fall Meeting. San Francisco, CA. December 2019.
- Dye, B., Privat, T., & **Morra, G.** *Strombolian Eruption Detection Using an Onsite-Ready Convolutional Neural Network on Mount Erebus, Antarctica.* V11C-16. AGU Fall Meeting. San Francisco, CA. December 2019.
- *Pythonic Geodynamics: Implementations for Fast Computing on Jupyter Notebooks.* ED53F-0902. AGU Fall Meeting. San Francisco, CA. December 2019.
- Morra, G., Mora, P., & Yuen, D.A. *3D Lattice Boltzmann Models of Scaling in thermal convection.* T52C-14. AGU Fall Meeting. San Francisco, CA. December 2019.
- Gunawardana, P.M., **Morra, G.**, Cawood, P.A. *The formation, and evolution of Archean cratons.* DI13B-0010. AGU Fall Meeting. San Francisco, CA. December 2019.
- Privat, T., Dye, B., **Morra, G.** *Convolutional Neural Network to Detect Strombolian Eruptions at Mount Erebus, Antarctica.* S43E-0703. AGU Fall Meeting. San Francisco, CA. December 2019.
- Morra, G., Tufo, H., Yuen, D.A., Brown, J., Zihao, S. S43A-0836, *Potential Solution of a Hardware-Software System V-Cluster for Big Data Analysis.* Poster, AGU Fall Meeting, New Orleans, LA, December 11-15, 2017.

- Morra, G., Chiaraluce, L., Di Stefano, R., Michele, M., Cambiotti, G., Yuen, D.A., Brunsvik, B. T23F-0689, *Stress and Strain Rates from Faults Reconstructed by Earthquakes Relocalization*. Poster, AGU Fall Meeting, New Orleans, LA, December 11-15, 2017.
- Gunawardana, P.M., Morra, G. *Deep Earthquakes Spatial Distribution from of Numerical Modeling the Stress within a Subducting Lithosphere*. 2016.
- Fischer, B., Morra, G., Petculescu, A. *On Modelling Bubbles in a Magmatic Conduit*. South Central Section, 50th Annual Meeting, Geological Society of America. Baton Rouge, LA, March 2016.
- Conlin, D., Gottardi, R., Morra, G., Spezia, K. *Numerical Modeling of fluid flow and heat transfer in fault systems*. South Central Section, 50th Annual Meeting, Geological Society of America. Baton Rouge, LA, March 2016.

Andi Petculescu

- Trahan, A.J. & Petculescu, A. *Absorption and dispersion of low-frequency sound waves in the main cloud layers of Venus*. 175th Meeting of the Acoustical Society of America. Minneapolis, MN, May 2018.
- Achi, P. & Petculescu, A. *Microphone arrays for efficient communications during long-duration space missions*. 174th Meeting of the Acoustical Society of America. December 4-8, 2017, New Orleans, LA
- Pitre, K. & Petculescu, A. *Infrasound sensing on Mars: Wind noise predictions for a porous dome geometry*. Third Joint Meeting of the Acoustical Society of America and the European Acoustics Association. June 25-29, 2017, Boston, MA.
- *The Physical Acoustics Research Program at the University of Louisiana at Lafayette*. Third Joint Meeting of the Acoustical Society of America and the European Acoustics Association. June 25-29, 2017, Boston, MA.
- *Absorption and Dispersion in Venus' Lower and Middle Atmospheres*. ASA. Pittsburgh, June 2015.

Gabriela Petculescu

- *Elastic properties of additively-manufactured alloys*. 179th Meeting of the Acoustical Society of America, Acoustics Virtually Everywhere. Virtual Conference. December 2020.
- Ultrasonic-based characterization and model validation of 3D-printed metals. 4th CIMM Technical Conference. Baton Rouge, LA. March 15, 2019

Natalia Sidorovskaia

- Guilment, T., **Sidorovskaia, N.**, Li, K., & Socheleau, F.-X. (2020). *Sparse representation-based classification of sperm whale clicks from the Gulf of Mexico*. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Tampa, FL. February 2020.
- Li, K., **Sidorovskaia, N.**, Guilment, T., Tiemann, C. Estimation of long-term regional density variations of sperm whales in the Mississippi Canyon area of the Gulf of Mexico from acoustic recordings. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Tampa, FL. February 2020.

- Richter, C., Ariyibi, O., Li, Y-X., **Sidorovskaia, N.**, & Verosub, K. *Neogene Magnetostratigraphy, Relative Paleointensity, and High-Resolution Magnetic Record of IODP Site U1514 (Mentelle Basin, Australia)*. GP51B-0645. AGU Fall Meeting. San Francisco, CA. December 2019.
- **Sidorovskaia, N.**, & Li, K. *Understanding the Impact of the 2010 Oil Spill on Deep Diving Marine Mammals*. OS21D-1771. AGU Fall Meeting. San Francisco, CA. December 2019.
- Sidorovskaia, N., & Li, K. (2019). Processing seismic source transients to quantify ecosystem impact. *The Journal of the Acoustical Society of America*, **146**, 2886. doi:10.1121/1.5137013
- Sidorovskaia, N.A., Li, K., & Jenkerson, M. *Seismic source characterization experiment*. 5th International Conference on the Effects of Noise on Aquatic Life. Den Haag, The Netherlands, July 2019.
- Guilment, T., Sidorovskaia, N.A., & Li, K. *Modelling the acoustic repertoire of Cuvier's beaked whale clicks*. 5th International Conference on the Effects of Noise on Aquatic Life. Den Haag, The Netherlands, July 2019.
- Guilment, T., **Sidorovskaia, N.A.**, Li, K., Tiemann, C. (2019). Understanding detectability variations for density estimation of marine mammals. *The Journal of the Acoustical Society of America*, **145**(3), 1856. doi:10.1121/1.5101702
- Li, K., & **Sidorovskaia, N.A.** (2019). Detection and classification beaked whale vocalization calls based on unsupervised machine learning algorithm. *The Journal of the Acoustical Society of America*, **145**(3), 1855 doi:10.1121/1.5101700
- Li, K., & **Sidorovskaia, N.A.** *Long-term regional abundance trends of deep-diving marine mammals near the oil spill site*. Gulf of Mexico Oil Spill and Ecosystem Science Conference. New Orleans, LA. February 2019.
- Li, K., & Sidorovskaia, N.A. *Study of beaked whale's regional habitat use near the Deepwater Horizon oil spill site through passive acoustics*. AGU Fall Meeting. Washington, D.C., December 10-14, 2018
- Sidorovskaia, N., Li, K., Jenkersopn, M., Summerfield, P. *3-dimensional seismic source characterization study*. ESOMM 2018 and E&P Sound & Marine Life Review Meeting. The Hague, The Netherlands, September 2018
- Sidorovskaia, N.A., & Li, K. *Unsupervised clustering approach to classify beaked whale's clicks*. 8th DCLDE Workshop. Paris, France, June 2018.
- Achi, P., Dias, J., Osunkwo, S., Udeogu, H., Zandipour, H., Sidorovskaia, N. *Comparing Five Machine Learning Techniques for the Classification of Odontocete Acoustic Encounters*. 8th DCLDE Workshop. Paris, France, June 2018.
- *Hybrid Method for Estimating Sperm Whale Regional Abundance Using Data from Fixed and Moving Acoustic Sensors*. 2018 Ocean Sciences Meeting. Portland, OR, February 2018.
- Hossain, M.I., Ackleh, A.S., Tang, T., Sidorovskaia, N., & Lee, K. *A new method for estimating the probability of detection of Cuvier beaked whales from passive acoustic data near Gulf of Mexico oil spill site*. Gulf of Mexico Oil Spill & Ecosystem Science Conference 2018. New Orleans, LA, February 5-8, 2018.
- Li, K., Sidorovskaia, N., & Tiemann, C. *Study of sperm whale's long-term abundance trends in the northern Gulf of Mexico*. Gulf of Mexico Oil Spill & Ecosystem Science Conference 2018. New Orleans, LA, February 5-8, 2018.

- Mahmud, S., Sidorovskaia, N., Li, K., Pierpoint, C., & Tiemann, C. *Comparing the Performance of Bottom-moored and Unmanned Surface Vehicle Towed Passive Acoustic Monitoring Platforms for Sperm Whale Studies*. Gulf of Mexico Oil Spill & Ecosystem Science Conference 2018. New Orleans, LA, February 5-8, 2018.
- Pierpoint, C., Sidorovskaia, N., Scala, L., & Comeaux, D. *Towed-hydrophone Surveys of the Northern Gulf of Mexico*. Gulf of Mexico Oil Spill & Ecosystem Science Conference 2018. New Orleans, LA, February 5-8, 2018.
- Mahmud, S., **Sidorovskaia, N.**, Li, K., Pierpoint, C., Tiemann, C., & Mellinger, D.K. *Comparing performance of bottom-moored and unmanned surface vehicle towed passive acoustic monitoring platforms for sperm whale detection*. 174th Meeting of the Acoustical Society of America. December 4-8, 2017, New Orleans, LA
- Li, K., **Sidorovskaia, N.A.**, Tiemann, C., & Ackleh, A. *Decadal assessment of the sperm whale population trends in the northern Gulf of Mexico using acoustics*. 174th Meeting of the Acoustical Society of America. December 4-8, 2017, New Orleans, LA
- Pierpoint, C., Comeaux, D., Scala, L., & **Sidorovskaia, N.** *Towed hydrophones Surveys of the Gulf of Mexico using Unmanned Surface Vehicles*. 22nd Biennial Conference on the Biology of Marine Mammals. Halifax, Nova Scotia, Canada, October 22-27, 2017.
- Tang, T., Ackleh, A.S., **Sidorovskaia, N.**, Li, K., Tiemann, C., & Ioup, J. *Long term impact assessment of the 2010 oil spill impact on deep diving marine mammals: Beaked whales*. Gulf of Mexico Oil Spill and Ecosystem Science Conference. New Orleans, LA, February 6-9, 2017.
- Risbourg, J., **Sidorovskaia, N.A.**, Li, K., & Mahmud, S. *Assessing Beaked and Sperm Whale Movement Patterns Using Acoustics and Environmental Characteristics in the Northern Gulf of Mexico*. Gulf of Mexico Oil Spill and Ecosystem Science Conference. New Orleans, LA, February 6-9, 2017.
- Mellinger, D. K., Nieukirk, S.L., Heimlich, S.L., Küsel, E.T., Siderius, M., & **Sidorovskaia, N.A.** *Passive Acoustic Monitoring of Cetaceans in the Northern Gulf of Mexico using Ocean Gliders*. Gulf of Mexico Oil Spill and Ecosystem Science Conference. New Orleans, LA, February 6-9, 2017.
- Mahmud, S., **Sidorovskaia, N.A.**, Li, K., Pierpoint, C., Tiemann, C., & Mellinger, D.K. *Comparing performance of bottom-moored, glider, and unmanned surface vehicle towed PAM platforms for marine mammal detection*. Gulf of Mexico Oil Spill and Ecosystem Science Conference. New Orleans, LA, February 6-9, 2017.
- Li, K., **Sidorovskaia, N.A.**, & Tiemann, C. *Development of detection and classification algorithm based on the feature extraction for beaked whales in the northern Gulf of Mexico*. Gulf of Mexico Oil Spill and Ecosystem Science Conference. New Orleans, LA, February 6-9, 2017.
- Ackleh, A.S., Chiquet, R.A., Ma, B., Tang, T., Caswell, H., Veprauskas, A., & **Sidorovskaia, N.** *Analysis of Lethal and Sublethal Impacts of Environmental Disasters on Sperm Whales Using Stochastic Modeling*. Gulf of Mexico Oil Spill and Ecosystem Science Conference. New Orleans, LA, February 6-9, 2017.
- Ackleh, A.S., Chiquet, R.A., Ma, B., Tang, T., Caswell, H., Veprauskas, A., & **Sidorovskaia, N.** *Analysis of Lethal and Sublethal Impacts of Environmental Disasters on Sperm Whales Using Stochastic Modeling*. 2017 Joint Mathematics Meetings. January 4-7, 2017, Atlanta, GA.

- **Sidorovskaia, N.**, Li, K., Tiemann, C., Ackleh, A.S., Tang, T., & Risbourg, J. *Gulf of Mexico soundscapes as indicators of ecological stressors*. AGU Fall Meeting, San Francisco, December 12-16, 2016.
- **Sidorovskaia, N.A.** & Li, K. *Development of unsupervised classifier for beaked whale clicks*. 5th Joint meeting of the Acoustical Society of America and the Acoustical Society of Japan. Honolulu, Hawaii, November 28, 2016.
- **Sidorovskaia, N.A.**, Li, K., Tiemann, C., Ackleh, A.S., & Tang, T. *Long-term spatially distributed observations of deep diving marine mammals in the Northern Gulf of Mexico using passive acoustic monitoring*. 5th Joint meeting of the Acoustical Society of America and the Acoustical Society of Japan. Honolulu, Hawaii, November 28, 2016.
- **Sidorovskaia, N.**, Li, K., Tiemann, C.O., Ackleh, A.S., Tang, T., Ioup, G.E., & Ioup, J.W. PO14H-2902: *Long-term Assessment of the 2010 Deepwater Horizon Oil Spill Impact on Deep Diving Marine Mammals*. Ocean Sciences Meeting. New Orleans, LA, February 21-26, 2016.
- Ackleh, A.S., Chiquet, R.A., Ma, B., Tang T., Caswell, H., & **Sidorovskaia, N.** *Assessing the Impact of Environmental Disasters on Population Dynamics Using Stochastic Matrix Models*. LA/MS MAA Conference. February 25-27, 2016, Shreveport, LA.
- Ackleh, A.S., **Sidorovskaia, N.**, Tang, T., Chiquet, R., Ma, B., Tiemann, C., Ioup, W.J., & Ioup, E.G. *Assessment of the 2010 oil spill impact on deep diving marine mammals: beaked whales*. Gulf of Mexico Oil Spill and Ecosystem Conference. Tampa, FL, February 1-4, 2016.
- Ackleh, A.S., Chiquet, R.A., Ma, B., Tang, T., Caswell, H., **Sidorovskaia, N.** *Assessing the Impact of Environmental Disasters on Population Dynamics Using Stochastic Matrix Models*. Gulf of Mexico Oil Spill and Ecosystem Conference. Tampa, FL, February 1-4, 2016.
- **Sidorovskaia, N.**, Li, K., Tiemann, C.O., Ackleh, A., Tang, T., Ioup, G.E., & Ioup, J.W. *Automated Detection and Classification Algorithm for Beaked Whales in the Northern Gulf of Mexico*. Gulf of Mexico Oil Spill and Ecosystem Conference, Tampa, FL, February 1-4, 2016.
- **Sidorovskaia, N.** *Decadal Evolution of the Northern Gulf of Mexico Soundscapes*. Fourth International Conference on the Effects of Noise on Aquatic Life. Dublin, Ireland, July, 2016.
- **Sidorovskaia, N.A.**, Li, K., Tiemann, C.O., Ackleh, A., Tang, T., Ioup, G.E., & Ioup, J.W. OS13A-2024: *Targeted Acoustic Data Processing for Ocean Ecological Studies*. AGU Fall Meeting, San Francisco, December 14-18, 2015.
- **Sidorovskaia, N.A.**, Li, K., Ackleh, A., Tang, T., Tiemann, C.O., Ioup, J.W., & Ioup, G.E. *Classification of beaked whale and dolphin clicks measured by environmental acoustic recording system buoys in the northern Gulf of Mexico*. Meeting of the Acoustical Society of America. Jacksonville, FL, November 02-06, 2015.
- **Sidorovskaia, N.A.** Littoral Acoustic Demonstration Center - Gulf Ecological Monitoring and Modeling (LADC-GEMM): Consortium Introduction 2015 Oil Spill Science Conference. Houston, TX, February 16-19, 2015.

Journal Referees

Michalis Charilaou

- Entropy (2018)

William A. Hollerman

- Journal of Luminescence (2009-Present)
- IEEE Sensors Journal (2012-Present)
- Journal of Physics D: Applied Physics (2012-Present)
- IEEE Transactions on Nuclear Science (1998-Present)

Manavi Jadhav

- Meteoritics and Planetary Science (2020)
- Geology (2020)
- Geochimica et Cosmochimica Acta (2019)
- Astrophysical Journal (2019)

Gabriele Morra

- Earth and Space (2020)
- Artificial Intelligence in Geosciences (2020)
- Scientific Reports (2020)
- Annuals of Geophysics (2020)
- Science (2020)
- Journal of Open Source Software (2019)
- Geophysical Journal International
- Editor-in-Chief, AGU Book. *Subduction Dynamics: From Mantle Flow to Mega Disasters* (2015)
- Journal of Geodynamics
- Journal of Geophysical Research
- Physics of the Earth and Planetary Interiors
- Earth and Planetary Science Letters
- Acta Geotechnica
- Geoscience Frontiers
- Tectonophysics
- Tectonics
- Journal of Petrology
- Earth Science Reviews

Andi Petculescu

- Measurement Science and Technology
- Physics Letters A
- Applied Acoustics
- Proceedings of the Royal Society A
- Sensors & Actuators: B. Chemical

- Journal of the Acoustical Society of America
- Icarus
- Planetary and Space Sciences
- IEEE Sensors

Gabriela Petculescu

- Ultrasonics
- Intermetallic
- AIP Advances
- Elsevier, Physica B
- IEEE Transactions on Magnetics
- Journal of Applied Physics
- Journal of Alloys and Compounds
- Journal of the Acoustical Society of America
- Wave Motion
- Europhysics Letters
- Journal of Materials Science
- Nature
- National Science Foundation
- Journal of Magnetism and Magnetic Materials

Natalia Sidorovskaia

- Nature/Scientific Reports
- IEEE Journal of Oceanic Engineering
- Journal of Acoustical Society of America
- Canadian Acoustics Journal
- Physics Essays
- AIP
- PLOS ONE
- Annals of Marine Biology and Research
- McGraw-Hill, Addison Wesley

Harry J. Whitlow

- Nuclear Instruments and Methods in Physics Research Section B

Rui Zhang

- Editor, *Geologic and Geophysical Characterization of Ultra-deep Reservoirs, [Special Issue] Interpretation*. 2018
- Deputy Associate Editor, *Interpretation*
- Geophysics
- Petroleum Geosciences
- Journal of Applied Geophysics
- International Journal of Greenhouse Gas Control
- Journal of Earth Science

- Journal of Natural Gas Science and Technologies
- Journal of Petroleum Science and Engineering

Other

Organized Special Sessions and Conferences

William A. Hollerman

- *Developing a Novel Space Radiation Payload for the CAPE-3 CubeSat*, 3rd Planetary CubeSat Science Symposium, Goddard Space Flight Center, Greenbelt, MD, August 17, 2018.
- *New Half Brightness Fluence Measurements for Large-Grained ZnS:Mn, EuD₄TEA, and MnD₄TEA Samples*, 25th International Conference on the Application of Accelerators in Research & Industry, Grapevine, TX, August 13, 2018.
- *Evidence of a Simple Damage Energy Scaling Rule for Proton Irradiation of Luminescent Materials*, 25th International Conference on the Application of Accelerators in Research & Industry, Grapevine, TX, August 13, 2018.

Gabriele Morra

- AGU Workshop. *Applications of Big Data and HPC in Earth Sciences*. (2019).
- T11E Subduction Dynamics Across the Scales. Monday, 11 December 2017. 08:00-10:00 New Orleans Ernest N. Morial Convention Center - 211-213.
- T23F Subduction Dynamics Across the Scales Posters. Tuesday, 12 December 2017. 13:40-18:00 New Orleans Ernest N. Morial Convention Center-Poster Hall D-F.
- T12B Subduction Dynamics Across the Scales. Monday, 11 December 2017. 10:20-12:20 New Orleans Ernest N. Morial Convention Center-211-213.
- Organized a session at the GSA 2016. Denver: T220. Physical and Numerical Modeling of Geologic Processes.

Gabriela Petculescu

- Sound Used as an Investigative Tool for Industrial Solutions. Acoustical Society of America 174th Meeting, New Orleans, Session 2aPA, December 5, 2017.

Natalia Sidorovskaia

- Marine Mammal Synthesis Workshop, October 30-November 2, 2018, Washington, DC
- Special Sessions in memory of George Ioup. Acoustic research in the Northern Gulf of Mexico. New Orleans, LA, December 4, 2017.
- Gulf of Mexico Acoustic Research. Grand Challenges and Convergence Research Approaches. New Orleans, LA, March 7, 2017. <http://www.ieee-icassp2017.org/acoustics-forum.html>.
- Special session at the GOMOSES conference: Understanding Population Status, Trends and Connectivity of Gulf of Mexico Large Marine Vertebrates as Sentinels for

Ecosystem Health in the Context of Restoration. New Orleans, LA, February 7, 2017.
<https://event.crowdcompass.com/gomoses2017/activity/4vfVuYRwaa>.

- Fusion of Bio-physical Data and Predictive Modeling to Understand Gulf of Mexico Marine Species Resilience to Environmental Stresses and Disasters. 2016 Oil Spill Science conference, Tampa, Florida, February, 2016.
- Modeling and Observing the Physical-Biological Interactions that Organize the Spatiotemporal Distribution of Biomass in Marine Ecosystems. 2016 Ocean Sciences meeting. New Orleans, LA, February, 2016.

Rui Zhang

- Session Co-chair, Interpretation Workflows and Techniques. SEG Annual Meeting, 2018

Graduate Student Production

Graduate Students

William A. Hollerman

Chair of the Committee, Master of Science in Physics, UL Lafayette
Stephen Williams, Summer 2016
John Miller, May 2020

Member of the Committee, Master of Science in Physics, UL Lafayette
Andrew Powell, May 2020

Gabriele Morra

Chair of the Committee, Master of Science in Physics, UL Lafayette
Narendra Pant, Spring 2020
Saurav Gautam, Spring 2019
Jason Cooper, Fall 2017
Brian Fischer, Fall 2017

Member of the Committee, Master of Science in Physics, UL Lafayette
Kyle Coutee, Summer 2018
Henry Udeogu, Fall 2018

Chair of the Committee, Master of Science in Geology, UL Lafayette
Brennan Brunsvik, Spring 2019
Brian Dye, Spring 2018
Alexander Beck, Fall 2017

Member of the Committee, Master of Science in Geology, UL Lafayette
Ian Thomasset, Summer 2018
Daniel Locci, Spring 2018

Andi Petculescu

Chair of the Committee, Master of Science in Physics, UL Lafayette
Adam Trahan, Fall 2018
Peter Achi, Spring 2018
Kevin Pitre, Spring 2016
Mathbar Raut, Spring 2015

Gabriela Petculescu

Chair of the Committee, Master of Science in Physics, UL Lafayette
Damilola Dada, Summer 2020
Sonny Osunkwo, Fall 2018
Shankar Kharal, Fall 2017

Natalia Sidorovskaia

Chair of the Committee, Master of Science in Physics, UL Lafayette
Bibek Khadka, Spring 2020
Keshab Bhattarai, Spring 2020
Sakib Mahmud, Fall 2017

Member of the Committee, Master of Science in Physics, UL Lafayette
John Miller, Spring 2020
Prasanna Gunawardana, Spring 2016
Stephen Williams, Spring 2016
Mathbar Raut, Spring 2016

Chair, Doctoral Program in Earth and Energy Sciences
Naomi Mathew (2020-present)

Harry J. Whitlow

Chair of the Committee, Master of Science in Physics, UL Lafayette
Sajan Bhandari, Spring 2020
Henry Udeogu, Fall 2018
Kyle Coutee, Summer 2018
Jay Dias, Spring 2018
Supervised one external Ph.D. student in Chemistry: Jan-July 2018 Completed Ph.D. during 2018.

Rui Zhang

Chair of the Committee, Master of Science in Geology, UL Lafayette
Allison Scates, Spring 2020
Mark Mlella, Summer 2019
Amanda Johnston, Spring 2019
Joseph E. Morris, Summer 2018
Jude E. Alekhue, Summer 2018
Daniel Locci, Spring 2018

Funding

External Funding

Michalis Charilaou

- *Modeling of topological defects and emergent magnetic states in nanostructures.* Funding Source: Board of Regents Support Fund, Amount: \$122,000, Period: 2020-2023. Role: PI.
- *MRI: Acquisition of a cryogen-free PPMS enhanced for multidisciplinary materials research relevant to Earth, Energy, and Environment.* Funding Source: National Science Foundation, Amount: \$411,000, Period: 2020- 2023, Role: co-PI.

William A. Hollerman

- *Advanced Models and New Impulse Sources for the X-Ray Transport and Radiation Response Analysis (XTRRA) Toolkit*, 5th Gait Technologies, Incorporated, Subcontract to a Department of the Defense Small Business Technology Transfer (STTR) program for the Department of Defense, \$41,555, Proposal Awarded 2018, Work Complete 2019, Principal Investigator.
- *Rebuilding the Navy Pelletron Accelerator at the Army Research Laboratory in the Capital District*, Links with Industry, Research Centers, and National Labs (LINK), Louisiana Board of Regents, \$4,000, 2018, Principal Investigator.
- *Upgrading Particle Induced X-Ray Capabilities at the Louisiana Accelerator Center*, Louisiana Board of Regents Support Fund (BORSF), \$29,973, 2016-2017, Co-Principal Investigator.
- *Low Energy Nuclear Astrophysics Research for Student John Miller Using the 5SDH-2 Pelletron at the Louisiana Accelerator Center*, Louisiana Space Grant (LSPACE) Undergraduate Research Assistantship (LURA), \$6,000, 2015-2017, Principal Investigator.
- *Low Energy Nuclear Astrophysics Research for Student John Miller Using the 5SDH-2 Pelletron at the Louisiana Accelerator Center*, Louisiana Space Grant (LSPACE) Undergraduate Research Assistantship (LURA), \$6,000, 2015-2016, Principal Investigator.
- *Feasibility of EuD₄TEA-Based Sensors to Detect Space Radiation*, Louisiana Space Grant (LaSPACE) Consortium, Additional Funds of \$6,500 for Total of \$35,200, 2014-2015, Principal Investigator.
- *Feasibility of EuD₄TEA-Based Sensors to Detect Space Radiation*, Louisiana Space Grant (LaSPACE) Consortium, \$28,700, 2014-2015, Principal Investigator, Submitted, April 2014, Awarded August 2014.
- *Procurement of a First Generation EMCO LabKit Apparatus for*, Louisiana Board of Regents Pilot Funding for New Research (PFUND), \$10,000, 2014-2015, Principal Investigator, Submitted April 2014, Awarded August 2014.

Manavi Jadhav

- *Heavy Element Characterization of Stardust*. EPSCoR Research Infrastructure. Improvement Track 4: EPSCoR Research Fellow. Agency: National Science Foundation 20-543. Total awarded: \$232,500. February 2021-January2023. Awarded 2020. Role: Principal Investigator.
- *Ultra-high BRILLIANCE multi-cusp ion source for research users at the Louisiana Accelerator Center [Brilliant@LAC]*. Louisiana Board of Regents Comprehensive Departmental Enhancement Program. Role: Total awarded: \$191,035. June 2020-May 2021. Co-Principal Investigator.
- *Search and Characterization of micrometeorites found on rooftops in Lafayette*. University of Louisiana Lafayette Undergraduate Research Mini Grant. \$2,000 January 2020-December 2020 Role: Principal Investigator.
- Project Title: *Acquisition of Focused Ion Beam-Scanning Electron Microscope for the Multidisciplinary Research and Education at the University of Louisiana at Lafayette*. National Science Foundation Major Research Instrumentation. \$1,425,129. October 2019-September 2022. PIs: Xiao-Dong Zhou, Thomas Pesacreta, Suzanne Fredericq, Sherry Kravesky-Self, and Mehdi Mokhtari. Role: Senior Investigator
- UL Travel Grant awarded \$1000, 2018

Gabriele Morra

- *A combined chemical and physical investigation of metal-silicate reactions in magma oceans*. NASA: (Co-Investigator, US\$918k, 2020).
- *Louisiana DNR: Investigating Induced Seismicity in NW Louisiana* (Co-PI, US\$20k, 2019).
- Scientist: 2018 MRI: Acquisition of an AUV system for observations of physical and biogeochemical interactions in the Northern Gulf of Mexico ecosystem (US \$442,000)
- I proposed to the American Geophysical Union to organize workshop associated to the AGU Fall Meeting. AGU approved it and it has been a major success. All the 50 slots were filled with participants and 9 speakers have accepted give a talk. The title of the workshop is: “Innovating the Geosciences: Data Science, Machine Learning and Jupyter,” \$500, 2018.
- As a PI: Gas-magma interaction in a volcanic conduit. proposed to LONI in 2017. Accepted, granted 300,000 computing hours on the LONI supercomputer.
- As a PI: The Physics of the Deepest Subduction Earthquakes. proposed to the Board of Regents, to obtain travel grant to participate to a workshop in Tokyo where I presented a keynote talk. Accepted and Granted for \$1200, 2017.

Andi Petculescu

- LaSPACE Subaward 101623 (\$8000) (2018)
- LaSPACE: \$42,000 (2017)
- *Infrasound Sensing on Mars Based on Deployable Dome Structures: A Feasibility Study*. (Louisiana Space Consortium GSRA Award #101623), \$7,775, 2015.
- *Pilot Study for a Distributed Acoustic Interface for Manned Space Habitats* Louisiana Space Consortium GSRA Award #101623, \$33,700, awarded in 2015.

Gabriela Petculescu

- PI: MRI: Acquisition of a Closed-Loop PPMS Enhanced for Multidisciplinary Research and Education University of Louisiana at Lafayette. NSF \$518,246 for September 2020-August 2022
- *Ultrasonic-based elastic properties characterization of AM alloys*. NSF subaward of OIA-1541079, CIMMSeed-42 (\$10,000) January 2020-January 2021
- Ultrasonic-based characterization and model validation of 3D-printed metals. NSF EPSCoR CIMM Seed Funding, January-December, 2018, \$10,000.
- Failure prevention for sensitized structural alloys used in costal transportation. TIRE-DoT, 30K, July 2016-June 2017.
- STEP grant for revitalization of Physics Lab. Computers: \$7,760, funded December 2015.
- Contract: SFRF-ONR, includes \$22,000, laboratory, and summer student, May-July 2015.
- Elastic interactions in solids: A tool for new materials development and improved structural safety. NSF 2015-LINK-99 \$6,000, funded April 2015.

Natalia Sidorovskaia

- Bureau of Ocean Energy Management (through HDR): Passive Acoustic Monitoring Program for the Northern Gulf of Mexico, \$367,288, 2018-2019.
- National Science Foundation (MRI): Acquisition of an integrated AUV system for observations of physical and biogeochemical interactions in the Northern Gulf of Mexico, \$456,593, 2018-2019.
- Gulf of Mexico Research Initiative: Littoral Acoustic Demonstration Center – Gulf Ecological Modeling and Monitoring (LADC-GEMM), www.ladcgemm.org, \$680,552, 2018-2019.
- International Association of Oil and Gas Producers, Sound and Marine Life Joint Industry Project: 3-D Source Characterisation Experiment - Data Analysis & Reporting, \$138,415, 2017-2019.
- UL PI: Passive Acoustic Monitoring Program for the Northern Gulf of Mexico, BOEM through HDR, \$326,000 (UL part, total \$2,000,000), 2017-2018
- Littoral Acoustic Demonstration Center (LADC), \$5,238,174; BP/GOMRI, RFP IV (awarded for 2015-2017, Lead PI).

Rui Zhang

- U.S. Department of Energy, Office of Fossil Energy, National Energy Technology Laboratory, Tuscaloosa Marine Shale Laboratory, 2018-2020, \$9,657,000.00 (CO-PI). Award DE-FE0031575.
- Restore Act Center of Excellence for Louisiana, An evaluation of faulting in Holocene Mississippi river delta strata through the merger of deep 3-D and 2-D seismic data with near surface imaging and measurements of vertical motion at three study areas, Contract Number: CPRA-2015-COE-JE, 2017-2019. Total funding \$349,174.00, ULL subcontract \$75,545.00 (CO-PI).
- Sinopec Tech Houston LLC, Innovative geophysical technology development, 2017-2019, \$240,000 (PI). **Zhang, R.**

- Bureau of Geophysical Prospecting (BGP) Inc, Depth Domain Seismic inversion and wavelet extraction, 2017-2018, \$200,000.00 (PI).

Harry Whitlow

- Safe, sustainable and resilient development of offshore reservoirs and natural gas upgrading through innovative technology and science. \$ 49,915 (2019-2025) BIRD Foundation. (LAC's share of \$14M).
- Ultra-high BRILLIANCE Multi-Cusp Ion Source for Research Users at the Louisiana Accelerator Center (BRILLIANT@LAC) \$191,035 (2020-2021) Board of Regents Enhancement Grant.

Awards / Honors

Gabriele Morra

- Elected in the Science Steering committee of the CIG (Computational Infrastructure for Geodynamics), the principal organization in world of developers of software for Geodynamics.
- Hensarling/Chapman Endowed Professorship in Geology from the School of Geosciences at UL Lafayette, 2016-2018.

Gabriela Petculescu

- Office of Naval Research (ONR) Summer Faculty Fellowship Program (SFFP), June-August 2018.
- 2017. Ray P. Authement CoS, UL-L - Outstanding Teaching Award.
- National award: Office of Naval Research (ONR) Summer Fellowship (SFFP), May-July 2015.
- Office of Naval Research Summer Faculty Research Fellow, at Naval Surface Warfare. Center, West Bethesda MD: 2013, 2015.

Natalia Sidorovskaia

- American Council on Education (ACE) Fellow, 2020-2022.
- Certificate of Achievement in Sponsored Research Award, University of Louisiana at Lafayette, 2019.
- UL Lafayette Research Excellence Award, 2017.
- Acoustical Society of America Executive Council Certificate in Recognition of Technical Program Chair Contribution, 2017.
- Coca-Cola/BORSF Endowed Professorship, 2014-2020.

Harry J. Whitlow

- Recognition of position on RSC, Biosafety and IACUC committees, 2017.

Rui Zhang

- Best Paper Award in Interpretation, 2018
- John E. and Joretta A. Chance Endowed Professorship in Geology, 2018

Other Professional Activities

Michalis Charilaou

Member of the Ph.D. Committee

Lourdes Marcano, University of the Basque Country, Spain, October 2018

Dimitrios Koulialias, ETH Zurich, Switzerland, December 2018

William A. Hollerman

- Chief advisor and consultant for the Astronaut-Wearable Radiation Meter for Operation in Potential Radiation Environments (ARMOR) payload on the UL Lafayette CAPE-3 satellite. The purpose of ARMOR is to measure radiation exposure using radioluminescence from a polymer containing EuD₄TEA. This payload will be sent into orbit in summer of 2019 from a Virgin Orbit launch system. I am also involved in the development of the CAPE-4 payload that will launch in a few years.
- **CAPE-3 Payload:** Principal Investigator for a payload on the third Cajun Advanced Picosatellite Experiment (CAPE-3) satellite to measure radiation exposure using radioluminescence. This payload launched from the Virgin Orbit *LauncherOne* rocket released from a modified 747 airplane in early 2021. I am also involved in the development of the next CAPE-4 payload that will launch in the future.
- Lead investigator for the Astronaut-Wearable Radiation Meter for Operation in Potential Radiation Environments (ARMOR) experiment on the third Cajun Advanced Picosatellite Experiment (CAPE-3) 1U CubeSat. This UL Lafayette-based experiment will use EuD₄TEA as the active element for space radiation sensor and have a UL Lafayette designed Geiger counter for comparison. The construction of this hardware will be finished in Spring 2018 and will be flown in the summer of 2018.

Memberships

- American Institute of Aeronautics and Astronautics
- IEEE Nuclear and Plasma Society
- International Society for Optical Engineering (SPIE)
- Sigma Pi Sigma, Physics Honor Society

Patents

- R.S. Fontenot, **W.A. Hollerman**, N.A. Guardala, and S.A. Williams, *Luminescence-Based Method for Precise Delivery of Ion Beam Therapy*, U.S. Patent and Trademark Office (USPTO) Provisional Patent Docket Number 105543 (U.S. Navy), July 13, 2018. Full Patent Application July 2019.

Manavi Jadhav

Memberships

- Geological Society of America
- Meteoritical Society

Gabriele Morra

- 2018-2021 Member of the CIG Speaker Series committee
- 2018-2020 Elected member of the CIG Science Steering Committee

- Member of the Science Steering Committee (SSC) of the organization Computational Infrastructure for Geodynamics (CIG).
- Member of the Speaker Committee of the Computational Infrastructure for Geodynamics (CIG).
- Organizer of a workshop at AGU fall meeting (already described elsewhere), December 2018.
- Co-editor of [Virtual Special Issue] *Big Data in Geosciences: From Earthquake Swarms to Consequences of Slab Dynamics* (2018). Guest Editors: Robert Geller, Kenji Kawai, Gabriele Morra, David Yuen.

Memberships

- American Association of Physics Teachers
- American Geophysical Union
- European Geosciences Union
- Geological Society of America

Andi Petculescu

Memberships

- Acoustical Society of America
- American Physical Society
- Audio Engineering Society
- Associate Editor for the Journal of the Acoustical Society of America
- Co-Editor for JASA's first Special Issue: Acoustic and Related Waves in Extraterrestrial Environments.
- Reviewer for the *Journal of the Acoustical Society of America*, IEEE Sensors, Sensors and Actuators--Chemical, Measurement Science and Technology, Planetary and Space Sciences
- Guest Editor for the Special Issue Acoustic and Related Waves in Extraterrestrial Environments. *Journal of the Acoustical Society of America* (2015-Present, Invited).

Gabriela Petculescu

Patents

- *SYSTEM AND METHODS FOR DETERMINING SENSITIZATION OF ALLOY BY MEASURING AND CORRELATING ULTRASONIC PARAMETERS*. Patent US10,416,120B2 awarded September 17, 2019

Memberships

- Phi Kappa Phi Honor Society
- Organizing Committee: Acoustical Society of America 174th Meeting, New Orleans, Session 2aPA, December 5, 2017.
- Acoustical Society of America.
- American Physical Society.
- Sigma Xi, The Scientific Research Society.
- Research program evaluation for promotion for an outside institution, 2015.
- National Science Foundation Graduate Research Fellowship Program, January 2015,

Natalia Sidorovskaia

- Technical Program Chair for December 2017 ASA Meeting.

Memberships

- Southwest Louisiana Geophysical Society
- Acoustical Society of America;
- Fellow of the Acoustical Society of America
- American Geophysical Union
- Sigma Pi Sigma National Physics Honor Society
- Active in the Technical Committees on Underwater Acoustics and Signal Processing
- Participated in organizing the 75th Anniversary meeting of Acoustical Society of America; - Chairing the session at the 75th Anniversary meeting of Acoustical Society of America.
- Participated in four Technical Program Organizing Meetings for Signal Processing, Underwater acoustics, and Animal Bioacoustics Technical Committees.

Harry J. Whitlow

- Member of International Committee, International Conference on Nuclear Microprobes Techniques and Applications.
- Sakkunnig (Expert evaluator) member of Appointment Board for appointment of Assistant professor of Ion Physics, Uppsala University, SE. (May 2020-December 2020)
- Sakkunnig (Expert evaluator) member of Appointment Board of Full Professor of Ion Physics, Uppsala University, SE. (August 2020-December 2020)
- Adjunct professor in Analytical Chemistry, Department of Chemistry, Faculty of Sciences, Kasetsart University, Thailand.
- Director of Louisiana Accelerator Center and, since April 2017, *de facto acting* Vice Director.
- Hosted two international research visitors. Assoc Prof. Wanwisa Sudpraseart and Assoc Prof. Vice Dean Orapin Chienthavorn.
- Supervised 3 undergrad research projects.
- Participated as organizer of delegation for MOU signing ceremonies with Faculty of Sciences Kasetsart University Thailand and Nuclear Society of Thailand.

Memberships

- Member of international advisory committee Faculty of Science, Kasetsart University, Thailand.
- Member of Editorial Advisory Board, Nuclear instruments and Methods Section B
- Member European Physical Society.
- Member Svenska Fysikersamfundet (Swedish Physics Society).
- Co-supervised one MSc in Applied Radiation and Isotopes at Kasetsart University, 2018. One Ph.D. completed, Wimonrut Insuan (external at Kasetsart U. TH) 2017

Patents

- U.S. patent number 10,871,583 [Application Number 16/387,596] was granted by the patent office on 2020-12-22 for *mercury-free concentration standard for x-ray analysis*. This patent grant is currently assigned to University of Louisiana at

Lafayette. The grantee listed for this patent is University of Louisiana at Lafayette. Invention is credited to Harry James Whitlow

Rui Zhang

Membership

- Society of Exploration Geophysics
- American Geophysical Union
- European Association of Geoscientists & Engineers

Outreach

William A. Hollerman

- Louisiana Board of Regents Speaking of Science (SoS):
Rockets and Starships: Overview of Space Travel for the 21st Century:
 - Our Lady of Prompt Succor, Chalmette, Louisiana, January 14, 2019.
 - First Baptist Christian School, Slidell, Louisiana, January 29, 2019.
 - Lakeshore Elementary School, Monroe, LA, May 14, 2019.
 - Calcasieu Public Library, Lake Charles, LA, July 3, 2019.
 - Elton Elementary School, Elton, LA, January 5, 2017
 - St. John Elementary School, Franklin, LA, January 26, 2017.
 - Polaris Engineering SEED Center, McNeese State University, Lake Charles, LA, February 14, 2017.
 - Runnels High School, Baton Rouge, LA, March 13, 2017.
 - Bonnie Ecole Elementary School, Slidell, LA, May 9, 2017.
- Understanding Wintergreen Candy:
 - Lake Castle Private School, Madisonville, LA, September 12, 2017.
 - Copper Mill Elementary School, Zachary, LA, March 13, 2020.
- Low and Slow Cooking: The Physics of Barbecue:
 - Kenilworth Science and Technology School, Baton Rouge, LA, November 2, 2019.
 - Chef John Folse Culinary Institute, Nicholls State University, Thibodaux, LA, September 20, 2017.
 - Department of Management & Hospitality, University of Louisiana at Lafayette, October 18, 2017.
 - Electricity and Electrical Demonstrations, Paulina Elementary School, Paulina, LA, December 20, 2017.
 - A Trip Through Our Universe, Anacoco Elementary School, Anacoco, LA January 7, 2016.
 - Runnels High School, Baton Rouge, LA, January 11, 2016.
 - Lake Castle Private School, Madisonville, LA, January 12, 2016.
 - Judice Middle School, Duson, LA, February 22, 2016.
 - Holy Family Catholic School, Lafayette, LA, March 15, 2016.
 - Lake Castle Private School, Madisonville, LA, October 26, 2016.
 - The Physics of Barbecue, Kenilworth Science and Technology School, Baton Rouge, November 12, 2016.

- Joint Math and Science Conference, November 11, 2015.
- Rockets and Starships. Loranger Elementary School, Loranger, LA April 17, 2015.

Manavi Jadhav

- **Skype-a-Scientist** “Space Rocks and Space” chat session with a group of home-schooled students (aged 5-10), Lafayette, Louisiana (December 2020)
- **Skype-a-Scientist** Astrophysics and Solar System Q&A session with a Girl Scout troop earning "Space Science Adventurer" badges, Richmond, Virginia (May 2020)
- **Skype-a-Scientist** talk titled "Space Rocks!" and chat with **6th graders** at Campbell County Middle School, Gillette, WY (December 2019)
- Talked to **high school** students at the **Ovey Comeaux High School** about **STEM careers**, meteorites, and Apollo lunar samples and held a meteorite show and tell session (November 2019)
- Held a meteorite and Apollo lunar sample **show and tell session** at a joint **Lafayette Geological Society, Society of Petroleum Engineers** (Lafayette Chapter), and **American Association of Drilling Engineers** (Lafayette Chapter) luncheon at the Petroleum Club in Lafayette, Louisiana (November 2019)
- Organized a meteorite and Apollo samples exhibit for **Science Day** at the **University of Louisiana at Lafayette** that was attended by high-school students from Lafayette and neighboring parishes (September 2018)
- Organized a local event for **International Observe the Moon Night** in collaboration with the **Lafayette Natural History Museum** and **Astronomy club** (September 2018)

Andi Petculescu

- Co-organizer of Science Day (2018).
- Volunteer for Preview Day, Junior Day, Scholars’ Day (2018).

Gabriele Morra

- Volunteered as a judge at the Lafayette Science Fair, 2018.
- Part of the Speaking of Science program of the Board of Regents. Presented at the Peabody Montessori School in Alexandria, LA, to talk to fourth-graders about Earthquakes, 2018.

Gabriela Petculescu

- Adopt-a-Physicist program, American Physical Society, 2018
- Listen up and get involved. Volunteer - physics demos and mentoring middle-school students from New Orleans area and girl scouts, organized by the Education and Outreach department of the Acoustical Society of America 174th Meeting, New Orleans, Session 2aPA, December 5, 2017.
- Observe the Moon Night (InOMN) at the Lafayette Science Museum - Optics Demonstrations, October 8th, 2016.
- ULL Chem-E Car (held by AIChE) - counsel for kinematic motion with variable acceleration, numerical solutions, 2016.

- National History Day: Marie Curie project - interviewed by student from the Academy of Sacred Heart (won regional and state competition), April 2016.

Natalia Sidorovskaia

- Speaking of Science, Board of Regents Program, 2018
- Whale's Stories from the Gulf. November 10, 2015 presentation at Lake Castle Madisonville Private School.

Harry J. Whitlow

- Member of international advisory committee Faculty of Science, Kasetsart University, Thailand, 2017.
- Adjunct prof. in Chemistry, Faculty of Science, Kasetsart University, Thailand, 2017.