UNIVERSITY of HOUSTON

TEXAS CENTER FOR SUPERCONDUCTIVITY

TcSUH InTheNews

May 28, 2020
By: TcSUH Office of Public Affairs

Scholarship Recipients Announced for Fall 2020 – Spring 2021

The Scholarship Committee for the Texas Center for Superconductivity at the University of Houston is pleased to announce TcSUH scholarship recipients for the 2020-2021 academic year. Each student will receive a $1,500 award.

Scholarship recipients are selected from undergraduate or graduate students in departments aligned with the Center based on their academic and research accomplishments. While a high GPA is an important factor, the committee considers number of internal and external oral presentations, prizes and awards, number of papers, and other outstanding service or contributions. Criteria for TcSUH scholarships may be found at http://www.tcsuh.com/scholarships.php .

CORA HAWLEY SCHOLARSHIP

Mr. Siwei Chen, Ph.D., Mechanical Engineering, Prof. Venkat Selvamanickam, advisor

Mr. Anish Thukral, Ph.D., Mechanical Engineering/Materials Science, Prof. Cunjiang Yu, advisor

C. W. CHU SCHOLARSHIP

Ms. Samira Daneshmandi, Ph.D., Physics, Prof. C. W. Chu, advisor

Mr. Haoran Sun, Ph.D., Physics, Prof. Zhifeng Ren, advisor

Mr. Fanghao Zhang, Ph.D., Chemistry, Prof. Zhifeng Ren, advisor

Students will be recognized and certificates will be presented at a reception in the Fall, subject to UH policies in force at the time.

Siwei Chen began his Ph.D. studies in mechanical engineering in 2017. He is working on the development of advanced processes and test equipment for fabrication and testing of high temperature (HTS) tapes in Prof. Venkat Selvamanickam's group. Siwei has built a pilot-scale advanced metal organic chemical deposition system apparatus for manufacturing of HTS tapes, the first of its kind in the world, in a large program funded by the U.S. Department of Energy. He also enhanced a reel-to-reel 2D-XRD tool and integrated it into the MOCVD system for in-line quality control. He improved a reel-to-reel scanning hall probe microscope for continuous critical testing of superconductor tapes and presented the work at the ASC 2018 conference in Seattle, WA. Siwei completely revamped the group's website in a brief time frame, and mentors other Ph.D. students. He is also the recipient of the Houston Endowment Fellowship for 2017-

2022, and was recipient of the Presidential Fellowship (2017-2019) and the American Bureau of Shipping Scholarship (2018-2019). Siwei's cumulative GPA is 3.9.

Anish Thukral joined the Mechanical Engineering department in Fall 2015 as a master's student, and began his Ph.D. studies in 2017 with Professor Cunjiang Yu. Anish established electrospun semiconducting nanofiber based soft electronics and sensors. Electrospun semiconducting nanofibers in aligned fashion and manufactured in a scalable manner are an important class of active materials for soft electronics, with many advantages compared with existing materials and associated manufacturing technology. Anish has also been conducting research on soft rubbery electronics and sensors for smart soft robotics. He has been developing material and device manufacturing technologies, such as building and optimizing 3D printing platforms for 3D printed rubbery stretchable transistors and sensors. Anish has published nine papers, with three as first or co-first author, including ***Nature Communications*** (x2) and ***Science Advances*** (×4). His work on ***Advanced Materials Technologies*** was selected as ***Frontispiece cover*** in the 6th issue in 2018.

Samira Daneshmandi joined the Ph.D. program in physics in 2016, after meeting Prof. C. W. Chu on his 2014 visit to Iran. She began working with his team to set up their specially designed integrated MBE/STM/ARPES/MR system. She was involved with early practical tests of the system, including the successful growth and characterization of the superconducting one-unit-cell FeSe/STO and the non-superconducting one-unit-cell FeSe/STO ultra-thin films, only the third group in the U.S. to do so, and the study of interfacial superconductivity in $CaFe_2As_2$ epitaxial thin films with interfaces of two different phases. Samira's independent Ph.D. research focuses on using the system to grow and characterize thin films of topological insulators, a new class of materials that are both scientifically interesting and technologically important. She presented the results of her studies on Ag_2Se at a TcSUH Student/Postdoc Seminar in 2019 and at the 2019 AAAFM-UCLA International Conference in Los Angeles. Her abstract was accepted for an oral presentation at the 2020 APS March Meeting that was canceled due to COVID-19 concerns. Additionally, two papers are currently in preparation for submission to journals.

Haoran Sun, a Ph.D. student in physics, joined Prof. Zhifeng Ren's group in Fall 2017. He has studied the growth and characterization of boron arsenide single crystals of ultrahigh thermal conductivity for electronic device applications, especially the isotope pure ^{10}BAs and ^{11}BAs. He has successfully developed materials with high thermal conductivity that led to eight peer-reviewed papers in journals such as *Science*, and more manuscripts are being written for submission in the near future. He has tutored undergraduate students in physics using a variety of methods to adjust to different learning styles.

Fanghao Zhang began his Ph.D. studies in Chemistry in 2017 under joint advisors Prof. Zhifeng Ren and Prof. Arnold Guloy. His research project on 2D material synthesis and functionalization includes Graphene Oxide (GO) synthesis by a new method, Janus nanosheet synthesis by functionalization of GO, molecular dynamics to understand the details of interaction between polymer and Janus nanosheet, and non-noble metal catalysts for water splitting and CO_2 reduction. After joining the Ren research group, he has participated in several research projects together with postdoctoral fellows Dr. Dan Luo and Dr. Luo Yu by conducting some essential experiments and calculations, which has led to eight peer-reviewed publications and more manuscripts being finalized for submission. He is also a co-inventor of several invention disclosures. Fanghao serves as the co-chairman of the TcSUH Graduate Student/Postdoc Seminar Series.

Criteria for TcSUH scholarships may be found at http://www.tcsuh.com/scholarships.php
For more information, contact Susan Butler at (713) 743-8212 or sbutler@uh.edu .