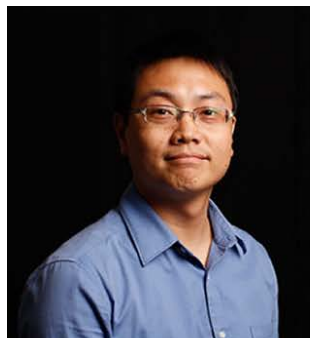


February 2018

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 Yee Ai, EPD**

achieved **Editor's Suggestion\*** for his paper, **'Self-aligned acoustofluidic particle focusing and patterning in microfluidic channels from channel-based acoustic waveguides'** by the editors of **APS Physics**.

The same paper was also commented and featured in **Physics 'Acoustics waves direct particles in microchannels'**.

\* A notable achievement as only about 1 in 6 letters will be highlighted as an Editor's Suggestion due to its importance, innovation and broad appeal.



**Probing and Manipulating the Interfacial Defects of InGaAs Dual-Layer Metal Oxides at the Atomic Scale**  
Advanced Materials

SUTD Author: Pey Kin Leong

"In this study, in-situ transmission electron microscopy technique was used to correlate at the atomic level structural and electrical properties of the  $ZrO_2/Al_2O_3$  stack on InGaAs substrate. We were able to resolve structural changes induced by the applied electrical stress that paves the way to reliable devices."

--- Pey Kin Leong



**Targeted Phenotypic Screening in Plasmodium falciparum and Toxoplasma gondii Reveals Novel Modes of Action of Medicines for Malaria**  
Malaria Box Molecules  
mSphere

SUTD Authors: Gowtham Subramaniam, Meenakshi Belekar, Trang Chu, Ameya Sinha and Rajesh Chandramohanadas

"The research team completed the first phenotypic screening of a large collection of small molecule inhibitors (known as MMV Malaria Box), against pathogenic parasites *Toxoplasma gondii* and *Plasmodium falciparum*. This knowledge opens up new avenues for anti-parasitic drug development, against causative agents of human Toxoplasmosis and Malaria."

--- Sasi Kumar Tippabhotla

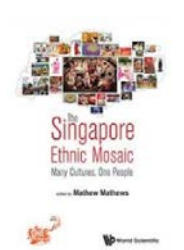


**Valleytronics in merging Dirac cones: All-electric-controlled valley filter, valve, and universal reversible logic gate**  
Physical Review B

SUTD Authors: Yee Sin Ang, Shengyuan A. Yang, Zhongshui Ma, and Ang Lay Kee, Ricky

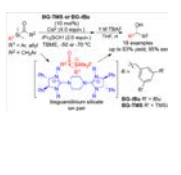
"Valleytronic is an emerging device concept that utilizes quantum mechanical 'valley' properties to perform information processing. We design 2D-material-based valleytronic logic gates capable of performing logically-reversible digital computing, which has broad applications including cryptography and quantum computing. Such valleytronics-based reversible computing shall provide a new paradigm towards ultimately energy-efficient computer"

--- Ang Yee Sin and Ang Lay Kee, Ricky



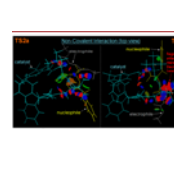
**Minority Indian Communities in Singapore**  
The Singapore Ethnic Mosaic  
Mathew Mathews

SUTD Author: Nilanjun Raghunath



**Enantioselective 1,2-Anionotropic Rearrangement of Acylsilane through a Bisguanidinium Silicate Ion Pair**  
Journal of the American Chemical Society

SUTD Authors: Davin Tan and Richmond Lee



**Enantioselective Vinylogous Amination of 5-Alkyl-4-nitroisoxazoles with a Dipeptide-Based Guanidinium Phase-Transfer Catalyst**  
Organic Letters

SUTD Author: Richmond Lee



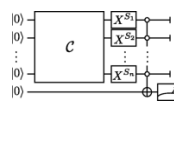
**Second Beginnings - Senior Living Redefined**  
Lien Foundation

SUTD Author: Keng Hua Chong



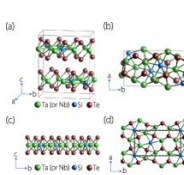
**Assistive Augmentation**  
Springer

SUTD Author: Suranga Nanayakkara



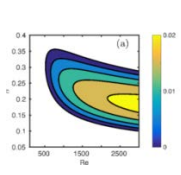
**Post hoc Verification of Quantum Computation**  
Physical Review Letters

SUTD Authors: Joseph F. Fitzsimons and Michal Hajdušek



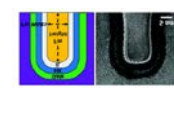
**Nonsymmorphic-symmetry-protected hourglass Dirac loop, nodal line, and Dirac point in bulk and monolayer  $X_3SiTe_6$  ( $X = Ta, Nb$ )**  
Physical Review B

SUTD Authors: Si Li, Ying Liu, Shan-Shan Wang, Zhi-Ming Yu, Shan Guan, Xian-Lei Sheng and Shengyuan A. Yang



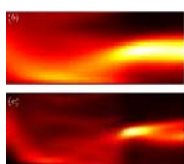
**Growth mechanisms of perturbations in boundary layers over a compliant wall**  
Physical Review Fluids

SUTD Authors: M. Malik and Roland Bouffanais



**Stochastic Modeling of FinFET Degradation Based on a Resistor Network Embedded Metropolis Monte Carlo Method**  
IEEE Transactions on Electron Devices

SUTD Authors: Mei Sen, Nagarajan Raghavan and Pey kin Leong



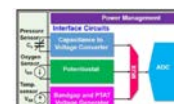
**Period-doubling in period-1 steady states**  
Physical Review E

SUTD Authors: Reuben R. W. Wang, Bo Xingn and Dario Poletti



**Quantum Linear System Algorithm for Dense Matrices**  
Physical Review Letters

SUTD Author: Zhikuan Zhao



**Highly Integrated MEMS-ASIC Sensing System for Intracorporeal Physiological Condition Monitoring Sensors**

SUTD Author: Chao Wang

