



IMPact@SUTD

Impossible Made Possible by architects, catalysts and technologists

November 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.



Assistant Professor Nuno Ribeiro

(Engineering Systems and Design)

For being awarded with the Best Dissertation Prize in the Aviation Applications Section of INFORMS 2019 for the thesis "Airport Capacity Management Towards a Slot Allocation Modelling Approach Compliant with IATA Rules".

CONGRATULATIONS!



Biomechanical Evaluation of Isotropic and Shell-Core Composite Meniscal Implants for Total Meniscus Replacement: A Nonlinear Finite Element Study

IEEE Access

SUTD Author: Duraisamy Shriram and Karupppasamy Subburaj

"Computational modelling and simulation can be used to evaluate aspects of in vivo performance of an implant and how the remnant tissues of the organ would react biomechanically to the implant without subjecting patients to potential harm or unnecessary risk at the early-stage of the design process itself."

--- Karupppasamy Subburaj



Deformed Gazeau-Klauder Schrödinger cat states with modified commutation relations

Physical Review D

SUTD Author: Ching Chee Leong

"We study the generalized coherent Schrodinger cat-states which induced by various models in quantum gravity phenomenology. This serves as genuine quantum simulator to mimic the potential quantum-gravitational effects and thus we may have a well-controlled laboratory studies of gravity through the recent advances in quantum atomic and optical technology."

--- Ching Chee Leong



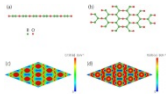
Recent developments in relaxin mimetics as therapeutics for cardiovascular diseases

Current Opinion in Pharmacology

SUTD Author: Leo Chen Huei

"Relaxin, a pregnancy hormone that has beneficial cardiovascular effects in many diseases. However, relaxin has several limitations of peptide-based drugs such as poor oral bioavailability. This review provides an update on the recent developments in relaxin mimetics, their pharmacology, and therapeutic potential for the treatment of cardiovascular disease."

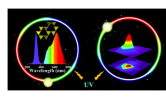
--- Leo Chen Huei



2D honeycomb borophene oxide: a promising anode material offering super high capacity for Li/Na-ion batteries

Journal of Physics-Condensed Matter

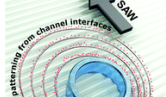
SUTD Author: Weikang Wu and Shengyuan A Yang



A strategy for developing thermal-quenching-resistant emission and super-long persistent luminescence in BaGa2O4:Bi3+

Journal of Materials Chemistry C

SUTD Author: Huimin Li



Acoustic fields and microfluidic patterning around embedded microstructures subject to surface acoustic waves

Soft Matter

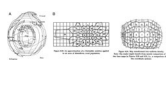
SUTD Author: Richard O'Rorke and Ye Ai



Attentional Social Media: Mapping the Spaces and Networks of the Fashion Industry

Annals of the American Association of Geographers

SUTD Author: Ate Poorthuis



Being Smarter about Space: Drawing Lessons from Spatial Science

Annals of the American Association of Geographers

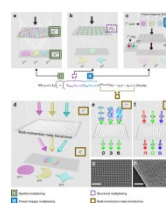
SUTD Author: Ate Poorthuis



Compositional Design of Multi-Robot Systems Control Software on ROS

ACM Transactions on Embedded Computing Systems

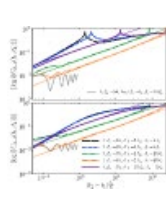
SUTD Author: Michele Lora and Sudipta Chattopadhyay



Dielectric multi-momentum meta-transformer in the visible

Nature Communications

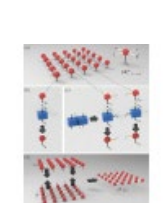
SUTD Author: Joel K. W. Yang



Evolution of two-time correlations in dissipative quantum spin systems: Aging and hierarchical dynamics

Physical Review B

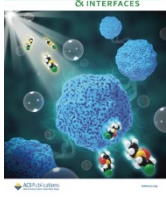
SUTD Author: Dario Poletti



General-Purpose Quantum Circuit Simulator with Projected Entangled-Pair States and the Quantum Supremacy Frontier

Physical Review Letters

SUTD Author: Junhua Liu and Dario Poletti



Graphene-Induced in Situ Growth of Monolayer and Bilayer 2D SiC Crystals Toward High-Temperature Electronics

ACS Applied Materials & Interfaces

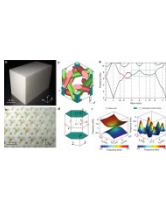
SUTD Author: Dechao Geng, Junping Hu, Lay Kee Ang, and Hui Ying Yang



Modeling Marked Temporal Point Process Using Multi-relation Structure RNN

Cognitive Computation

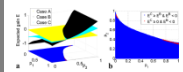
SUTD Author: Binbin Chen



Observation of a topological nodal surface and its surface-state arcs in an artificial acoustic crystal

Nature Communications

SUTD Author: Shengyuan A. Yang

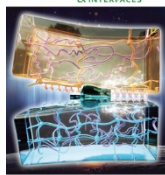


Ratcheting based on neighboring niches determines lifestyle

Nonlinear Dynamics

SUTD Author: Jin Ming Koh and Kang Hao Cheong

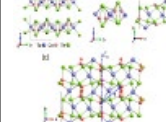
APPLIED MATERIALS & INTERFACES



Syringe-Injectable, Self-Expandable, and Ultraconformable Magnetic Ultrathin Films

ACS Applied Materials & Interfaces

SUTD Author: Kento Yamagishi and Michinao Hashimoto

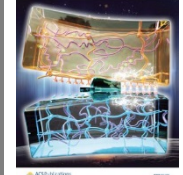


Two-dimensional antiferromagnetic Dirac fermions in monolayer TaCoTe2

Physical Review B

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

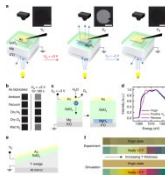
APPLIED MATERIALS & INTERFACES



Ultrafast Three-Dimensional Printing of Optically Smooth Microlens Arrays by Oscillation-Assisted Digital Light Processing

Acs Applied Materials & Interfaces

SUTD Author: Chao Yuan, Kavin Kowsari, Sahil Panjwani, Zaichun Chen, Dong Wang, Biao Zhang, Colin Ju-Xiang Ng, Pablo Valdivia y Alvarado, and Qi Ge



Voltage-gated optics and plasmonics enabled by solid-state proton pumping

Nature Communications

SUTD Author: Hailong Liu, Qifeng Ruan, and Joel K. W. Yang

Science is organized knowledge.

---Herbert Spencer

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