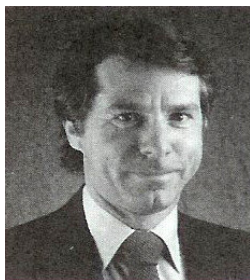




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Roger A. Haken Best Student Paper Award



The Roger A. Haken Best Student Paper Award is awarded each year to the best student paper presented at IEDM, and is given at the IEDM conference in the following year. The award was created in memory of Roger A. Haken who served on the IEEE IEDM Executive Committee for several years including as technical program vice chair in 1990 when he passed away in June of that year.

Roger Haken was a Texas Instruments Senior Fellow & Research Manager of Submicron CMOS/BiCMOS at the TI Semiconductor Process and Design Center. He invented the use of both Phosphorus and

Arsenic as doping in NMOSFET to improve junction breakdown and to reduce hot carrier generation. His work on self-aligned silicide led to the use of Titanium Nitride formed concurrently during self-aligned silicidation as local interconnect, published in IEDM 1985. He led the development of an 8ns 256KSRAM in 0.8 μ m technology utilizing a CMOS array and ECL IO, reported in IEDM 1987. Subsequently, in IEDM 1989, his team reported a 5ns 4Mb SRAM in 0.5 μ m CMOS/BiCMOS technology.

Before joining Texas Instruments, he was with the General Electric Company at the Hurst research Center, London. He received the Higher National Diploma in electrical and electronic engineering from Southampton College of Technology, Hampshire, England, in 1971 and the MS and PhD degrees in electronics from the University of Southampton in 1972 and in 1975, respectively. He held 43 patents and was author or co-author of over 30 technical publications.

2021 IEEE IEDM Best Student Paper Award Winner

Chung-En Tsai, National Taiwan University, for the paper entitled "Highly Stacked 8 Ge_{0.9}Sn_{0.1} Nanosheet pFETs with Ultrathin Bodies (~3nm) and Thick Bodies (~30nm) Featuring the Respective Record ION/IOFF of 1.4x10⁷ and Record ION of 92 μ A at VOV=VDS= -0.5V by CVD Epitaxy and Dry Etching".

Recent past winners:

- **2020 Kei Sumita**, for the paper entitled "Subband Engineering by Combination of Channel Thickness Scaling and (111) Surface Orientation in InAs-On-Insulator nMOSFETs"

- **2019 Markus Jech, Technische Universitaat Wien**, for the paper entitled "First-Principles Parameter-Free Modeling of n- and p-FET Hot-Carrier Degradation".
- **2018 Wenjie Lu, Massachusetts Institute of Technology**, for the paper entitled, "First Transistor Demonstration of Thermal Atomic Layer Etching: InGaAs FinFETs with sub-5 nm Fin-width Featuring in-situ ALE-ALD"
- **2017 Felix Eltes, IBM Research – Zurich**, for the paper entitled, "A Novel 25 Gbps Electro-optic Pockels Modulator Integrated on an Advanced Si Photonic Platform"
- **2016 Roman Koerner, University of Stuttgart/Philips U-L-M Photonics**, for the paper entitled, "The Zener-Emitter: A Novel Superluminescent Ge Optical Waveguide-Amplifier with 4.7 dB Gain at 92 mA Based on Free-Carrier Modulation by Direct Zener Tunneling Monolithically Integrated on Si".
- **2015 Xiao Yu, The University of Tokyo**, for the paper entitled, "Experimental Study on Carrier Transport Properties in Extremely-Thin Body Ge-on-Insulator (GOI) p-MOSFETs with GOI Thickness down to 2nm".
- **2014 Jianqiang Lin, Massachusetts Institute of Technology** for "Novel Intrinsic and Extrinsic Engineering for High-Performance High-Density Self-Aligned InGaAs MOSFETs: Precise Channel Thickness Control and Sub-40-nm Metal Contacts"
- **2013 Umberto Celano, imec** for "Conductive-AFM Tomography for 3D Filament Observation in Resistive Switching, Devices"
- **2012 Han Wang, Massachusetts Institute of Technology**, for "Large-Scale 2D Electronics Based Single-Layer MoS₂ Grown by Chemical Vapor Deposition"

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