

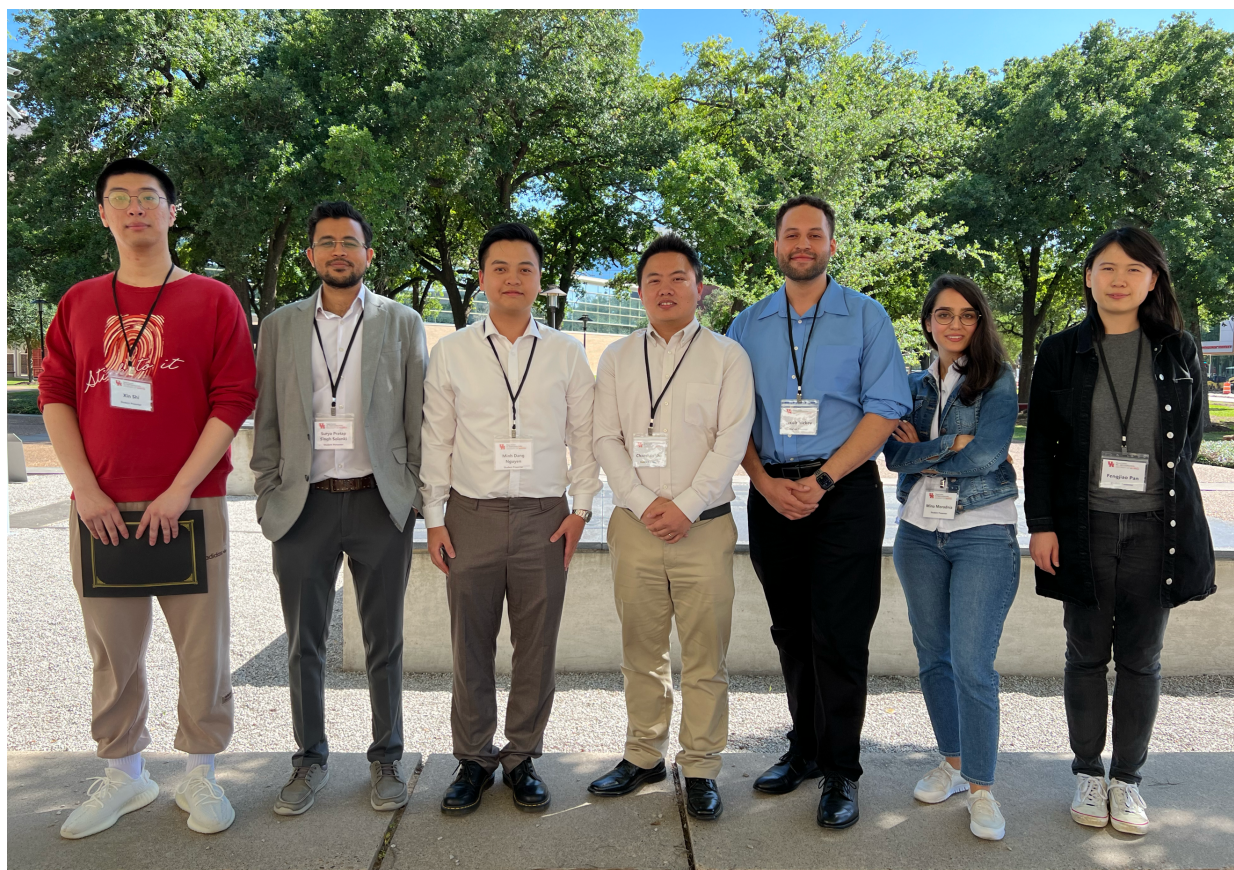
# Texas Center for Superconductivity at the University of Houston Holds 58<sup>th</sup> Student Research Symposium

## Judges Bestow Seven Prizes for Graduate Research Presentations

May 3, 2023

Houston, TX – Fourteen graduate students presented their research at the 58<sup>th</sup> Student Research Symposium on Friday, April 28. The symposium is a juried competition established by the Texas Center for Superconductivity at the University of Houston to provide students with a formal venue to enhance their presentation skills, interact with other students and faculty from various disciplines, and compete for cash prizes. Winning students are eligible to apply for TcSUH Travel Awards, which help to defray expenses to present their work at conferences and workshops.

Three TcSUH-affiliated faculty members served as judges: Professors Jiming Bao (Electrical & Computer Engineering), Audrius Brazdeikis (Physics), and Arnold Guloy (Chemistry). Seven prize winners were selected based on originality of research (25%), quality of research (25%), quality of presentation (25%), and skillful use of visual aids (25%).



LEFT to RIGHT: Xin Shi (3<sup>rd</sup>), Surya Pratap Singh Solanki (2<sup>nd</sup>), Minh Dang Nguyen (1<sup>st</sup>), Chaoshan Wu (3<sup>rd</sup>), Jacob Hickey (2<sup>nd</sup>), Mina Moradnia (2<sup>nd</sup>) and Fengjian Pan (3<sup>rd</sup>).

Chairs for the three sessions held throughout the day were Professors James Meen and Vassiliy Lubchenko, and Dr. Lihong Zhao.

Professor Zhifeng Ren, M. D. Anderson Chair Professor of Physics and Director of TcSUH, said the quality of all fourteen presentations was outstanding, which made it difficult to narrow down the selections. He commended all students for their efforts before announcing the judges' results.

They are listed by Prize as follows:

#### First Prize:



**Mr. Minh Dang Nguyen**, Ph.D. student in the Department of Chemistry, received the First Prize for his presentation on "Tailoring the Size, Shape, and Crystallinity of Iron Oxide Nanoparticles for Studies of Nano-Magnetism and their Potential Applications." His adviser is Professor T. Randall Lee. Mr. Nguyen's research focuses on synthesizing magnetic iron oxide nanoparticles with different sizes and shapes for studies of their magnetic properties for biosensing and biomedicine. He obtained his BSc in Advanced Materials Science and Nanotechnology from the University of Science and Technology of Hanoi.

#### 2<sup>nd</sup> Prizes:



**Ms. Mina Moradnia** is a 5th-year Ph.D. candidate in the Mechanical Engineering Department of the Cullen College of Engineering. Her adviser is Professor Jae-Hyan Ryou. She won the 2<sup>nd</sup> Prize for her presentation on "Single-Crystalline III-N Film Growth for Photonic, Electronic, Sensing, and Energy Harvesting Applications." Ms. Moradnia's UH research focuses on the process development of semiconductor materials and devices with top skills in thin film deposition and growth, along with materials characterization/analysis techniques. She received her Master's in Materials Science and Engineering from the University of Tabriz and her Bachelor's degree from Shiraz University.



**Mr. Surya Pratap Singh Solanki** is a 5<sup>th</sup> year Ph.D. candidate in the William A. Brookshire Department of Chemical and Biomolecular Engineering under the supervision of Professor Lars C. Grabow. He won the 2<sup>nd</sup> Prize for his research entitled "Dynamically Excited Catalysts with Superior Oxidation Activity." Mr. Solanki's research focuses on understanding the catalytic properties of metal-based catalysts using both computational and experimental techniques. He is also interested in investigating the effect of periodic reaction conditions on catalyst performance. He obtained his B. Tech in Chemical Engineering from the Indian Institute of Technology (IIT)-Roorkee.





**Mr. Jacob C. Hickey** is a 4<sup>th</sup> year Ph.D. candidate in Professor Jakoah Brgoch's group in the Department of Chemistry and Texas Center for Superconductivity at the University of Houston. He was awarded the 2<sup>nd</sup> Prize for his presentation entitled "The Limits of Proxy-Guided Superhard Materials Screening." Mr. Hickey's research involves using a combined approach of experimental and computational-based methods to discover new hard materials. He received his B.S. and M.S. degrees in Chemistry at San Jose State University.

### 3<sup>rd</sup> Prizes:



**Ms. Fengjiao Pan** is a 4<sup>th</sup> year Ph.D. candidate in the Department of Physics, under the supervision of Professor Zhifeng Ren. She received a 3<sup>rd</sup> Prize for her presentation on "Observation of Persistent Hot Carrier Diffusion in Boron Arsenide Single Crystals Synthesized by Chemical Vapor Transport Method." Ms. Pan's research focuses on the synthesis of cubic boron arsenide crystals using the chemical vapor transport method. She also serves as Co-Chair of the TcSUH Student & Postdoctoral Fellow Seminar Series. She obtained her Master's degree in Power Engineering from the School of Mechanical Engineering at Shanghai Jiao Tong University in Shanghai, China.



**Mr. Xin Shi** is a 4<sup>th</sup> year Ph.D. candidate in the Department of Physics. His adviser is Professor Zhifeng Ren. Mr. Shi shared the 3<sup>rd</sup> Prize for his presentation entitled "Physical Origins of the Distinct Transport Behavior Among Thermoelectric AMg<sub>2</sub>Sb<sub>2</sub> Compounds (A = Ca, Sr, Sm, Yb, and Mg)." His current research interests focus on designing high-performance thermoelectric materials and understanding their intrinsic physical properties. He received his B.S. in Materials Science and Engineering and his M.S. in Materials Science from Northeastern University in China.



**Mr. Chaoshan Wu** is a Ph.D. candidate in Dr. Yan Yao's group in the Materials Science and Engineering Program and Texas Center for Superconductivity at the University of Houston. He shared the 3<sup>rd</sup> Prize for his presentation entitled "Mixed-ionic-electronic-conducting Interlayer Design for High-Performance Solid-State Lithium-Metal Batteries." Mr. Wu's research focuses on the development and Operando characterization of all-solid-state Li-metal batteries. He obtained his BSc degree in Materials Science and Engineering from the Zhejiang University of Technology in Hangzhou, Zhejiang, China.

To recognize the achievements of each prize winner, the IEEE Council on Superconductivity (IEEE CSC) is offering a free IEEE student membership for one year. Once the students become IEEE student members they are eligible to join the Council, where there are opportunities to apply for student fellowships, assistance for attending conferences, and engage in leadership activities for young professionals.

*By Susan Butler, TcSUH Public Affairs*