

May 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.

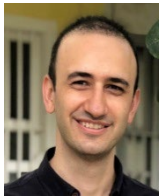


CONGRATULATIONS!

Professor Ricky Ang and Dr Xi Yu
 On being featured on Materials View China[#], for their paper on
 "Optical Refractive Index Sensors with Plasmonic and Photonic
 Structures: Promising and Inconvenient Truth"^{*} published in Advanced
 Optical Materials.

[#]A renowned website among materials science community, which mainly reports research in China.

^{*}SUTD researchers together with international researchers to develop a 3D technology map which systematically compares optical sensors, providing a much needed benchmark to define the standards and track developments in this rapidly growing industry.



**An Infinite Regress
 Model of Design
 Change
 Propagation in
 Complex Systems**
IEEE Systems Journal

SUTD Author: Serhad Sarica and Jianxi Luo

"In complex systems, design changes propagate through the design dependency paths among the components and thus present challenges to the design and management of the system. In this paper, we model change propagation in complex systems as an infinite regress problem and derive eigenvector-based indicators of design change propagation."

--- Serhad Sarica



**An Empirical Study on
 the Impact of Design
 Brief Information on the
 Creativity of Design
 Outcomes with
 Consideration of
 Gender and Gender
 Diversity**
*Journal of Mechanical
 Design*

SUTD Author: Georgios Koronis, Pei Zhi Chia, Jacob Kang Kai Siang, Arlindo Silva, Christine Yogiama, and Nilanjan Raghunath

"This study aims to understand how information in design briefs affects the creativity of design outcomes. We tested this during an ideation exercise with first-year undergraduate student designers and we measure novelty, appropriateness, and usability with either the participants' gender or the gender diversity of the participants' groups."

--- Georgios Koronis



**Catalytic
 Enantioselective
 Addition of
 Prochiral Radicals
 to Vinylpyridines**
*Journal of the
 American Chemical
 Society*

SUTD Author: Siu Min Tan and Richmond Lee

"This work reports a combined experimental and theoretical study on asymmetric light-induced radical formation and addition to pyridine catalysed by a chiral phosphoric acid. The synthetic method presents the first organocatalysed example for generating tetra-substituted chiral centres at the γ -position in pyridines."

--- Siu Min Tan and Richmond Lee

A methodology to prevent cascading contingencies using BESS in a renewable integrated microgrid
International Journal of Electrical Power & Energy Systems

SUTD Author: Chau Yuen

Chiral acid-catalysed enantioselective C-H functionalization of toluene and its derivatives driven by visible light
Nature Communications

SUTD Author: , Richmond Lee

Design and modelling of a modular window cleaning robot
Automation in Construction

SUTD Author: M.Vega-Heredia, R. Elara Mohan, Tan YehWen, J. Siti'Aisyah, A.Vengadesh, S.Ghanta, and S.Vinu

Fast-neutron irradiation effects on monolayer MoS2
Applied Physics Express

SUTD Author: Mei Er Pam, Lay Kee Ang, and Hui Ying Yang

Hexagonal supertetrahedral boron: A topological metal with multiple spin-orbit-free emergent fermions
Physical Review Materials

SUTD Author: Weikang Wu, and Shengyuan A. Yang

Ageing and the Built Environment in Singapore
Springer International Publishing

SUTD Author: Yuen Belinda, Parvathi Nair, Penny Kong, Sanjana Kadaba Viswanath, Sumudu Hasala Marakkalage, Billy Pik Lik Lau, Chau Yuen and Anna Lane

Multicores-periphery structure in networks
Network Science

SUTD Author: Bowen Yan and Jianxi Luo

Resource-efficient verification of quantum computing using Serfling's bound
NPJ Quantum Information

SUTD Author: Atul Mantri and Joseph F. Fitzsimons

Spontaneous symmetry lowering of Si (001) towards two-dimensional ferro/antiferroelectric behavior
Physical Review Materials

SUTD Author: Shengyuan A. Yang