



ANNUAL REPORT FISCAL YEAR 2022

JULY 1, 2021 - JUNE 30, 2022



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WELCOME

Over the past few years, the Covid-19 pandemic has impacted nearly every aspect of our campus life. As we emerge from the pandemic, it is an opportune moment to contemplate the many accomplishments our campus colleagues have made. As the 2021-2022 ORSP Annual Report documents, UTC faculty and staff have been heavily engaged in sponsored program activity, attracting more than \$15 million in external funding that directly supports research and scholarly inquiry, creative endeavors, and teaching and learning innovations that extend our students' experiences. UTC's achievements in attracting sponsored programs extend our institutional capacity to achieve our mission and fulfill The University of Tennessee at Chattanooga Strategic Plan 2021-2025.

Over the past 5 years – despite the many challenges imposed by the Covid 19 pandemic – UTC has increased proposal dollars requested by 17% and has increased award dollars received by 39% (excluding CARES/HEERF funding). Our faculty have achieved some notable milestones in FY21. Two UTC researchers, Dr. Trevor Elliott (Mechanical Engineering) and Dr. Eleni Panagiotou (Mathematics), each received prestigious NSF CAREER awards. UTC expanded our research portfolio with 2 USDA-sponsored projects secured by Dr. Michael Danquah (Chemical Engineering) and Dr. Jose Barbosa (BGE). Likewise, Catherine Meeks Quinlan (English), Dr. Lucy Schultz (Religion & Philosophy), and Dr. Jennifer Boyd (BGE) secured UTC's first NEH award since 2015. UTC secured funding for new award cycles for five of our TRiO programs that support educational equity in our community. Under the leadership of Project Directors Dr. Belinda Brownlee, Twyler Boykin, Dr. Keith Bridges, Karen Vann (CCCE) and Melissa Laseter (EMSA), these programs provide an educational outreach pipeline that serves individuals who are underrepresented minorities and potential first-generation college students.

These achievements not only reflect the meritorious work of PIs across many departments, they also highlight the contributions of many units that undergird the research enterprise. Please join me in congratulating all of the FY22 awardees for their successes and thanking those who have submitted proposals during FY22. The skill, expertise, and commitment of so many on campus working together is an investment that will pay dividends for our shared future.



Dr. Joanne Romagni

Vice Chancellor for Research & Dean of the Graduate School



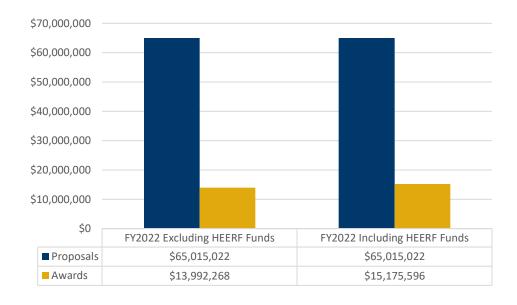
Dr. Reinhold Mann Deputy Vice Chancellor for Research

FY22 Snapshots



HEERF FUNDING

PROPOSALS & AWARDS WITH HEERF

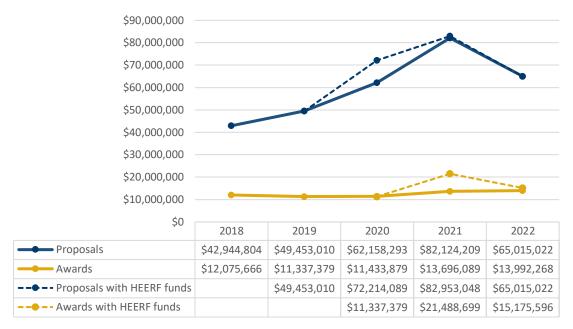


The Higher Education Emergency Relief Fund (HEERF) was passed to provide relief to people experiencing the negative effects of the COVID-19 pandemic. UTC received modest HEERF funding from several federal agencies during FY22. The HEERF funds presented a unique funding stream and will not be available moving forward.

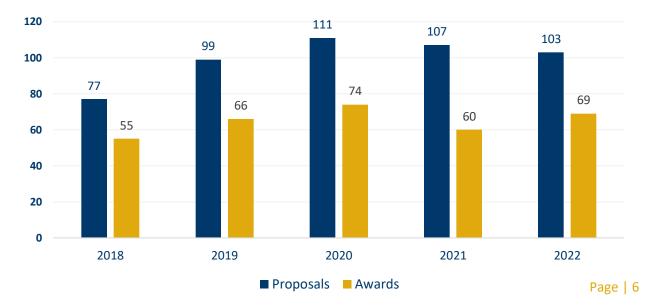
For trend analysis and year-over-year comparisons, data <u>excluding</u> HEERF is the most accurate representation of UTC's sponsored program activity. **Unless otherwise noted, the proposal and award metrics reflected in the remainder of this report exclude HEERF.**

INSTITUTION OVERVIEW

FY18 – 22 PROPOSALS & AWARDS

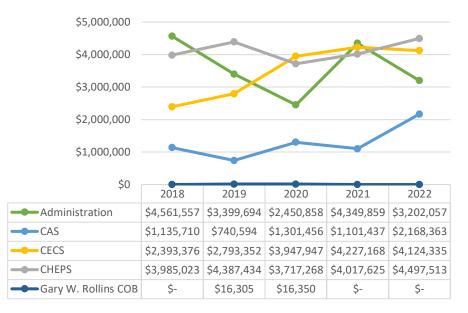


UNIQUE LEAD PRINCIPAL INVESTIGATORS

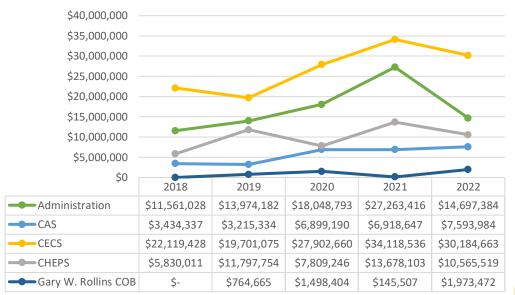


SPONSORED PROGRAM HIGHLIGHTS

FIVE YEAR TREND - AWARDS



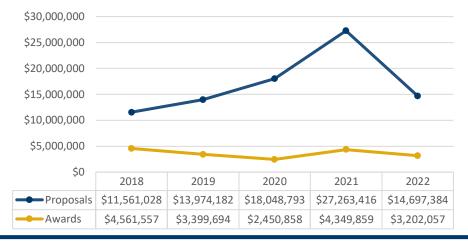
FIVE YEAR TREND - PROPOSALS



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ADMINISTRATION

FY18 - 22 PROPOSALS & AWARDS



Administration Highlights



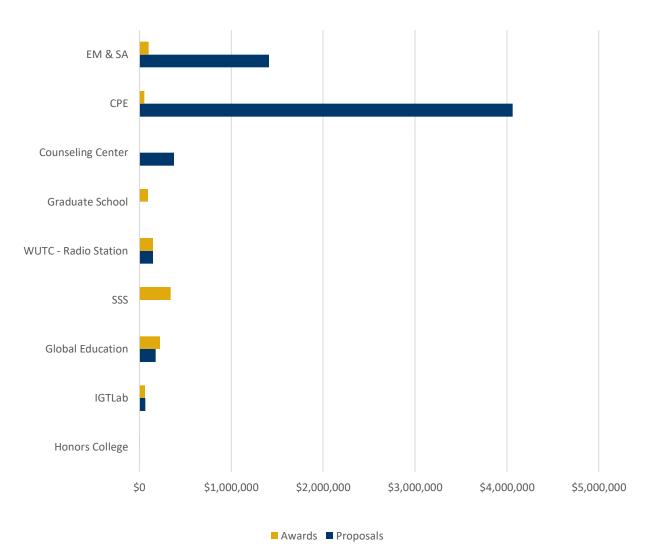
Student Support Services, led by **Melissa Laseter**, received an award from the US Department of Education for nearly \$400K to continue helping UTC students for the 44th year. This program fosters academic achievement by supplying students with tools, resources, and guidance on how to successfully graduate. Students who participate in these benefits are twice as likely to graduate even amongst students with comparable backgrounds.

The IGTLab, led by **Charlie Mix**, provides leadership, expertise, and a platform for geospatial technologies and spatial thinking to academic instruction and problem solving here at UTC and the greater Chattanooga area. In FY2022, Mr. Mix was awarded **\$62.5k** across 6 different projects focused on water management and conservation as well as geographic spacing throughout TN. Mr. Mix also submitted proposals at a similar value (**\$64.3k**) for FY2022.



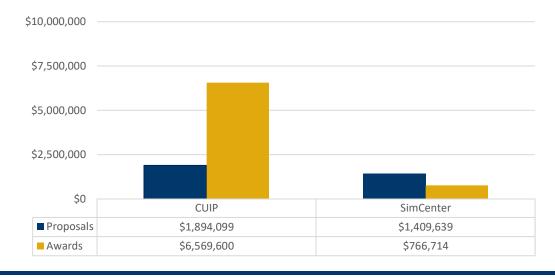
ADMINISTRATION

PROPOSALS & AWARDS by Department



- EM & SA: Enrollment Management & Student Affairs; CPE: Center for Professional Education; SSS: Student Support Services.
- > UTC's Core Research Centers are Administrative departments that report to the Vice Chancellor of Research.
- Two Core Research Centers, the SimCenter and CUIP, are excluded from this chart but are highlighted on the following page.

CORE RESEARCH CENTERS





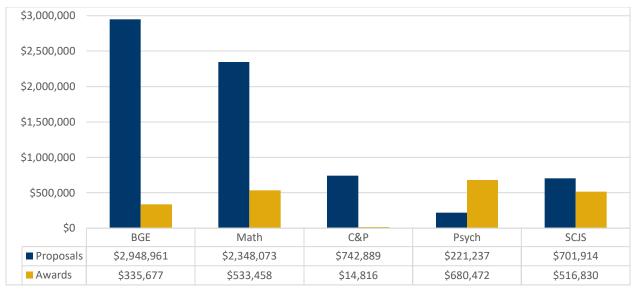
The Center for Urban Informatics and Progress (CUIP), led by **Dr. Mina Sartipi**, is a hub for innovations in response to urban challenges. Dr. Sartipi engaged partners and experts on proposals with a potential value of **\$1.89 million** in FY2022 and has been awarded **\$1.4 million** for her work on a road mapping infrastructure technology and vehicle accidents research. Dr. Sartipi has also made invaluable contributions as a key investigator on awards received by other UTC units totaling **\$2.8 million**.

The SimCenter, led by **Dr. Tony Skjellum**, serves as a research accelerator for advanced modeling and simulation, and acts as UTC's core facility for High-Performance Computing. In FY2022, Dr. Skjellum led research devoted to enhancing computing infrastructures and exascale communications with awards totaling more than **\$750k**. Dr. Skjellum also submitted proposals valued at **\$5.65 million** in FY2022.

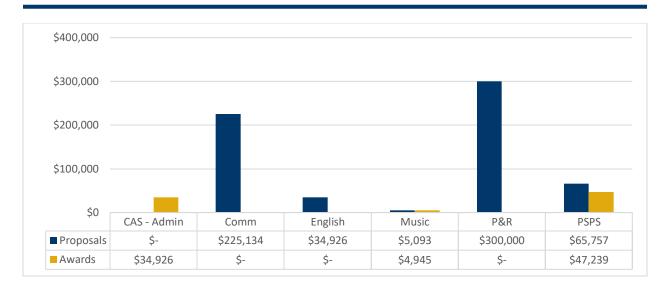


COLLEGE OF ARTS AND SCIENCES

PROPOSALS & AWARDS BY DEPARTMENT



BGE: Biology, Geology, and Environmental Science; C&P: Chemistry & Physics; SCJS: Social, Cultural, and Justice Studies.



Comm: Communications; P&R: Philosophy & Religion; PSPS: Political Science & Public Service.

COLLEGE OF ARTS AND SCIENCES

CAS Highlights

Dr. DeAnna Beasley (BGE) secured BGE's first NSF Research Experiences for Undergraduates Site award, valued at **\$264k.** Reflecting a cross-disciplinary collaboration with Southern Illinois University Edwardsville. Dr. Beasley's project is focused on assessing the social and ecological characteristics of greenways. Findings from this student-driven research have the potential to influence multiple disciplines spanning the social and natural sciences.





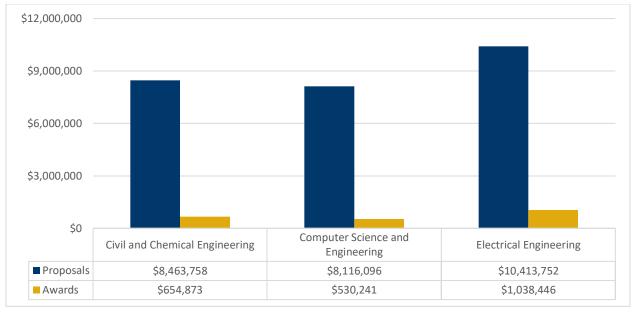
Dr. Rick Dierenfeldt (Social, Cultural, and Justice Studies) received more than \$161k in funding from the Bureau of Justice Assistance Local Law Enforcement Crime Gun Intelligence Center Integration Initiative for his efforts to assess gun violence and provide operational analysis of it. In collaboration with the Chattanooga Police Department, Dr. Dierenfeldt's goal is to reduce gun violence through increased understanding of the nature of gun violence in Chattanooga and identification of the effective police practices related to gun crime – both in terms of prevention and response.

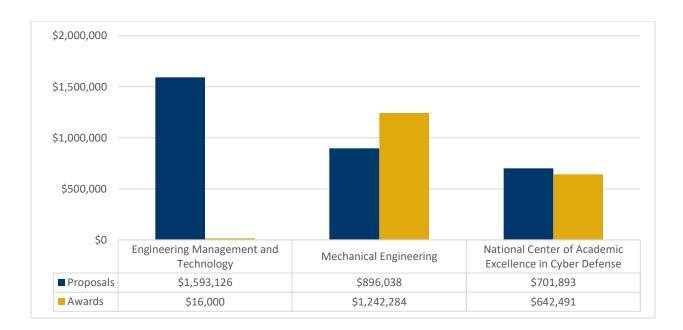
Catherine Meeks Quinlan (English), Dr. Lucy Schultz (Religion & Philosophy), and Dr. Jennifer Boyd (BGE) secured more than \$34k from the National Endowment for the Humanities to develop a Humanities-Informed Environmental Studies BA. Building off the newly established Environmental Studies minor, the interdisciplinary BA program will draw on existing courses across campus in a variety of departments and will develop new courses focused on environmental issues from a humanistic perspective.



COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

PROPOSALS & AWARDS BY DEPARTMENT





COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

CECS Highlights



Dr. Trevor Elliott (Mechanical Engineering) was awarded more than \$542k from the National Science Foundation for his CAREER project focused on the experimentation of using Additive Manufacture (3D Printing) to eliminate certain rocket fuel limitations. This will help to alleviate transportation and delivery constraints, as well as refine the science and technology of how propellants operate, increasing their performance and overall efficiency.

Dr. Donald Reising (Electrical Engineering) secured more than \$532k in funding from two different projects in FY2022. He is investigating augmentation of current communications system security approaches via Specific Emitter Identification. Additionally, he is working in conjunction with TVA to analyze power-related waveforms for the purpose of increasing power quality and intelligence. In FY2022, he also submitted proposals valued at a total of more than \$2.5 million, if funded.

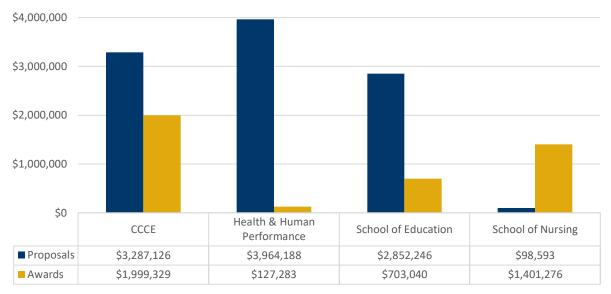




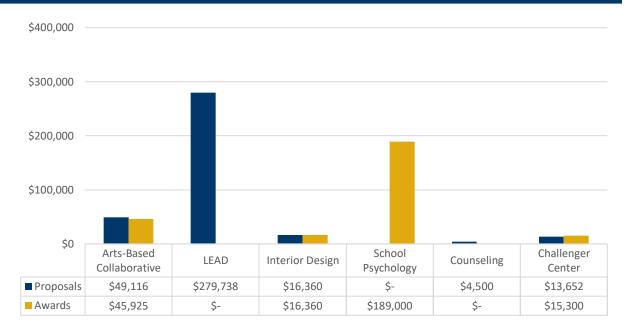
Dr. Sungwoo Yang (Civil and Chemical Engineering) received \$100k from the State of California to participate in the Orange County Sustainability Decathlon. He and a team of students will design and build a "Moc House" – an extremely efficient and affordable home that requires adaptable functionality and resiliency due to the quickly evolving climate. The competition will be help in Orange County, CA. Dr. Yang submitted proposals valued at more than \$2.1 million for various projects in FY2022.

COLLEGE OF HEALTH, EDUCATION, AND PROFESSIONAL STUDIES

PROPOSALS & AWARDS BY DEPARTMENT



CCCE: Center for Community Career Education



COLLEGE OF HEALTH, EDUCATION, AND PROFESSIONAL STUDIES

CHEPS Highlights



Dr. Dawn Ford (Master of Public Health) has received several awards totaling more than **\$120k** in FY2022. Her work focuses on COVID-19 education and vaccination on the UTC campus. This included a second-year continuation of her COVID-19 Vaccine Confidence Peer Ambassador Program, as well as two different wellness plans developed in collaboration with the key stakeholders including the Chattanooga's CARE Coalition. Lastly, she is leading a study that tests drinking water in childcare facilities across TN. Dr. Ford submitted proposals for 10 different projects requesting more than **\$2.4M** in FY2022.

Dr. Lucien Ellington (School of Education) was awarded over **\$131k** for 3 separate projects. One award is for the 14th annual continuation of the National Consortium for Teaching About Asia. Dr. Ellington also heads the *Education About Asia* journal here at UTC, for which he has received funding for the 12th year in a row. Lastly, he was awarded for the 11th annual continuation of the Constitutional Day Lecture event.

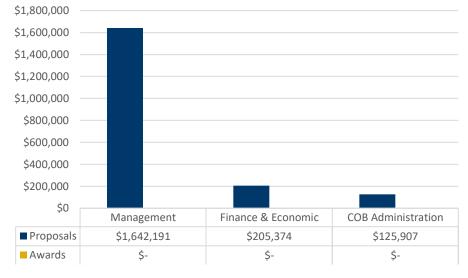




Dr. Belinda Lee (Center for Community Career Education) has received an award of \$359k from the Department of Education for the continuation of the Upward Bound Program for the 59th year at UTC. This program was one of the first to be funded in 1964 as a means of the "War on Poverty" project. Today, this program serves underprivileged high school students, providing interventions to increase GPAs, standardized test scores, school retention, and plans for attending college. This award is the first of five annual award increments in support of this program.

Gary W. Rollins College of Business

PROPOSALS & AWARDS BY DEPARTMENT





Dr. Hemant Jain (Management) has submitted a proposal to the U.S. Economic Development Administration requesting \$1.6M to implement a 12-month training program in data science and analytics. The proposal outlines an academic curriculum reflecting a collaboration between UTC, the University of Tennessee Health Science Center, and the University of Memphis. The curriculum would be augmented by applicational learning experiences focused on the students' individual interests.

Dr. Mike Bradshaw (Marketing & Entrepreneurship) has submitted a proposal requesting **\$125k** from the U.S. Appalachian Regional Commission to help cultivate entrepreneurship skills in high school students across the Appalachian Region. His proposal includes a plan to provide a roster of instructional opportunities related to start-up/small or businesses, technological knowledge, and social skills.



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NSF PROGRAM OFFICER SERVICE



Dr. Li Yang (Computer Science and Engineering) continues to apply her vast expertise as an NSF Program Director for a fourth year. She serves as a Program Director on several programs including the Cybercorps[®] Scholarship for Service (SFS), Secure and Trustworthy Cyberspace (SaTC), National AI Research Institute, and CyberTraining programs. She serves on several interagency working groups that focus on national priories such as the Interagency Coordination Council on Cybersecurity Workforce and the Information Integrity Working Group. As an NSF Program Officer, Dr. Yang is amplifying her career-long achievements in enriching cybersecurity education, workforce development, preparing cybersecurity educators, and enhancing cyber infrastructure research – critical goals for the U.S. Dr. Yang's exemplary service has earned her accolades. Dr. Yang received NSF Director's Superior Accomplishment (individual) for Inspired Leadership and Problem Solving resulting in new standards to govern the NSF's CyberCorps® Scholarship for Service, including the establishment of an interagency working group to reduce burden in administering these scholarships.

Dr. Jennifer Ellis (School of Education) is continuing her longterm efforts to bolster the Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) Program in the NSF as program director for the second year in a row. This program strives to increase the amount of low-income, undergraduate students to be successful in STEM fields. Dr. Ellis employs her expertise of STEM education in middle school, high school, undergraduate, and graduate level ages to expand the operations, development, and administration of this program.



INTERNAL AWARDS

The Open Publishing Support Fund is an internal fund that assists with expenses related to article processing for eligible peer-reviewed, open access journals.



Dr. Ghadir Asadi (Finance & Economics) was published in the Journal of *Sustainability* in 2022 for his article titled, "The Role of Learning in Adaptation to Technology: The Case of Groundwater Extraction."

Dr. DeAnna Beasley (Biology, Geology, & Environmental Science) was published in the *Journal of Environmental Microbiome* in 2022 for her article titled, "The Bacterial Community of Childcare Centers: Potential Implications for Microbial Dispersal Child Exposure."





Dr. Stelios Chatzimanolis (Biology, Geology, & Environmental Science) was published in the *Journal of ZooKeys* in 2021 for his article titled, "Out of Xanthopygus (Coleoptera: Staphylinidae): Escape From Polyphyly."

Dr. Jenny Hogg (Health & Human Performance) was published in the *Journal of Sports Science and Medicine* in 2022 for her article titled, "Sex Moderates the Relationship Between Perceptual-Motor Function and Single-Leg Squatting Mechanics." Dr. Hogg was also published in the *Journal of Experimental Orthopaedics* in 2022 for her article titled, "Examining the Effects of Femoral Anteversion and Passive Hip ROM on ACL Injury and Knee Biomechanics: A Systematic Review and Meta-Analysis."





Dr. Sean Richards (Biology, Geology, & Environmental Science) was published in the *Journal of Toxicology* in 2021 for his work on the article titled, "A Review of Perand Polyfluorinated Alkyl Substance (PFAS) Impairment of Reproduction."

Dr. Jill Shelton (Psychology) was published in the *Journal of Gerontology and Geriatric* Medicine in 2022 for her article titled, "Keeping Your Glass Half Full: Cognitive Strategy Intervention for Older Adults."





Dr. Serkan Varol (Engineering Management & Technology) was published in the *Journal of Environmental Research and Public Health* in 2022 for his article titled, "Primary Factors Influencing the Decision to Vaccinate Against COVID-19 in the United States: A Pre-Vaccine Analysis."

Thank you to our research partners!





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Ethan Carver Assistant Dean, The Graduate School Ethan-Carver@utc.edu



Lisa Piazza

Executive Director, Office for Undergraduate Research and Creative Endeavor (URaCE) <u>Lisa-Piazza@utc.edu</u>



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David Deardorff Interim Director, Office of Research Integrity David-Deardorff@utc.edu



Virginia Moore Director, Accounting Services Virginia-Moore@utc.edu

CHATTANOOGA OFFICE OF RESEARCH AND SPONSORED PROGRAMS



(From left to right and front to back)

Sam Stanley, Meredith Perry, Ashley Ledford, Terri Bearbower, Angie Morelock, David Veazey, & Todd Doman

Meredith Perry

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Terri Bearbower

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APPENDIX

Lead Investigator	Total Award Amount	Total Proposal Amount	Lead Investigator	Total Award Amount	Total Proposal Amount
Acuff, Christopher	\$47,239	\$47,239	Frost, Linda	\$5,711	
Affare, Sandra		\$869,375	Gao, Lani		\$59,669
Alakaam, Amir	\$10,000	\$356,539	Gaudin, Timothy		\$281,364
Alam, Rafayet		\$205,374	Guo, Zibin	\$139,823	\$197,246
Allen, Laurie	\$14,200	\$14,200	Harriss, Chad		\$34,966
Arabshahi, Abdollah		\$55,000	Hayes, Loren		\$74,977
Ayodele, Olumide		\$208,176	Hill, Linda	\$26,177	
Barbee, Meredith		\$5,000	Hogg, Jennifer		\$915,446
Barbosa, Jose		\$99,560	Holcombe, Jenny		\$33,593
Bathi, Jejal Reddy	\$1,986	\$1,150,512	Hood, Ralph	\$591,972	
Beasley, Deanna	\$264,531	\$264,531	Hossain, Azad		\$26,191
Black, Kristen		\$149,277	Howell, Ashley	\$2,000	\$2,000
Boyd, Jennifer		\$472,232	Huckabay, Hunter	\$751,398	
Boykin, Twyler	\$297,601	\$1,488,007	Hungenberg, Eric	\$52,936	\$52 <i>,</i> 936
Bradshaw, James		\$125,907	Ibrahim, Hamdy		\$759,264
Bridges, Keith	\$313,131		Jain, Hemant		\$1,642,191
Brock-Hon, Amy		\$890,732	Johnson, Mark		\$6,000
Carver, Ethan	\$92,000		Kandah, Farah	\$50,293	\$1,271,810
Craddock, Hill	\$10,000	\$10,000	Kaplanoglu, Erkan		\$44,008
Cunningham, Christopher	\$80,000	\$64,998	Kendall, Catherine	\$16,360	\$16,360
Danquah, Michael	\$552,887	\$767,189	Kim, Jisook	\$5,216	\$29,853
Davis, Will	\$38,000	\$38,000	Kim, Seong Dae		\$376,478
Dierenfeldt, Ricki	\$161,074		Klug, Hope		\$28,453
Dittmar, Angela	\$38,425	\$41,616	Kong, Lingju		\$232,796
Doyle, Kevin		\$4,500	Lane, Bryan	\$108,415	\$108,415
Dungey, Keenan	\$9,600	\$12,101	Laseter, Melissa	\$338,961	
Ellington, Lucien	\$131,690	\$111,065	Leasi, Francesca		\$689,858
Elliott, Trevor	\$542,220		Lee, Belinda	\$359,824	\$1,799,119
Ellis, Jennifer	\$136,650	\$136,650	Lee, John		\$75,000
Elverd, Katherine	\$2,445		Loveless, Daniel	\$381,182	\$1,552,009
Fomunung, Ignatius		\$3,234,907	Lynberg, Jennifer	\$60,571	\$2,563,530
Ford, Dawn	\$64,347	\$2,487,621	Ma, Ziwei		\$299,999
Forrest, Tyler	\$1,183,328		Mahtabi Oghani, Mohammad		\$9,360
Freeman, Yancy		\$1,309,438	Mauldin, Marcus		\$18,518

Lead Investigator	Total Award Amount	Total Proposal Amount	Lead Investigator	Total Award Amount	Total Proposal Amount
Freeze, John		\$4,063,610	Shi, Yunye		\$5,000
McAllister, Deborah	\$331,729	\$41,001	Simms-Roberson, Priscilla	\$2,000	\$5,000
McElrone, Marissa		\$151,646	Skjellum, Tony	\$766,714	\$5,645,225
McKnight, Megan		\$99 <i>,</i> 884	Spratt, Henry	\$6,216	6,215
McNair, Jonathan	\$2,500	5,093	Sreenivas, Kidambi	\$700,064	
Mix, Charles	\$62,584	\$64,323	Stein, Benjamin		\$322,375
Murillo, Krista	\$42,400		Suzuki, Takeo	\$255,768	\$175,106
O'Brien Oden, Elizabeth	\$288,883		Tantawi, Khalid	\$16,000	\$865,651
Ofoli, Abdul	\$5,000	304,267	Taylor, Jessica		\$279,738
Onyango, Mbakisya		\$96,964	Taylor, Thaddeus	\$8,600	\$6,952
Osman, Osama		\$492,303	Thompson, Michael		\$6,000
Pack, Daniel	\$120,000	6,044,363	Tyndall, Laura	\$9,470	
Panagiotou, Eleni	\$283 <i>,</i> 598	\$25,000	Vann, Karen	\$277,375	
Persons, Brooke	\$171,409	\$439,394	Varol, Serkan		\$306,989
Phuong, Chang		\$404,982	Wahsheh, Luay	\$20,000	\$20,000
Pienkos, Jared		\$310,497	Walker, Ruth		\$4,962
Policastro, Christina	\$44,524	\$48,274	Wang, Jin		\$1,730,609
Potts, Gretchen		\$12,700	Wang, Yingfeng		\$1,376,273
Qin, Hong	\$459,948	\$4,622,359	Ward, Chandra		\$17,000
Quinlan, Catherine	\$34,926	\$34,926	Watson, William	\$54,382	
Ranjan, Reetesh		\$122,414	Weerasena, Lakmali	\$249,860	
Reising, Donald	\$532,264	\$2,513,113	Wick, Kristina	\$805,737	\$60,000
Resnick, Irven		\$300,000	Wu, Weidong		\$374,985
Rickard, Garrick		\$374,909	Xie, Mengjun	\$456,544	\$1,172,565
Roache, Amber	\$557,892		Yang, Li	\$185,947	
Sartipi, Mina	\$1,409,639	\$1,894,099	Yang, Sungwoo	\$100,000	\$2,138,722
Shaw, Joey	\$54,930	\$80,211	Zahry, Nagwan		\$190,168
Shelton, Jill	\$6,500	\$234,768			
			Grand Total	\$15,175,596	\$65,311,790
			Excluding HEERF	\$13,992,268	\$65,311,790



