



Summer Undergraduate Research Forum

July 26, 2019

2019 Summer Undergraduate Research Forum

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Schedule of Events

LSU Student Union: Cotillion Ballroom

Time	Event
9:00 am – 1:00 pm	Poster Setup
1:00 pm – 1:15 pm	Opening Remarks
1:15 pm – 4:00 pm	Poster Session



2019 Summer Undergraduate Research Forum

The 26th Annual Summer Undergraduate Research Forum (SURF) is pleased to showcase the numerous undergraduate students who have engaged in summer research projects this year at institutions throughout the LSU System.

SURF participants represent programs including:

- Interdisciplinary Research Experience in Computational Sciences (CCT REU)
- Chemical Engineering (CHE REU)
- Consortium of Innovation in Manufacturing and Materials (CIMM REU)
- Initiative for Maximizing Student Development (IMSD)
- Louisiana Biomedical Research Network (LBRN)
- Physics & Astronomy Research Experiences for Undergraduate (P&A REU)
- Smart Polymer Composite Materials and Structures REU (SMART REU)
- Louisiana State University Discover (Discover)
- Army Education Outreach Program (USAEOP)
- Individual student researchers in various laboratories across LSU

SURF is sponsored in part by some of the programs listed above.

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1. Raegan Abadie (ULM, LBRN) Sita Withers, LSU, Veterinary Sciences, "Effects of polarized macrophages on canine osteosarcoma cell function".
2. Elizabeth Amedee (LATECH, CHE) Jack Wei, Daniel Willis, Kevin McPeak, LSU, Chemical Engineering, "Etching titanium dioxide before adding gold-nanoparticles improves sunlight disinfection."
3. Wiliam Arata (LSU, Discover) Brandon Phillips, Briasha Jones, Jaxon Adkins, Marc Dalecki, LSU, Motor Behavior & Cognition Laboratory, Kinesiology, "Prolonged eye-hand coordination deficits in young adult non-athletes with a history of concussion ".
4. Shelby Baham (Centenary, LBRN) Sita Withers, LSU, SVM Oncology, "The Effects of STING Downregulation in Human Osteosarcoma on Innate Inflammatory Signals".
5. Camron Berrian (Spelman College, CIMM) Jeewan C Ranasinghe, Prakash Hamal, Asela S Dikkumbura, Louis H Haber, LSU, Chemistry, "Synthesis, Characterization, and Ultrafast Laser Heating Dynamics of Metal Nanoparticle Thin Films".
6. Shradha Bhatta (USM, CIMM) Zhongqiang Li, Alexandra Ramos, Meichun Li, Xiaoqian Shan, Zheng Li, Yanping Li, Qinglin Wu, Shaomian Yao, Jian Xu, LSU, SVM Comparative Biomedical Sciences, "3D-bioprinted nanocellulose-alginate aerogel for accommodating tissue-derived stem cells."
7. Ariana Buckner (LSU, McNair) Reg Tucker, LSU, Entrepreneurship & Information Systems, "Peer Engagement Influence on the Spread of Misinformation".
8. Abigail Lynn Caffey (LSU, Discover) Marc Dalecki , LSU, Kinesiology , "Cognitive Deficits in Young Adults with a History of a Concussion: Different in Females and Males?".
9. Sylver Carter (UNA, CCT) Amit Rotem, Shawn Walker, LSU, Math, Center for Computation & Technology, "Domain Decomposition for Nematic Liquid Crystals".
10. Maryn Cavalier (LSU, Discover) Elizabeth C. Martin, LSU, Biological Engineering, "Involvement of Stromal Age in Breasts Cancer Endocrine Response".
11. Hari Dahal (ULM, LBRN) Sunil Karna, John DiTusa, LSU, Physics & Astronomy, "Synthesis and analysis of B2O materials using Rhenium Silicide".
12. Hector A. De Santiago (UTRGV, CHE) James A. Dorman, Yuanbing Mao, LSU, Chemical Engineering, "Developing Polytype CuCrO₂ Delafossite Nanoparticles through Hydrothermal Synthesis".
13. Amanda Ehnis (UTDallas, P&A) Thomas Kutter, LSU, Physics & Astronomy, "Determining Unitarity of Neutrinos Using Tau Neutrinos".
14. Joseph Feinstein (Brown University, CCT) Wentao Shi, Michal Brylinski , LSU, Biological Sciences, "bionoi: A Voronoi-based Representation of Ligand Binding Sites in Proteins for Machine Learning Applications".
15. Ericka Florio (Kenyon College, P&A) Guillermo Valdes, Gabriela Gonzalez, LSU, Physics & Astronomy, "Analyzing the Effect of Thunderstorms on LIGO's Sensitivity using Auxiliary Sensors".
16. Jake J. Fontenot (LSU, Discover) Shaomian Yao, LSU, SVM, Comparative Biomedical Sciences , "Assessment of Decellularized Animal Bone Matrix for Bone Bio-Engineering".
17. Emma Galligan (ERAU, P&A) Robert Hynes, Joshua Wetuski, LSU, Physics & Astronomy, "Identifying Variable Counterparts to Galactic Bulge X-Ray Sources using the NOAO Source Catalog".
18. Angel Galvan (BRCC, CIMM) Juana Moreno, LSU, Physics, "Spinel Ferrites".
19. Jera'Nae Garner-Donald (SUBR, LBRN) Juan M Lorenzo, Suniti Karunatilake, LSU, Geology & Geophysics , "Foundations in Granulometry and Morphometry in Seismic Imaging".
20. Nicholas Gaubatz (Murray State University, CCT) Mayank Tyagi, Jyotsna Sharma, LSU, Petroleum Engineering, Center for Computation & Technology, "Improving Seismic Interpretation: Convolutional Neural Networks with Wavelets".
21. Rachel Gibson (Oberlin College and Conservatory, CCT) Edgar Berdahl, Stephen D. Beck, LSU, Music, Center for Computation & Technology, "IRIS: A Non-Tactile Electronic Musical Instrument for Solo and Collaborative Playing".

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22. Sarah Glass (LSU, Discover) Daniel Willis, Kevin McPeak, LSU, Chemical Engineering, "Visible Light Driven Water Disinfection by Interband Transitions".
23. Jacy Haynes (SUNO, LBRN) Sarah Bergeron, Michael Behnke, LSU, SVM Pathobiological Sciences, "Characterization of felid intestinal organoids to create a platform to study the enteric stage of *Toxoplasma gondii* in-vitro".
24. Peter Hedlesky (UD, P&A) Scott Marley, Jeff Blackmon, Ashley Hood, Rachel Malecek, Aaron Ryan, Gregory Guzik, Marcus Nauman, Brad Ellison , LSU, Nuclear Physics, "Tiny Detectors for Astrophysical explosions Development of the Position Sensitive Scintillator Detector (PSSD) for ANASEN".
25. Nick Heller (HMC, P&A) Kristina Launey, Grigor Sargsyan, LSU, Physics, "Do We Understand Fast-Spinning Atomic Nuclei? New Insights into Backbending from the Symmetry-Adapted Shell Model".
26. Dwayne Hinton (LSU, Discover) Heather McKillop, LSU, Geography & Anthropology, "Wood You Belize It?".
27. Phong Huynh (Xavier, LBRN) Phong Huynh, Lynn Harrison , LSUHSC-S, Molecular & Cellular Physiology , "Investigation Into SNCA Point Mutations That Alter α -Synuclein Aggregation".
28. Ann Irvin (GCSU, SMART) Christopher J Van Leeuwen, Gerald Schneider , LSU, Chemistry , "Characterization of Molecular Weight Distributions of Siloxane Polymers".
29. Rajan KC (McNeese, LBRN) Suresh Nagarajan, Dhaval Patel, Stephan N. Witt, LSUHSC-S, Biochemistry & Molecular Biology , "Understanding the Molecular Mechanism of α -Syn Induced Defects in Snx3-Retromer Mediated Endocytic-Recycling".
30. Lukas Kim (LSU, Discover) Visal Subasinghege Don, Rolf David, Pu Du, Anne Milet, Revati Kumar, LSU, Chemistry, "Behavior of Aqueous Salt Solutions at Graphene Oxide Interface".
31. Katerine Kjos (LSU, Discover) Michael Polito, LSU, Oceanography & Coastal Sciences, "Identifying the Geographical Origin of Domestic and Imported Crawfish Using Stable Isotope Analysis".
32. Sean Krieg (LSU, Discover) Dek Terrell, LSU, Economics, "Louisiana's Purchasing: How does a Carbon Fee and Dividend Policy Impact The South's Consumption Spending?".
33. Rebecca Krueger (LSU, Discover) Alyssa Johnson, LSU, Biological Sciences, "Understanding the Biogenesis of Tubular Lysosomes During Animal Development".
34. Aidan Lambert (LSU, P&A) Chenglong You, Narayan Bhusal, Roberto de J. Leon-Montiel, Amir Javaid, Omar Magana-Loaiza , LSU, Physics & Astronomy, "Light Identification Using Artificial Neural Networks".
35. Kentrae Lewis (LSU, CIMM) Louis Haber, LSU, Chemistry, "Evaluating the Characterization and Reflectivity of Aluminum Thin Films".
36. Nic Litza (UNM, P&A) Manos Chatzopoulos, Brad Munson, Juhan Frank, Geoffrey Clayton, Courtney Crawford , LSU, Physics & Astronomy, "Computational Simulations of DY Per Stars".
37. Brina Martinez (UTRGV, P&A) Guillermo Valdes, Gabriela Gonzalez, LSU, Physics & Astronomy, "Classification of Acoustic Noise in LIGO Livingston".
38. Dexter Merritt (UMBC, CIMM) Hao Wen, Congyuan Zeng, S.M. Guo, LSU, Mechanical & Industrial Engineering, "Laser Welding of Copper Alloy".
39. Andrea L Miller (LSU, Discover) Johanna Warwick, LSU, Photography , "Reflections on Regional and Familial Identities".
40. Abigail Moody (Centenary, SMART) Rocio Perez, Caitlan Ayala, Isiah Warner, LSU, Chemistry, "Cation variation and its effect on the self-healing properties of Surlyn".
41. Alexandra Nadeau (UNC, SMART) Guoqiang Li, Jizhou Fan, Xiaming Feng, LSU, Mechanical & Industrial Engineering , "Free Standing Artificial Muscles Actuated With Electricity".

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42. Henry Hoang Nguyen (Xavier, LBRN) Susmita Bhattarai, Grace Sun, Christina Acosta, Sudha Sharma, Hosne Ara, Shenuarin Bhuiyan, Hong Sun, Sumitra Miriyala, Manikandan Panchatcharam, LSUHSC-S, Cellular Biology & Anatomy, "Effect of Lysophosphatidic Acid on Blood Brain Barrier ".
43. Chikaodili Osuji (SUNO, LBRN) Sudha, Castillo, Ekpo, Fletcher, Majid, Tulane, Physiology Hypertension & Renal Center of Excellence, "Analysis of tumor necrosis factor- α receptor 1 (TNFR1) in renal tissues of nitric oxide deficient mice chronically fed with normal and high salt containing diets".
44. Foram Patel (LATECH, LBRN) Sudha Sharma, Susmita Bhattarai, Hosne Ara, Sumitra Miriyala, Manikandan Panchatcharam, LSUHSC-S, Cellular Biology & Anatomy, "A novel redox regulator, MnTnBuOE-2-Pyp, protects cardiomyocytes from rotenone-induced oxidative stress. ".
45. Katherine Perez (BRCC, CIMM) Brian Novak, Dorel Moldovan, LSU, Mechanical & Industrial Engineering, "Molecular Dynamics Simulation Studies of Thermophysical Properties of Liquid Ni-Cr".
46. Mekenzie Peshoff (Centenary, LBRN) Sureshababu Nagarajan, Stephan Witt, LSUHSC-S, Biochemistry & Molecular Biology, "The association between viral infection and Parkinson's disease: Adenovirus protein VI peptide accelerates α -Synuclein aggregation".
47. Chari Peter (Grambling, LBRN) Bijay Banstola, Kermit K. Murray, LSU, Chemistry, "MALDI Imaging of Neuropeptides and Neurotransmitters in Mouse Brain Tissue Sections ".
48. Waynecia Porter (SUBR, CIMM) Bin Zhang, LSU, Mechanical & Industrial Engineering, "Micro-scale Molding Replication of Aluminum Based Microchannels ".
49. Keyla Pruett (LSU, Discover) Ian Knight, Nathan Lord, Rodrigo Diaz, LSU, Entomology, "To catch a killer: Developing PCR primers to assess parasitism rates and spatial distributions of parasitoids of the roseau cane scale ".
50. Eric Rachita (Case Western Reserve University, SMART) Guoqiang Li, Jizhou Fan, Xiaming Feng, LSU, Mechanical & Industrial Engineering, "Self-healing polymer blends improve two-way shape-memory properties ".
51. Prerana Chandra Ramesh (LSUS, LBRN) Qinqin Xu, Philip Kilgore, Urska Cvek, Paul Weinberger, LSUHSC-S, Otolaryngology Head & Neck Surgery, "How to Train Your AI: Quantification of R-Loop Expression in Anaplastic Thyroid Carcinoma using Immunohistochemistry and Automated Cell Segmentation Software ".
52. Cian Charles Reeves (TCD, P&A) Arshag Danageozian, Jonathan P. Dowling, LSU, Physics & Astronomy, "The Forgetful Qubit: Minimisation of Decoherence in a Markovian System".
53. Elizabeth Reiner (LSU, CCT) Theda Daniels-Race, LSU, Electrical & Computer Engineering, "Designing an atomic force microscope (AFM) with a focus on increasing accessibility".
54. Kiarra Richardson (University of New Haven, CHE) Connor T. King, Charles E. Byrne, Bert Lynn, Shadrack Asare, Elizabeth C. Martin, LSU, Biological & Agricultural Engineering, "In-Vitro Analysis of Plant Derived Phenolic Compounds in Stem Cells ".
55. Trevor Robertson (UMASSD, P&A) Kip Matthews, LSU, Physics & Astronomy, "Methods of Image Calibration and Comparison in X-Ray Imaging Systems ".
56. Allee Rogers (SJA, USAEOP) Margarite L. LaBorde, Jonathan P. Dowling, LSU, Physics & Astronomy, "Identifying Gate Corruptions in Quantum Circuits using Machine Learning".
57. Lainé Nicole Rogers (ULM, LBRN) Srihar Chilukuri, J. Steven Alexander, J. Arthur Saus, LSUHSC-S, Molecular & Cellular Physiology, Anesthesiology, "The Use of Surface Electromyography to Compare Methods of Nasotracheal Intubation".
58. Amit Rotem (Colorado School of Mines, CCT) Sylvester Carter, Shawn Walker, LSU, Math, Center of Computation & Technology, "Numerical Experiments in Domain Decomposition for Simulating Liquid Crystal Defects".
59. William Sands (Clemson University, SMART) Harry Frederick, Wencai Li, Genevieve Palardy, LSU, Mechanical Engineering, "Structural Health Monitoring of Ultrasonically Welded Thermoplastic Composites".
60. Amani Sanyurah (Kent State University, CIMM) Shuai Shoa, LSU, Mechanical & Industrial Engineering, "2D Dislocation Dynamics".

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61. David Sharp (TXST, SMART) Samuel Bynum, John A. Pojman, LSU, Chemistry, "Effects of Copper on Frontal Polymerization Velocity".

62. Aliza Urooj Siddiqui (LSU, CCT) Sumeet Khatri, Mark Wilde, Jonathan P Dowling, LSU, Physics & Astronomy, "Quantum Teleportation on the IBM Quantum Computer".

63. Rachel Soto-Garcia (RPI, CCT) Safura Sharifi, LSU, Electrical Engineering & Computer Science, Center for Computation & Technology, "Identifying Laguerre-Gaussian Modes using Deep Convolutional Neural Network".

64. Lauren Spahn (MTU, CHE) Jin Gyun Lee, Ahmed Al Harraq, Bhuvnesh Bharti, LSU, Chemical Engineering, "Disordering Colloidal Monolayers".

65. Jamuna Tandukar (ULM, LBRN) Sunday Negedu, Craig M. Hart, LSU, Biological Sciences, "Searching for Physical Interactions Between The *Drosophila* Boundary Element-Associated Factor (BEAF) And Other Chromatin Proteins".

66. Ganga Tandukar (ULM, LBRN) Karen P. Maruska, Julie M. Butler, Chase Anselmo, Erandi Herath, LSU, Biological Sciences, "Female Reproductive State-Dependent Expression of Aromatase in the Brain of the Mouthbrooding Cichlid Fish, *A. burtoni*".

67. Erin Thompson (Clemson University, P&A) Guillermo Valdes, Gabriela Gonzalez, LSU, Physics & Astronomy, "Localizing Acoustic Noise Sources Affecting the Sensitivity of LIGO Through Multilateration".

68. Peter Tinker (LSU, Discover) Niloufar Emami, LSU, Architecture, "Employing Virtual Reality for Digital Design and Fabrication Verification".

69. Tristan Tran (Xavier, LBRN) Bruce Bunnell, Benjamin T. O'Donnell, Justin Magrath, Tulane, Stem Cell Research & Regenerative Medicine, "Modeling Subcutaneous Fat upon UV Crosslinked Methacrylated Gelatin Scaffolds".

70. Zachary Traylor (LSU, Discover) Katherine C. Moen, Melissa R. Beck, Stephanie M. Saltzmann, Tovah M. Cowan, Lauryn M. Burleigh, Leslie G. Butler, Jagannathan Ramanujam, Alex S. Cohen, Steven G. Greening, LSU, Psychology, "Changes to Resting-State Functional Networks Following Mental Rotation Skill Training".

71. Christopher Vairogs (UFL, P&A) Vishal Katariya, Mark Wilde, LSU, Physics, "Quantum State Discrimination Circuits Inspired by Deutschian Closed Timelike Curves".

72. Lauren Vidrine (LSU, Discover) Greg Johnson, Irina Shport, LSU, English, "A syntactic analysis of disjunctive pronouns in Cajun English".

73. LeighAnn Vincik (FranU, LBRN) Thomas W. Gettys, Kirsten Stone, Landon Sims, Gabby Walker, PBRC, Nutrient Sensing & Adipocyte Signaling Laboratory, "Hepatic Deletion of Nuclear Factor Erythroid 2-related Factor 2 (NRF2) Does Not Change the Physiological Response to Dietary Methionine Restriction in Mice".

74. Heather M. Vogel (LATECH, LBRN) Rachel Wise, Bruce Bunnell, Tulane, Stem Cell & Regenerative Medicine, Pharmacology, "Optimization of Autophagy Regulation in Human Adipose Stem Cells".

75. Justin Walls (JSUMS, CCT) Seung-Jong Park, Dipak Singh, LSU, Computer Science & Engineering, "Detecting Fake News on Twitter".

76. Olivia Warren (NSULA, LBRN) Suresh Nagarajan, Stephan Witt, LSUHSC-S, Biochemistry, "a-Synuclein, a Parkinson's disease-associated protein, blocks the binding of sorting nexin 3 (Snx3) but not EEA1 to phosphatidylinositol 3-phosphate. Implications for Snx3-retromer mediated recycling of cell surface proteins".

77. Aanesa Watson (FVSU, SMART) Caitlan E. Ayala, Isiah M. Warner, LSU, Chemistry, "Fluorescent GUMBOS Employed to Investigate Self-Healing Polymers".

78. Han Hsuan Wu (LSU, Discover) Mohammad Saghayezhian, Scott Mullen, Joel E Taylor, David Howe, LSU, Physics, "MOKE: Magnetometry using photons".

79. Kevin Zhou (BRMHS, P&A) Nathaniel R. Miller, LSU, Physics & Astronomy, "Evolutionary technique for preventing qubit decoherence in N-V centers".

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SURF would like to give a special thanks to all of the program administrators and sponsors for making this event possible!

Program Administrators

Dr. Jesse Allison	LSU Center for Computation & Technology
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LBRN projects were supported by the National Institute of General Medical Sciences of the National Institutes of Health under Award Number P20GM103424 and by the Louisiana Board of Regents Support Fund. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health or Louisiana Board of Regents.

*Center for Computation and Technology (OCI-1263236), Chemical Engineering,
Consortium of Innovation in Manufacturing and Materials,
Incorporated Research Institutions for Seismology and Physics & Astronomy REU projects
are supported by the National Science Foundation.*