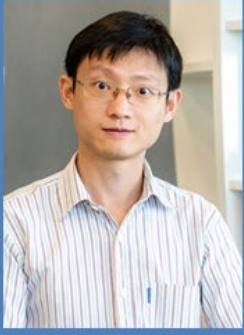


June 2019

IMPact@SUTD is a regular update featuring works by SUTD Faculty, Researchers, Students and Research Centres/Labs. We hope to create awareness of the Research by SUTD within the SUTD community and beyond. Share with us your SUTD works today so that we can include it in our next update.

CONGRATULATIONS!



Assistant Professor Yang Shengyuan

For publishing the paper **'Three-dimensional quantum Hall effect and metal - insulator transition in $ZrTe_5$ '** * in Nature.

**The first experimental demonstration of an interesting quantum effect, called the three-dimensional (3D) quantum Hall effect. This effect was predicted more than 30 years ago, but has not been observed until this.*



A Photoexcitation Induced Twisted Intramolecular Charge Shuttle (TICS)
Angewandte Chemie International Edition

SUTD Author: Weijie Chi, Richmond Lee and Xiaogang Liu

"We discovered a new charge - transfer and separation process, namely the twisted intramolecular charge shuttle (TICS). In TICS systems, the donor and acceptor moieties dynamically switch roles in the excited state because of an approximately 90° intramolecular rotation. TICS systems could be utilized to construct functional fluorescent probes."

--- Xiaogang Liu



Environmental justice and flood prevention: The moral cost of floodwater redistribution
Landscape and Urban Planning

SUTD Author: Jeffrey Kok Hui Chan

"The question of 'who to flood at whose expense' cannot be the right question for any ethical society. In an era of climate change and relentless urbanization, where floodwater redistributed from one community is likely to impact another community, ethical flood hazard mitigation needs to look beyond flood prevention."

--- Jeffrey Kok Hui Chan

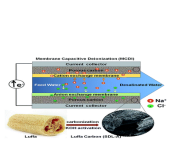


Submicron Particle Focusing and Exosome Sorting by Wavy Microchannel Structures within Viscoelastic Fluids
Analytical Chemistry

SUTD Author: Yinning Zhou, Zhichao Ma, Mahnoush Tayebi and Ye Ai

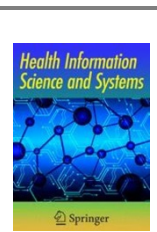
"Exosomes, submicron vesicles (30-200 nm) secreted from biological cells for intercellular communication, have emerged as a promising biomarker for cancer diagnosis. We have developed a high-throughput elasto-inertial sorting technique for isolating exosomes from complex biofluids, which provides a promising purification means in various exosome-related biological research and pharmaceutical applications."

--- Ye Ai



Activated Luffa derived biowaste carbon for enhanced desalination performance in brackish water
RSC Advances

SUTD Author: Deepa Sriramulu, Sareh Vafakhaha and Hui Ying Yang



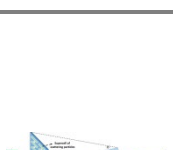
Ballistocardiogram signal processing: a review
Health Information Science and Systems

SUTD Author: Ibrahim Sadek and Jit Biswas



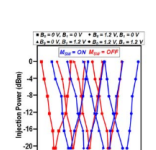
Quantum-assisted Gaussian process regression
Physical Review A

SUTD Author: Zhikuan Zhao and Joseph F. Fitzsimons



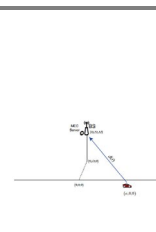
Smart radio environments empowered by reconfigurable AI meta-surfaces: an idea whose time has come
Eurasip Journal on Wireless Communications and Networking

SUTD Author: Chau Yuen



A Multi-Mode Multi-Coil Coupled Tuned Inductive Peaking ILFD for Low Injected Power With Compact Size
IEEE Access

SUTD Author: Nagarajan Mahalingam and Kiat Seng Yeo



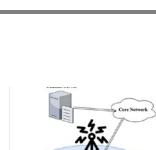
Computation Offloading for Mobile Edge Computing Enabled Vehicular Networks
IEEE Access

SUTD Author: Tony Q. S. Quek



Reversing the direction of heat flow using quantum correlations
Nature Communications

SUTD Author: Tiago B. Batalhão



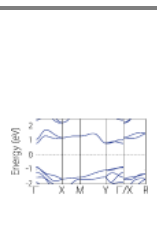
Socially-Aware Caching in Wireless Networks With Random D2D Communications
IEEE Access

SUTD Author: Khai Nguyen Doan and Tony Q. S. Quek



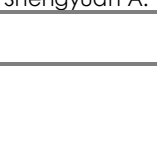
An Improved Rough Set Theory based Feature Selection Approach for Intrusion Detection in SCADA Systems
Journal of Intelligent & Fuzzy Systems

SUTD Author: Gauthama Raman, M.R.



Hourglass Weyl loops in two dimensions: Theory and material realization in monolayer GaTe family
Physical Review Materials

SUTD Author: Weikang Wu, Yalong Jiao, Si Li, Xian-Lei Sheng, Zhi-Ming Yu, and Shengyuan A. Yang



Skyrmion quantum spin Hall effect
Physical Review B

SUTD Author: Tianqi Chen

Success is a science; if you have the conditions, you get the results.

--Oscar Wilde