IMPact@SUTD

Impossible Made Possible by architects, catalysts and technologists

October 2017

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 Desmond Loke ranked in the top 1% of Highly Cited Papers

ranked in the Top 1% of Highly Cited Papers of the Academic Field of Physics* recently for his paper, 'Breaking the Speed Limits for Phase-Change Memory', published in *Science, 336(6088), 1566 – 1569.*

* Clarivate Analytics' offers the Essential Science Indicators, Highly Cited Paper which identifies breakthrough research within a research field, featuring the most influential research papers.

Correction:A dual-ion electrochemistry deionization system based on AgCl-$Na_{0.44}MnO_2$ electroes

Nanoscale

SUTD Authors: Fuming Chen, Yinxi Huang, Lu Guo, Meng Ding and Hui Ying Yang

"We reported a novel dual-ion electrochemistry desalination technology based on the AgCl-Na0.44MnO2 electrode, consisting of AgCl as the electrochemical chloride release/capture anode, Na0.44MnO2 as the electrochemical sodium release/capture cathode, and flow salt solution as electrolyte. The salt removal capacity is up to 57.4 mg/g for 100 cycles. This will be significant for high efficiency & energy efficient desalination."

--- Hui Ying Yang

Tap Delay-and-Accumulate Cost Aware Coefficient Synthesis Algorithm for the Design of Area-Power Efficient FIR Filters

Transactions on Circuits and Systems I: Regular Papers

SUTD Authors: Jiajia Chen and Jiatao Ding

"Further improvements are stagnated by the accumulators and registers, which are difficult to minimize in DSPs. A Genetic Algorithm is proposed to solve this problem by refining the search space for optimal solution. Results showed the average chip area and power deduction by 26.8% and 27.5% respectively, in comparison with the latest designs published in 2016."

---Jiajia Chen

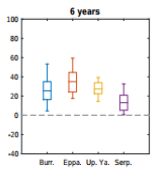
Level Up! Refreshing Parental Mediation Theory for Our Digital Media Landscape

Communication Theory

SUTD Author: Sun Sun Lim

"Young people's media diets have significantly expanded with new genres and mobile media access. To refine theorisation of parental guidance of children's media use that remains dominated by paradigms birthed during the television era, we identified four critical tasks today's parents must undertake: gatekeeping, discursive, investigative, and diversionary mediation."

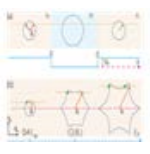
---Sun Sun Lim



Complex relationship between seasonal streamflow forecast skill and value in reservoir operations

Hydrology and Earth System Sciences

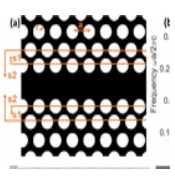
SUTD Authors: Sean W. D. Turner and Stefano Galelli



Double reflection and tunneling resonance in a topological insulator: Towards the quantification of warping strength by transport

Physical Review B

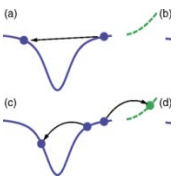
SUTD Author: Zhi-Ming Yu



Enhanced optical nonlinearities in CMOS-compatible ultra-silicon-rich nitride photonic crystal waveguides

Applied Physics Lerrrrtters

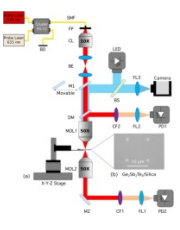
SUTD Authors: Ezgi Şahin, Kelvin J. A. Ooi, George Chen, and Dawn Tan



Kinetic Monte Carlo approach to nonequilibrium bosonic systems

Physical Review B

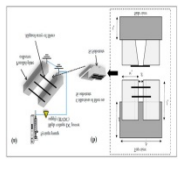
SUTD Author: Dario Poletti



Laser switching and characterisation of chalcogenides: systems, measurements, and applicability to photonics Invited

Optical Materials Express

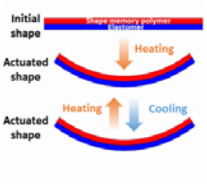
SUTD Authors: Jitendra K. Behera, Xilin Zhou, and Robert E. Simpson



Measuring the Pull-Off Force of an Individual Fiber Using a Novel Picoindenter/Scanning Electron Microscope Technique

Materials

SUTD Authors: Rahul Sahay and Avinash Baji



Shape forming by thermal expansion mismatch and shape memory locking in polymer/elastomer laminates

Smart Materials and Structures

SUTD Author: Zhen Ding and Martin L Dunn

Thoughts on benchmarking of function modeling: Why and how

Ai Edam-Artificial Intelligence for Engineering Design Analysis and Manufacturing

SUTD Authors: Venkatamaran Srinivasan

We cannot solve our problems with the same thinking we used when we created them.

---Albert Einstein

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