

Louisiana Tech University



# BREEZE BULLETIN

Office of University Research (<http://research.latech.edu>)

*The future is simply infinite possibility waiting to happen. What it waits on is human imagination to crystallize its possibility.*

Leland Kaiser

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## 2016-17 TECH FRINGE/F&A RATES

- Faculty/Unclassified/Post Doc: 46.85%
- Temporary/Part-time: 10.20%
- DROP: 20.35%
- Federal F&A (S/W): 49.40%

Go to the following link to download as a pdf file: <http://research.latech.edu/files/documents/LaTech%202016-17%20Fringe%20Rates.pdf>.

## OUR IN-HOUSE WORKSHOPS

For a complete list of in-house workshops, go to [http://research.latech.edu/resources/training\\_workshops/latech\\_workshops](http://research.latech.edu/resources/training_workshops/latech_workshops).

- Time & Effort Reporting: April 10 @ 2-3 WT1527;
- Amplifund Training: April 21 @ 1-2 WT1527;
- Grants Administration: April 21 @ 2-3 WT1527;
- Grants.gov: April 26 @ 2-3 WT1527;
- Amplifund Training: May 9 @ 10-11 WT1527;
- Research Funding: May 17 @ 2-3 WT1527;
- NSF & Research.gov: June 5 @ 2-3 WT1527

## Louisiana Tech Awarded EPSCoR Grant

In 2003, the world’s largest collaborative biological project—the Human Genome Project—was declared complete after the international research collaborations successfully mapped the entire the human genome. Ten years later, President Obama launched a national research collaboration—the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) initiative—a bold, 12-year research strategy for “the development and application of innovative technologies that can create a dynamic understanding of brain function.” Developing this next generation of technological tools will help researchers to unlock the mysteries of the brain from the individual atoms and cells to the brain as a whole and its complex behaviors. This will help revolutionize treatments for brain disorders like Alzheimer’s, schizophrenia, autism, traumatic brain injury, and epilepsy.

An interdisciplinary team of Louisiana Tech University researchers in collaboration with the medical centers at the University of Alabama in Birmingham (UAB) and the University of Arkansas in Little Rock (UAMS) are now part of this brain research thrust. The team was recently selected by the National Science Foundation (NSF) to receive a \$6 million Research Infrastructure Improvement Track-2 Focused EPSCoR Collaboration (RII Track-2 FEC) grant.

Led by Dr. Leon Iasemidis, principal investigator (PI) of biomedical engineering at LAtech, Dr. Jerzy Szaflarski (lead co-PI) at UAB, and Dr. Linda Larson-Prior of neurobiology and psychiatry (lead co-PI) at UAMS, the researchers are investigating the underlying causes of epileptic seizures and their effects on brain functions. The team will be developing innovative tools for acquiring and analyzing electrical, magnetic and biochemical signals and cellular images over the course of weeks to months from the brain of patients and rodents with epilepsy.



Investigators Dr. Teresa Murray, Dr. Leon Iasemidis, Dr. Mark DeCoster, and Dr. Prabhu Arumugam in front of their team of students at Dr. Iasemidis’ Brain Dynamics Laboratory at LAtech in Ruston, Louisiana. Photo by Donny Crowe.

The full article can be accessed in this link (copy and paste): <https://web.laregents.org/wp-content/uploads/2017/01/vol11.no06.pdf>

## NEW GRANTS AWARDED

PI	Title	Funding Agency	\$ Award-
Caldolera-Moore, Mary	<i>Development of Next Generation 3-Dimensional, Variable Material Printer System</i>	NASA/LaSPACE/LSU	4,000
Alam/Hall/Iseley	<i>Tensile Creep Testing of CIPP Liner Material as per ASTM D2990</i>	CIPP Corp.	13,158
<b>December 2016</b>			<b>Total: 17,158</b>
Donna Hood	<i>Perkins Carryover 2016 Nursing</i>	US Dept.ED Delta CC	3,000
Bardaweel/Weiss	<i>3-D Printed Tune-able Non-resonant Floating Magnet Oscillator for Vibrational Energy Harvesting From NASA Stennis Space Center (SSC)</i>	NASA/EPSCoR/ BoR	39,889
Bryant Hollins	<i>A Simple, Tunable System for Conducting Sleep Restriction Studies in Rodents</i>	Biomedical Research Foundation	49,999
Galen Turner	<i>TENSILITY: Training Environment for Design of Resilient Systems</i>	DOD/KBSI	45,000
Yeaw/Swegle/Mhire/ Liesveld/Marshall	<i>Credibility and Flexibility for Future Limited Nuclear Conflicts Wargame</i>	DOD/CIC	224,113
Kyle Prather	<i>Thingery Product Design and Prototyping Workspace Expansion</i>	LED/LBIA	25,000
Hamzeh Bardaweel	<i>3D printed Structures for Multi-functional Energy Scavenger.</i>	NSF/BoR	10,000
Kasra Momeni	<i>An Advanced Phase-field Approach to Engineering Laser-based 3D Metal Printing: Effect of Mechanics and Interfaces</i>	NSF/BoR	10,000
Shengnian Wang	<i>Synthesis of Carbon Dots With Long, Visible Emission Wavelength</i>	NIH/LSUHSC-S	20,000
<b>January 2017</b>			<b>Total: 427,001</b>
Alam/Iseley	<i>ASTM D638 and ASTM D790 Testing of Aqua-Pipe Liner</i>	Sanexen Environmental	19,684
Niel Crews	<i>Expanding Value Louisiana's Technical Assistance Capacity to Deliver Source Reduction Assistance</i>	EPA	19,684
Keith-Vincent/Madden	<i>Project A-LINE, Ouachita Parish MSP</i>	Dept. of EDU/ OPSB	33,805
Lindsey Keith-Vincent	<i>LAPQI</i>	Louisiana Dept. of Education/US Dept. of EDU	48,000
<b>February 2017</b>			<b>Total: 141,489</b>
Terri Maness	<i>Use of Hydrogen Stable Isotopes to Determine Migratory Connectivity in Henslow's Sparrow</i>	Sigma Xi	989
Vessel/Schillinger/ Basinger/McCoy/Keith- Vincent	<i>Teacher Preparation Residencies Support Needs Request 2016-2017</i>	Louisiana Dept. of Education/US Dept. of EDU	15,000
Jeremy Mhire	<i>AICS Scenario Development</i>	DHS/CIC	62,000
Alam/Iseley/Eklund	<i>Pickle Jar Test (PJT) of Phenoline Tank Shield Coating Material</i>	Carboline, Inc.	11,590
Alam/Iseley	<i>Development of Proof of Concept for Conducting Tests Alike Pickle Jar Test on Avanti Grout Material – Phase II</i>	Avanti International	7,487
Jamie Newman	<i>Imaging System Upgrade for BioTke Cytation 5 Plate Reader</i>	NIH/LSU	56,529
Vessel/Schillinger/ Basinger/McCoy/Keith- Vincent	<i>Teacher Preparation Residencies Support Needs Request 2016-2017</i>	US/LA Dept. of Education	50,000
Wasiuddin, N.	<i>Development of a Revised RTFO Protocol for Foam-Based Warm Mix Asphalt</i>	LTRC	25,000
<b>March 2017</b>			<b>Total: 22,595</b>
			<b>2016-17 YTD: 2,394,212</b>

## PROPOSALS SUBMITTED

* FILE #	PI	Co-PI 's	TITLE	AGENCY	\$ Requested
17-136	Hill, Jennifer		Evaluation of Management Changes, Effort, and Gear to Reduce Bycatch and Discards in the Blue Crab ( <i>Callinectes Sapidus</i> ) Fishery	NOAA	55,000
17-139	Liu, Don		Big-Data Modeling of Deltaic and Coastal Sediment Transport on GPUs and Xeon Phi Coprocessors	NSF	280,797
17-140	Caldolera-Moore, Mary		Fabrication of Responsive Biomaterials for Chronic Wound Healing Applications	BoR/SURE	5,000
17-141	Bardaweel, Hamzeh		Design and Development of Hybred Shock Absorber for Vibration Energy Scavenging From Road Irregularities	LTRC	29,975
17-142	Alam, Shaurav	Wang, Jay	Retrospective Assessment of Lightweight Aggregate (LWA) subjected to Long-term Seawater Exposure as Deployed for Coastal Restoration	RESTORE Act Center of Excellence for Louisiana - CPRA	(NOI) 0
17-143	Chen, Jinyuan		Low-Cost, Sustainable and Secure Wireless Sensor Network for Coastal Monitoring	RESTORE Act	(NOI) 0
17-144	Tewari, Sanjay	Palmer, Wesley	Community Water Utilities and Supplies in Louisiana's Coastal Zone: Resilience against Storm Surges and Climatic Sea-Level Rise	Louisiana Water Resources Research Institute	13,065
17-145P	Clark, Lynn	Keith-Vincent, Lindsey	Making Makerspaces Work for Early Childhood Education	BoR/LASIP	278,225
17-146	Keith-Vincent, Lindsey	Schillinger/ Newman/ Madden	SAILing (Science Achievement through Inquiry and Leadership) towards Success with the New Science Standards	BoR/LASIP	(NOI) 0
17-147	Morgan, Pamela	Keith-Vincent/ Sutherland/	Google Support for the Learning Network	BoR/LASIP/ USEd	(NOI) 0
17-148	Weiss, Leland	Holmes/ Ganacheau/ Keith-Vincent/ Murray	Using Faculty Lead After School STEAM Academies to Impact Traditional Classroom Achievement and Instructional Practices	BoR/LASIP/ USEd	(NOI) 0
17-149	O'Neal, Mike		Behavioral Biometrics for Continuous Authentication and Identification	CenturyLink	150,000
17-150P	Crittenden, Kelly	Turner/Keith-Vincent/Larson	One-Day STEM Builds using Advanced Math Concepts	BoR/LASIP/ USEd	196,961
17-151	Clower, William		Nanoenhanced Catalyst for Solar Thermal Water Splitting	ORISE/ORAU	178,113
17-152	Turner, Galen		TENSILITY: Training Environment for Design of Resilient Systems	Knowledge Based Systems, Inc. (KBSI)	45,000
17-153	Arumugam, Prabhu	Poh/Weiss	A Novel Electrochemical Sensor Technology for Studying Brain Oxidative Stress	NSF	(NOI) 0
17-154	Morgan, Pamela	Keith-Vincent/ Coleman/Cargill	"Teaching and Technology": A Webinar Series for Studying and Enhancing Instructional Technology Literacy	BoR/LaSIP	(NOI) 0
17-155	Caldolera-Moore, Mary	Newman, Jamie	GOALI: Tailorable 3D Material Platforms for Controlling Stem Cell Proliferation and Differentiation	NSF	(NOI) 0
17-156	Ramachandran, Bala	Siriwardane/ T.Murray/ S.Wang	MRI: Acquisition of a NMR to Support Research and Education in Molecular and Materials Sciences in North Louisiana	NSF	378,850

(\*Missing File #'s denote withdrawn proposals)

## PROPOSALS SUBMITTED (CONT'D FROM PAGE 3 . . .)

* FILE #	PI	Co-PI 's	TITLE	AGENCY	\$
17-157	Decoster, Mark	Lvov/Murray, T.	Dynamic Stimulus Delivery to Neural Systems Using Novel Biocomposites	NSF	(NOI) 0
17-158	Lynam, Joan	Wasiuddin, N.	Evaluating Using Louisiana-sourced Lignin as Partial Replacement in Asphalt Binder and as an Antioxidant	LTRC	30,000
17-159	Maness, Terri		Integration of ESRM to Enhance STEM Teaching and Student Learning	NSF	165,720
17-160	Tewari, Sanjay		Serious Games for Serious Grand Challenges: Water	NSF	10,000
17-161	Maness, Terri		Use of Hydrogen Stable Isotopes to Determine Migratory Connectivity in Henslow's Sparrow	Sigma Xi	989
17-162	Wasiudden, N.	Eklund, Sven	Field Implementation of Handheld FTIR Spectrometer for Polymer Content Determination and for Quality Control of RAP Mixtures	LTRC	200,000
17-163	Moore, Arden		Rapid, Safe Inspection of Water-spanning Infrastructure via Amphibious Unmanned Aerial Vehicle	LTRC	29,941
17-164	Tewari, Sanjay	Palmer, Wesley	Identification of Transportation Infrastructure at Risk Due to Sea-level Rise and Subsidence of Land in Coastal Louisiana	LTRC	29,345
17-165	Wang, Jay		Evaluation of Shear strength of Vegetated Soils in the Coastal Recovery Projects Based on Laboratory and Field Testing	Water Institute of Gulf	61,534
17-166	Clay, Natalie		Preliminary Proposal RUI: How Does Ion Enrichment Change Riparian-stream Detrital Linkages?	NSF	0
17-167	Keith-Vincent, Lindsey	Newman/Madden/Benoit	SAILING Towards Success : State Science Standards PD	BoR/LaSIP	273,430
17-168	Morgan, Pamela	Keith-Vincent/Turner/Sutherland	GOOGLE Classroom PD	BoR/LaSIP	177,019
17-169	Weiss, Leland		Manufacture-On-Demand Enhanced Lightweight Heat Exchanger (MODEL-HEX)	NASA/SBIR	40,000
17-170	Lvov, Yuri	Campbell/DeCoster/Keith-Vincent	Making Things Small Count	BoR/LaSIP	149,914
17-172	Weiss, Leland	Keith-Vincent/Holmes/Evans	Afterschool STEM Academy Support	BoR/LaSIP	149,992
17-173	Deese, William	Madden/Keith-Vincent/Campbell	C3	BoR/LaSIP	163,872
17-174	Kimball-Lopez, Kim	Manning/Cummins/King	Grades 3-5 Curriculum Connections: Content □ Pedagogy □ Assessment □ Teach	BoR/LaSIP	182,168
17-175	Clark, Lynn	Keith-Vincent/Tims/Chestnut	Making PreK Makerspaces	BoR/LaSIP	278,225
17-176	Wang, Jay		Predictions of Anti-Erosion Ability and Sediment Accretion Capability of Vegetation Spartina Alterniflora Established on Dredged Soils	Water Institute/US Treasury/La Restore Act	51,660

(\*Missing File #'s denote withdrawn proposals)

## PROPOSALS SUBMITTED (CONT'D FROM PAGE 4 . . .)

*FILE #	PI	Co-PI 's	TITLE	AGENCY	\$
17-177	Wang, Jay	Patterson, William	Resilience Study of the Coastal Marsh Under Hurricane-induced Waves and Currents	Water Institute/ US Treasury/La Restore Act	245,418
17-178	Tewari, Sanjay	Wang/Palmer	Investigation of Spatial-temporal Patterns of Subsidence and Compaction Caused by Natural and Human Activities on Barrier Islands/Headlands of Coastal Louisiana	Water Institute/ US Treasury/La Restore Act	158,434
17-179	Tewari, Sanjay		Protecting Subsurface Freshwater Using Electrokinetic Barriers Against Seawater Intrusion in Coastal Louisiana	Water Institute/ US Treasury/La Restore Act	57,519
17-180	Whitaker, Robert		Humanities Respawned: A Bridge between Scholarship and Video Games	American Council of Learned Societies	124,420
17-181	Vessel, Amy	Basinger/McCoy/ Schillinger	LDOE Clincial Residency Support Request Spring (January- June 2017)	LDE	250,000
17-182	Hollins, Bryant	Vlachos, Ioannis	An Integrated Microplatform for Simultaneous Processing of Redox Proteomic markers	National Institute of General Medical Sciences	249,534
17-183	Bardaweel, Hamzeh	Weiss, Leland	Concussion Reducing, Active Shock Harvesting (CRASH) Seat	NAVY	100,000
17-184	Wang, Shengnian		Manufacturing Major Catalytic Zeolites with Microwave-Assisted Solid Crystallization of Nanogels	DOEnergy	700,000
17-185	Mainardi, Daniella	Ramachandran/ Lvov/McDonald	Nanowire/Nanotube Catalyst Architectures for a Single-stage Water-gas Shift Reaction Process	DOEnergy	850,000
17-186	Arumugam, Prabhu	Weiss/Poh/Vlachos	Sensing the Dynamics of Oxidative Stress in the Brain Using Novel Electrochemical Sensors	NSF	998,102
17-187	Decoster, Mark	Lvov/Murray, T.	Dynamic Stimulus Delivery to Neural Systems Using Novel Biocomposites	NSF	880,000
17-188	Alam, Shaurav	Hall, David	Tensile Creep Testing of Liner Material as per ASTM D2990	Interplastic Cor- poration	31,513
17-189	Mhire, Jeremy		AICS Scenario Development	Cyber Innovation Center	62,000
17-190	Caldolera-Moore, Mary		Dynamic 3D Platforms for Regeneration Applications.	LBRN Summer Faculty	19,000
17-191	Newman, Jamie		The Role of Mediator in Maintaining and Differentiating Human Mesenchymal Stem Cells	LBRN	114,452
17-192	Dua, Prerna		A Predictive Modeling Framework for Studying Disparity in Colorectal Screening	LBRN	55,777
17-193	Dua, Sumeet	Napper, Stan	LBRN Admin Core	LBRN	57,168
17-194	Alam, Shaurav	Eklund, Sven	ASTM D543 – Practice A and Procedure – I for Phenoline Tank Shield (PTS) Coating Material Subjected to Selected Chemical Solutions – Phase II	SpectraShield Inc.	4,270
17-195	Beminiwattha, Rakitha		Commissioning and Maintaining of DAQ and Data Analysis Systems for Neutron Skin Thickness Measurements of Lead and Calcium Nuclei	NSF	85,780
17-196	Giorno-McConnell, Rebecca		Spore Outer Structures: Contribution to Germination Heterogeneity, Mentor Salary	LBRN	6,060

(\*Missing File #'s denote with-drawn proposals)

(Cont'd on page 6)



## PROPOSALS SUBMITTED (CONT'D FROM PAGE 5 . . .)

*FILE #	PI	Co-PI 's	TITLE	AGENCY	\$
17-197	Morgan, Pamela	Keith-Vincent/ Coleman/ Cargill	ELRI E Innovation: Teaching and Technology	BoR	8,800
17-199	Keith, Ashley		Using Tillage Radishes for Enhancing Soil Health through Nutrient Capturing and Recycling	USDA/NRCS	44,588
17-200	Keith-Vincent, Lindsey	Blazo, Jordan	Project KINES Year 2	Lincoln Health Foundation	9,628
17-201	Iseley, Tom		Technology Review for Trelleborg MTH and its Related LCR Systems	Trelleborg Pipe Seals	17,644
17-202	Momeni, Kasra		Advanced Phase-Field Approach to Radiation-Induced Amorphization and Interfacial Phase Formation in Intermetallic Materials for Light Water Reactors	NSF/EPSCoR	185,580
17-203	Radadia, Adarsh		R11 Track-4: Chemical Characterization of Electric Field-Induced Nanolithography on Graphene	NSF/EPSCoR	206,059
17-204	Keith-Vincent, Lindsey	Madden, Diane	Louisiana State Science Standards at the TLS	La. Dept. Edu	12,000
17-205	Hill, Jennifer		Improving Oyster Restoration: Understanding How Predation Impacts the Survival and Distribution of Oysters Over Gradients of Submergence and Salinity	Louisiana Sea Grant/NOAA	146,789
17-206	Matthews, Elizabeth		Validating Residential Flood Loss Functions Used to Support Louisiana Hazard Mitigation Planning	Louisiana Sea Grant/NOAA	61,844
17-207	Barrow, Katie		Public Displays of Purity and Affection	Foundation for the Scientific Study of Sexuality	968
17-208	Crews, Niel		Adding SPGE Function to a NASA Tool for Molecular Biology on the ISS National Lab	NASA EPSCoR	99,948
17-209	Turner, Galen		TENSILITY: Training Environment for Design of Resilient Systems - Phase II	Knowledge Based Systems, Inc. (KBSI)	45,000
17-210	Bardaweel, Hamzeh		Design, Characterization and Hydrodynamic Optimization of 3D Printed Embedded Micro-channels Networks	BoR/LASPACE	34,974
17-211	Matthews, John		Value Engineering (VE) for the Colsman Tunnel Design-Build (DB) Team	Providence Infrastructure Consultants	18,879
17-212	Nestorova, Gergana		Role of MicroRNA in Regulation of Radiation Induced Mitochondrial DNA Damage	NASA/LASPACE	6,104
17-213	Lantz, Melanie	Thomas, Donna	Increasing Access to Autism-spectrum Screening and Assessment in Medically-underserved North Louisiana	Blue Cross & Blue Shield of Louisiana Foundation	0
17-214	Wang, Shengnian		Synthesis of Hierachically Porous Zeolites by Solid-State Crystallization and Their Catalytic Properties	ACS Petroleum Fund	0
17-215	Momeni, Kasra		A High-Fidelity Phase-Field Model for Fatigue Failure of Metal Matrix Composites in Aerospace Structures	NASA/LASPACE/ REA	31,185

(\*Missing File #'s denote withdrawn proposals)



## ADDITIONAL GRANT FUNDING FOR EXISTING AWARDS

- Iasemidis/Vlachos, *Characterization of In Vivo Biosignal Dynamics as Quantitative Biomarkers of SUDEP*, CURE through LSUHS-S: \$62,500;
- Rastko Selmic, *Integrated Monitoring AWAREness Environment (IM-AWARE)*, NASA/American GNC: \$23,000;
- Joshua Adams, *Maintaining eastern cottonwood clones for in vitro processing for Futuragene© 2017*, Futuragene: \$4,940;
- Keith-Vincent/Madden, *LACAL through Ed Next Horizon*, Education's Next Horizon: \$26,671.85;
- Napper/Derosa, *Computational Study of Surface Interaction Between Peptides and Graphitic Surfaces*, Clarkson Aerospace Corp.: \$40,000;
- Napper/S. Dua, *Computational Study of Surface Interaction Between Peptides and Graphitic Surfaces*, Clarkson Aerospace Corp.: \$25,000;
- Napper/Gourd, *Computational Study of Surface Interaction Between Peptides and Graphitic Surfaces*, Clarkson Aerospace Corp.: \$25,000;
- Lindsey Keith-Vincent, *Project KINES Year 2*, Lincoln Health Foundation: \$9,628;
- Niel Crews, *LaSPACE Fellowship - Collin Tranter*, BoR/LaSPACE: \$6,500.

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## Upcoming Funding Opportunities

- **NSF Research Experiences for Undergraduates (REU)** - full proposals due August 23, 2017 (for non-Antarctica submissions): [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5517&org=NSF&sel\\_org=NSF&from=fun](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5517&org=NSF&sel_org=NSF&from=fun) .
- **Department of Defense - Congressionally Directed Medical Research Programs** (multiple): <http://cdmrp.army.mil/pubs/press/press>.
- **NSF 2017 Early CAREER** Submission Information (webinar: May 22/ deadlines: July 19-21): [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503214](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503214).

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