

UNIVERSITY of HOUSTON

TEXAS CENTER FOR SUPERCONDUCTIVITY

56th TCSUH Student Symposium

Tuesday, April 30, 2019

Student Presentations: 10:00 a.m. - 5:00 p.m.

Houston Science Center, Room 102

Outdoor Party: 5:00 p.m. - 7:00 p.m.

Judges: Prof. Paul C. W. Chu (Physics); Prof. Allan J. Jacobson (Chemistry); Prof. Jae-Hyun Ryou (Mechanical Engineering)

Prizes: 1 First Prize; 2 Second Prizes; 3 Third Prizes

9:30 a.m. **Coffee & Pastries** HSC 1st floor lobby

10:00 a.m. **Welcome; Introduction of Judges and Chairs; Guidelines for Review**

Zhifeng Ren, Director, TcSUH

10:05 a.m. **Session I**

Chair: **Dr. Elie K. Track**, CEO, nVizix LLC; Treasurer and Past President, IEEE Council on Superconductivity

10:05-10:25 **Mr. Eric Buko** (Pei Hor, advisor)

Analytical Segmented T₂ Correction Approach to Extract Intravoxel Incoherent Motion Perfusion Fraction

10:25-10:45 **Mr. Devendra Khatiwada** (Venkat Selvamanickam, advisor)

Fabrication and Optimization of Single-Junction GaAs Thin Film Solar Cells on Epi-Ready Flexible Metal Tapes for Low-Cost Photovoltaics

10:45-11:05 **Mr. Jie Chen** (Jae-Hyun Ryou, advisor)

Flexible Piezoelectric Generators and Pulse Sensors Using Single-Crystalline III-N Thin Film

11:05-11:10 Break

11:10-11:30 **Mr. Geethal Gamage** (Zhifeng Ren, advisor)

Boron Arsenide Single Crystals with Unusually High Thermal Conductivity

11:30-11:50 **Ms. Sarah Aderyani** (Haleh Ardebili, advisor)

The Effect of Nanoscale Architecture on Ionic Diffusion in rGO/Aramid Nanofiber Structural Electrodes

- 11:50-12:10 **Ms. Audrey Wang** (Yan Yao, advisor; undergraduate student)
An Ab Initio Investigation of Structure-Function Relationships in Solid-State Electrolytes
- 12:10 Announcements: Lunch arrangements, *Sue Butler, Public Affairs*
- 12:10 a.m. **Sandwiches** 1st Floor Lobby Area
- 1st Demonstration of IEEE Council on Superconductivity People Levitator** (to be housed at TcSUH)
- 12:45 p.m. **Session II**
Chair: **Dr. Bruce P. Strauss**, President, IEEE Council on Superconductivity; Treasurer, Coalition for the Commercial Application of Superconductors (CCAS); Ret. DOE Office of Science
- 12:45-1:05 **Mr. Zhoulyu Rao** (Cunjiang Yu, advisor)
Soft, Stretchable, and Wearable Devices from Fully Rubbery Electronic Materials
- 1:05-1:25 **Mr. Yixuan Huang** (C.-S. Ting, advisor)
Charge Density Wave in One-Dimensional Kondo Lattice Model
- 1:25-1:45 **Ms. Sladjana Maric** (John H. Miller, advisor)
Formation of Proton Translocating Water Channels in ATP Synthase
- 1:45-1:50 Break
- 1:50-2:10 **Ms. Monica Martinez** (James K. Meen, advisor)
A Study of Unusual Fines in the Lunar Soil
- 2:10-2:30 **Mr. Jonnalagadda Venu Sushir** (John C. Wolfe, advisor)
On the Resolution of Neutral Particle Lithography with High Brightness Source
- 2:30-2:50 **Mr. Moein Adnani** (C. W. Chu, advisor)
Magnetoelectric Effect in New Type // Multiferroic HoFeWO₆
- 2:50-2:55 Break
- 2:55 p.m. **Session III**
Chair: **Prof. Anne Delcour**, Associate Dean for Graduate Studies, College of Natural Sciences & Mathematics; Professor, Department of Biology and Biochemistry
- 2:55-3:15 **Mr. Fanghao Zhang** (Zhifeng Ren, advisor)
Electrostatic-Attraction-Induced High Internal Phase Emulsion Large-Scale Synthesis of Amphiphilic Janus Nanosheets
- 3:15-3:35 **Ms. Xiaojing Ma** (Arnold Guloy, advisor)
Ce₅Ge₃O_x (x=0.0-1.0): An Oxygen Interstitial Compound with Kondo-Like Behavior
- 3:35-3:55 **Mr. Rabin Dahal** (C. W. Chu, advisor)
Pressure-Induced Superconductivity and Doping-Tunable Structural Transition in Weyl Semimetal Mo_{1-x}W_xTe₂
- 3:55-4:00 Break
- 4:00-4:20 **Ms. Ya Zhuo** (Jakoah Brgoch, advisor)
Machine Learning Accelerates the Discovery of Efficient, Thermally Robust Inorganic Phosphors

- 4:20-4:40 **Mr. Jiahao Guo** (Kevin Bassler, advisor)
Reduced Network Extremal Ensemble Learning (RenEEL) Scheme for Community
Detection in Complex Networks
- 4:40-5:00 **Mr. Hyunseok Sim (Shim)** (Cunjiang Yu, advisor)
Stretchable Elastic Synaptic Transistors and Neurologically Integrated Soft Engineering Systems

5:00 p.m. **Deliberation of Judges**

Note: Announcement of Symposium winners will be made at the Party after the judges have concluded their deliberations

5:00 p.m. **Photo of all Presenters** *HSC 1st Floor Lobby, red wall*

5:00 p.m. **Party on the Patio: BBQ Dinner Buffet & Games** (with ticket drawings for door prizes)
Music and Games

Announcement of TcSUH 2019-2020 Scholarship Winners

Paul Chu, Scholarship Committee Chair

Announcement of Symposium Winners *Zhifeng Ren*

Photo of all Prize and Scholarship Winners *HSC 1st Floor Lobby*

Award Presentations

First Prize (One prize): \$600; Second Prize (two prizes), \$300; Third Prize (three prizes): \$200. Judges have been selected from TCSUH Faculty members. Prizes will be awarded based on originality of research (25%), quality of research (25%), quality of presentation (25%), and skillful use of visual aids (25%). In the interest of fairness, the judges' decisions will be normalized so that undergraduates and graduates can compete on an equal footing. Cash prizes will not be presented at the Symposium. The winners will receive their cash prize as a supplement to their paycheck.