

MEDIA RELEASE

SINGAPORE'S FIRST ASIAN SOLID-STATE CIRCUITS CONFERENCE ACCEPTS 9 PAPERS FROM A*STAR'S IME

1. **Singapore, 11 November 2013** – A*STAR's Institute of Microelectronics (IME) has successfully contributed nine papers to the IEEE Asian Solid-State Circuits Conference 2013 (IEEE A-SSCC 2013), the leading international forum for the most updated and advanced chips and circuits design in solid-state and semiconductor fields. The conference will be held for the first time in Singapore today and will span over the next three days till 13 November 2013.
2. In alignment with the conference theme, "Integrated Circuits and Systems for a Mobile Society", the papers delve into technology developments and enhancements of microelectronic systems for use in areas such as medical device applications. These include low power Electrocardiography (ECG) processors and miniaturized neuromonitoring systems. The technologies extend beyond Moore's Law of heightened performance and miniaturization to focus on more intuitive devices using signal processing and wireless ICs as well as sensor interface ICs.
3. The papers, which will be presented by IME scientists, are co-authored with researchers from the National University of Singapore, Nanyang Technological University and National Neuroscience Institute. Further details are available in **Annex A**.
4. Prof. Dim-Lee Kwong, Executive Director of A*STAR's IME, will be addressing the participants in his plenary speech on "Future Mobile Society Beyond Moore's Law" on 12 November. He will be explaining the recent advances and challenges of "More-than-Moore" technologies, which centre on seamless connectivity and continuous navigation.

5. “This conference serves as an excellent platform for the gathering of the industry’s brightest IC design engineers and researchers to synergize and innovate on technologically advanced and yet commercially viable solutions,” said Prof. Dim-Lee Kwong. “IME is honoured to be contributing to this conference as we look forward to sharing our research and development capabilities on creating high value microelectronic systems for an increasingly mobile society of the future.”

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About the Institute of Microelectronics (IME)

The Institute of Microelectronics (IME) is a research institute of the Science and Engineering Research Council of the Agency for Science, Technology and Research (A*STAR). Positioned to bridge the R&D between academia and industry, IME's mission is to add value to Singapore's semiconductor industry by developing strategic competencies, innovative technologies and intellectual property; enabling enterprises to be technologically competitive; and cultivating a technology talent pool to inject new knowledge to the industry. Its key research areas are in integrated circuits design, advanced packaging, bioelectronics and medical devices, MEMS, nanoelectronics, and photonics. For more information about IME, please visit <https://www.ime.a-star.edu.sg>.

About the Agency for Science, Technology and Research (A*STAR)

The Agency for Science, Technology and Research (A*STAR) is the lead agency for fostering world-class scientific research and talent for a vibrant knowledge-based and innovation-driven Singapore. A*STAR oversees 14 biomedical sciences and physical sciences and engineering research institutes, and six consortia and centres, located in Biopolis and Fusionopolis as well as their immediate vicinity.

A*STAR supports Singapore's key economic clusters by providing intellectual, human and industrial capital to its partners in industry. It also supports extramural research in the universities, and with other local and international partners.

For more information about A*STAR, please visit www.a-star.edu.sg.

ANNEX A

CITATIONS OF IME PAPERS:

1. 25 to 300 Degree Celsius 80bps Acoustic Transmitter Based on Crystal-Less Temperature-Independent Frequency Reference with Differential Modulation for Drilling Noise Power Cancellation

Lianhong Zhou^{1,2}, Libin Yao¹, Chun-Huat Heng¹, Muthukumaraswamy Annamalai², Minkyu Je², Wei Kwang Han³, Laksmi Sutha³ and Yong Liang Guan³

*¹ECE Department, National University of Singapore, Singapore, ²Institute of Microelectronics, A*STAR, Singapore, ³School of EEE, Nanyang Technological University Singapore, Singapore*

2. A 457-nW Cognitive Multi-Functional ECG Processor

Xin Liu¹, Jun Zhou¹, Yongkui Yang^{1,2}, Bo Wang^{1,2}, Lang Jingjing¹, Chao Wang¹, Jianwen Luo¹, Wang Ling Goh², Tae-Hyoung Kim² and Minkyu Je¹

*¹Institute of Microelectronics, A*STAR, Singapore, ²School of EEE, Nanyang Technological University, Singapore*

3. HEPP: A New In-Situ Timing-Error Prediction and Prevention Technique for Variation-Tolerant Ultra Low Voltage Designs

Jun Zhou, Xin Liu, Yat Hei Lam, Chao Wang, Kah Hyong Chang, Jingjing Lan and Minkyu Je

*Institute of Microelectronics, A*STAR, Singapore*

4. A Fast and Energy-Efficient Level Shifter with Wide Shifting Range from Sub-threshold up to I/O Voltage

Jun Zhou, Chao Wang, Xin Liu, Xin Zhang and Minkyu Je

*Institute of Microelectronics, A*STAR, Singapore*

5. A 0.18V Charge-Pumped DFF with 50.8% Energy-Delay Reduction for Near-/Sub-threshold Circuits

Bo Wang^{1,2}, Jun Zhou², Kah Hyong Chang², Minkyu Je² and Tony T.Kim¹

¹*VIRTUS, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore,* ²*Institute of Microelectronics, A*STAR, Singapore*

6. A Pressure/Oxygen/Temperature Sensing SoC for Multimodality Intracranial Neuromonitoring

Wai Pan Chan¹, Arup K. George^{1,2}, Margarita Sofia Narducci¹, Julius Ming-Lin Tsai¹, Abdur Rub Abdur Rahman¹, Mi Kyoung Park¹, Jai Prashanth Rao³, Yuan Gao¹ and Minkyu Je¹

¹*Institute of Microelectronics, A*STAR, Singapore,* ²*Nanyang Technological University, Singapore,* ³*National Neuroscience Institute, Singapore*

7. An Energy-Autonomous Piezoelectric Energy Harvester Interface Circuit with 0.3V Startup Voltage

Yuan Gao¹, I Made Darmayuda¹, San-Jeow Cheng¹, Minkyu Je¹ and Chun-Huat Heng²

¹*Institute of Microelectronics, A*STAR, Singapore,* ²*Department of Electrical and Computer Engineering, National University of Singapore, Singapore*

8. A Time-Domain Smart Temperature Sensor without an Explicit Bandgap Reference in SOI CMOS Operating up to 225°C

Jerrin Pathrose^{1,2}, Lei Zou¹, Kevin T.C Chai², Minkyu Je^{2,1} and Yong Ping Xu¹

¹*Department of Electrical & Computer Engineering, National University of Singapore, Singapore,* ²*Institute of Microelectronics, A*STAR, Singapore*

9. A Wireless Power Management and Data Telemetry Circuit Module for High-Compliance-Voltage-Electrical Stimulation Applications

Jianming Zhao^{1,2}, Lei Yao², Rui-Feng Xue³, Peng Li², Minkyu Je^{1,2} and Yong Ping Xu¹

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