THESIS AWARD, 2008–2009

S.B.

Chao, A. (K. K. Berggren)
Salty Development of an Optical Photoresist

Collins, K. (C. Livermore)
Computational Fluid Dynamic (CFD) Optimization of Microfluidic Mixing in a MEMS Steam Generator

Mieville, F. (T. Palacios)
Suitability of GaN HEMTs for Digital Electronics

Quinones, L. (C. Livermore)
Carbon Nanotubes: A Study on Assembly Methods

S.M.

Alexander, B. A. (E. N. Wang)
Design of a Microbreather for Two-Phase Microchannel Devices

Chung, H. W. (A. P. Chandrakasan)
A Low-Power AES Processor with DPA-Resistance

Communal, A. (D. S. Boning)
Challenges Faced by a Global Team: the Case of the Tool Reuse Program at Intel

Georgas, M. (V. M. Stojanovic)
An Optical Data Receiver for Integrated Photonic Interconnects

George, D. (D. S. Boning, C. Fine)
Understanding the Effects of Larger Wafers on the Global Semiconductor Equipment Supply Chain

He, D. (C. G. Sodini)
An Organic Thin-Film Transistor Circuit for Large Area Temperature Sensing

Hill, T. (C. Livermore)
Energy Storage in Carbon Nanotube Supersprings

Hu, X. (K. K. Berggren)
Coupling Light to Superconductive Photon Counters

Jin, Y. (H. L. Tuller)
Toxic Gas Sensors using Thin Film Transistor Platform at Low Temperature

Leu, J. (K. K. Berggren)
Templated Self-Assembly of sub-10 nm Quantum Dots

Leu, C. Y. (V. M. Stojanovic)
A 9GHz Injection Locked Loop Optical Clock Receiver in 32-nm CMOS

Li, L. (J. Han)
Imunoassay Sensitivity and Kinetic Enhancement in Cell Culture Media using Electrokinetic Preconcentration

Liu, V. (J. Han)
Development of an Integrated Capillary valve-based Preconcentrator and a Surface-based Immunoassay

Lu, K. (C. G. Sodini)
Digital Phase Tightening for Improved Spatial Resolution in Millimeter-Wave Imaging Systems

Mittal, S. (S. N. Bhatia)
Micropatterned Cell Arrays for Detecting DNA Damage

Moss, B. (V. M. Stojanovic)
Charge-Injection Circuits for Monolithic Silicon-Photonic Devices: Switches and Modulators

Nabanja, S. (L. A. Kolodziejski)
Design and Fabrication of Quantum-Dot Lasers

Peck, J. (S. G. Kim)
Securing the Safety Net: Applying Manufacturing Systems Methods towards Understanding and Redesigning a Hospital Emergency Department

Pulitzer, S. (D. S. Boning)
Transitioning Technology from R&D to Production

Schmitt, C. (A. P. Chandrakasan)
Carbon Nanotube-Based Nanorelays for Low-Power Circuit Applications

Schoener, D. (C. G. Sodini)
Supply Chain Risk Management Through Bill of Materials & Component Analysis
Winston, D.  
(K. K. Berggren)  
Nodal Photolithography: Lithography via Far-Field Optical Nodes in the Resist

Yip, M.  
(A. P. Chandrakasan)  
A Highly Digital, Reconfigurable and Voltage Scalable SAR ADC

Zhou, H.  
(M. A. Schmidt)  
Micromechanical actuators for insect flight mechanics

M.Eng.

Harrison, B.  
(J. A. del Alamo)  
Expanding the Capabilities of ELVIS iLabs using Component Switching

Henry, W.  
(V. M. Stojanovic)  
System Architecture for a Mode-Matched MEMS Gyroscope

Liang, H.  
(A. P. Chandrakasan)  
A High Speed Image Transmission System for Ultra-Wideband Wireless Links

Ma, Y.  
(V. M. Stojanovic)  
Companding Techniques for High Dynamic Range Audio CODEC Receiver Path

Mukherjee, K.  
(H. L. Tuller)  
Electrospun Nanofibers – Opportunities in Environment and Energy

Nagarajan, R.  
(C. V. Thompson)  
Commercialization of Low Temperature Cu Thermocompression Wafer Bonding for 3D

Price, M.  
(V. M. Stojanovic)  
Asynchronous Data-dependent Jitter Compensation

Qixun, W.  
(C. V. Thompson)  
Commercialization of Gallium Nitride Nanorod Arrays on Silicon for Solid-State Lighting

Shamir, O.  
(L. A. Kolodziejski)  
Development of Ultra-Broadband Modulators

Song, Y.  
(H. L. Tuller)  
Oxide Based Thermoelectric Materials for Large Scale Power Generation

Ph.D.

Anikeeva, P.  
(V. Bulovic)  
Physical Properties and Design of Light-Emitting Devices Based on Organic Materials and Nanoparticles

Bhardwaj, M.  
(A. P. Chandrakasan)  
Communications Under Observation Constraints

Bora, M.  
(M. A. Baldi)  
Chemical and biosensors

Bradley, M. S.  
(V. Bulovic)  
Engineering J-Aggregate Cavity Exciton-Polariton Devices

Daly, D.  
(A. P. Chandrakasan)  
Digital ADCs and Ultra-Wideband RF Circuits for Energy Constrained Wireless Applications

Dauler, E.  
(K. K. Berggren)  
Multi-element superconducting nanowire single-photon detectors

Drego, N.  
(D. S. Boning, A. P. Chandrakasan)  
Characterization and Mitigation of Process Variation in Digital Circuits and Systems

Finchelstein, D.  
(A. P. Chandrakasan)  
Low-Power Techniques for Video Decoding

Giermann, A.  
(C. V. Thompson)  
Templated Dewetting of Thin Solid Films

Harris, T. J.  
(S. N. Bhatia)  
Nanoparticle Coatings for Spatial and Temporal Control of Cancer Imaging and Therapy

Hill, T.  
(C. Livermore)  
Microchemical Systems for Singlet Oxygen Generation

Ho, J.  
(V. Bulovic)  
Organic Lateral Heterojunction Devices for Vapor-phase Chemical Detection

Ickes, N.  
(A. P. Chandrakasan)  
A Micropower DSP for Sensor Applications

Lee, J.-K.  
(D. A. Antoniadis)  
Design and Characterization of Si/SiGe Heterostructure sub-100-nm p-MOSFET

Leib, J.  
(C. V. Thompson)  
Relationships Between Grain Structure and Stress in Thin Volmer-Weber Metallic films

Lim, D.  
(D. S. Boning)  
Characterization of Process Variability and Robust Optimization of Analog Circuits

Litzelman, S.  
(H. L. Tuller)  
Modification of Space Charge Transport in Nanocrystalline Cerium Oxide by Heterogeneous Doping
Nayfeh, O.
(D. A. Antoniadis)
Nonvolatile Memory Devices with Colloidal, 1.0 nm Silicon Nanoparticles: Principles of Operation, Fabrication, Measurements, and Analysis

Nessim, G. D.
(C. V. Thompson)
Carbon Nanotube Synthesis for Integrated Circuit Interconnects

Powell, J.
(C. G. Sodini)
SiGe Receiver Front End and Packaged Wideband Antennas for Millimeter-Wave Passive Imaging

Ramadass, Y.
(A. P. Chandrakasan)
Energy Processing Circuits for Low-Power Applications

Sou, K. C.
(L. Daniel, A. Megretski)
A Quasi-Convex Optimization Approach to Parameterized Model Order Reduction

Verma, N.
(A. P. Chandrakasan)
Ultra-Low-Power SRAM Design in High Variability Advanced CMOS

von Maltzahn, G.
(S. N. Bhatia)
A Systems Approach to Engineering Cancer Nanotechnologies

Wee, K. H.
(R. Sarpeshkar)
An Analog VLSI Vocal Tract

Yang, J.
(K. K. Berggren)
Advancements in superconducting nanowire single photon detectors and development of fabrication methods for sub-10-nm lithography

Yen, B.
(J. H. Lang)
A Fully-Integrated Multi-Watt Permanent-Magnet Turbine Generator

Zhak, S. M
(R. Sarpeshkar)
Modeling and Design of an Active Silicon Cochlea