Theses Awarded

**S.B.**

- **Beth Cholst** (M. Kolle)
  Elastic Stretchable Optical Fibers

**M.ENG.**

- **Ariana Eisenstein** (V. Sze)
  An FPGA Platform for Demonstrating Embedded Vision Systems
- **Taylor Farnham** (K. Varanasi)
  Hydrate Mitigation: Controlling Nucleation, Growth and Adhesion of Clathrate Hydrates
- **Luis Fernandez** (A. P. Chandrakasan)
  Parallel Implementation of Sample Adaptive Offset Filtering Block for Low-Power HEVC Chip
- **Matthew Fox** (V. Sze)
  Functional and Timing Models for a Programmable Hardware Accelerator
- **George Kakuru** (C. G. Sodini)
  Design of On-Chip Measurement Circuits
- **Pranav R. Kaundinya** (R. Han)
  Synthetic Impedance Generation in mm-Wave Oscillators and Amplifiers
- **Anders Wen-Dao Lee** (C. G. Sodini)
  The Design of a High Precision, Wide Common Mode Range Auto-Zero Comparator
- **Sarathy Sudarshan** (K. Varanasi)
  Nanoengineered Surfaces for Controlling Wetting and Electromagnetic Interactions
- **Wegene Tadele** (C. Warde)
  Design of Optoelectronic Activation Functions for COIN Co-processor
- **Michael Wu** (R. Han)
  A Common Platform for Current Sensor Product Evaluation in Industrial Automation Applications

**S.M. & M. ENG.**

- **Naomi Arnold** (D. S. Boning)
  Wafer Defect Prediction with Statistical Machine Learning
- **Ana Maria Ortiz Garcio** (D. S. Boning)
  Evaluating Inventory Ordering Policies: A Methodology and Application
- **Kyle Wilke** (E. N. Wang)
  Thin Film Evaporation from Nanopores for Thermal Management

**S.M.**

- **Ermal Dreshaj** (V. M. Bove, Jr.)
  Holosuite: An Exploration into Interactive Holographic Telepresence
- **Chuhong Duan** (A. P. Chandrakasan)
  Energy Efficient Reconfigurable SRAM Using Data-Dependence
- **Preetinder Garcha** (A. P. Chandrakasan)
  Fully Integrated Therman Energy Harvesting System to Start up at 20 mV
- **Sami Khan** (K. K. Varanasi)
  Wetting and Interfacial Properties of Rare-Earth Oxide Ceramics
- **Sara Nagelberg** (M. Kolle)
  Tunable Liquid Microlenses formed from Dynamically Reconfigurable Double Emulsions
- **Sirma Orguc** (A. P. Chandrakasan)
  0.3v Biopotential Sensor Interface for Stress Monitoring
- **Cheng Peng** (D. Englund)
  Towards Infrared Plasmonics and Nonlinear Optics in Graphene
- **Wendi Reib** (C. G. Sodini)
  Increasing Patient Throughput in the MGH Cancer Center Infusion Unit
- **Joseph Sandt** (M. Kolle)
  Scalable Manufacture and Synchronized Optical/Mechanical Characterization of Tunable Elastic Photonic Fibers
- **Christopher Wing** (M. Kolle)
  Bragg Reflector Geometries for Colorimetric Orientation and Deformation Sensing
- **Patricia Yen** (T. Buonassissi)
  Determining the Structure-Property-Process Relationships for Laser-Fired Contacts for Solar Cells

**PH.D.**

- **Solomon Adera** (E. N. Wang)
  Thin Film Evaporation on Micropillar Arrays
- **Brian Albert** (L. C. Kimerling and J. Michel)
  Germanium on Silicon Heteroepitaxy for High Efficiency Photovoltaic Devices
- **Georgios Angelopoulos** (A. P. Chandrakasan and M. Medard)
  Improving the Energy Efficiency and Reliability of Wireless Sensor Networks Using Coding Techniques
PH.D. (continued)

- **Bichoy Bahr (L. DANIEL)**
  Monolithically Integrated MEMS Resonators and Oscillators in Standard IC Technology.

- **Wubin Bai (C. A. ROSS)**
  Block Copolymer Self-Assembly and Templating Strategies

- **David Berney Needleman (T. BUONASSISSI)**
  Performance Limits of Silicon Solar Cells Due to Structural Defects

- **Hyun Ho Boo (H.-S. LEE)**
  Virtual Ground Reference Buffer Technique in Switched-Capacitor Circuits

- **Riley E. Brandt (T. BUONASSISSI)**
  Accelerating the Development of Novel Photovoltaic Materials

- **Patrick Brown (V. BULOVIĆ)**
  Energy Level Engineering in Colloidal Quantum Dot Solar Cells

- **Sergio Castellanos (T. BUONASSISSI)**
  Electrical-Impact Assessment of Dislocations in Silicon Materials for Solar Cells

- **Rupak Chakraborty (T. BUONASSISSI)**
  Structural Defect Engineering of Tin (II) Sulfide for Solar Cells

- **Ritchie Chen (P. ANIKEEVA)**
  High-Performance Ferrite Nanoparticles for Magnetothermal Neural Excitation

- **Bhavya Daya (A. P. CHANDRAKASAN and L. S. PEH)**
  SC*EPTON: High-Performance and Scalable, Low-Power and Intelligent, Ordered Mesh On-Chip Network

- **Aalap Dighe (J. VOLDMAN)**
  Reconfigurable Neural Probes for Chronic Electrical Recording

- **Bruno Do Valle (C. G. SODINI)**
  Subdermal Implantable EEG Monitor for Seizure Detection

- **Burak Dura (J. VOLDMAN)**
  Microfluidic Single-Cell Technologies for Assaying Lymphocyte Interactions

- **Dina El-Damak (A. P. CHANDRAKASAN)**
  Power Management Circuits for Ultra-low Power Systems

- **Sema Ermez (S. GRADECOK)**
  Self-seeded III-V Semiconductor Nanowire Growth by Metal-organic Chemical Vapor Deposition (MOCVD)

- **Wenjing Fang (J. KONG)**
  Synthesis of Bilayer Graphene and Hexagonal Boron Nitride by Chemical Vapor Deposition

- **Stephen Guerrera (A. I. AKINWANDE)**
  Highly Scaled Silicon Field Emitter Arrays with Integrated Silicon Nanowire Current Limiters

- **Sungjae Ha (A. P. CHANDRAKASAN and T. PALACIOS)**
  Energy-Aware System Design Using Circuit Reconfigurability with a Focus on Low-Power SRAMs

- **Daniel Hanks (E. N. WANG)**
  Evaporation from Nanoporous Membranes for High Heat Flux Thermal Management

- **Wardah Inam (D. J. PERREAUDET)**
  System Analysis and Design of High-Efficiency Power Converters for Grid Operation

- **Ryan Iutzi (E. FITZGERALD)**
  Interband Quantum Tunneling at the Band-Edges in III-V Semiconductor Heterojunctions for Low-Power Logic and Detectors

- **Daniel Kumar (H.-S. LEE)**
  Calibration of Sampling Clock Skew in High-Speed Time-Interleaved ADCs

- **John Haeseon Lee (D. S. BONING and B. ANTHONY)**
  Measuring the Concentration of Microparticles in Suspension Using 2D Ultrasound Images

- **Luozhou Li (D. ENGLUND)**
  Diamond Device Fabrication for Quantum Information Processing and Sensing

- **Zhipeng Li (V. STOJANOVIC)**
  Efficient Baseband Design and Implementation for High-Throughput Transmitters

- **Bolin Liao (M. DRESSELHAUS)**
  Nanoscale Electron, Phonon and Spin Transport in Thermoelectric Materials

- **Seungbum Lim (D. J. PERREAUDET)**
  High Frequency Power Conversion Architecture for Grid Interface

- **Maria Luckyanova (M. DRESSELHAUS)**
  Observation and Manipulation of the Wave Nature of Phonon Thermal Transport Through Superlattices

- **Qiong Ma (P. JARILLO-HERRERO)**
  Optoelectronics of Graphene-Based van der Waals Heterostructures

- **Jonathan P. Mailoa (T. BUONASSISSI)**
  Beyond the Shockley-Queisser Limit: Intermediate Band and Tandem Solar Cells Leveraging Silicon and CdTe Technology

- **Vitor Manfrinato (K. K. BERGGREN)**
  Electron-beam Lithography Towards the Atomic Scale and Applications to Nano-Optics

- **Tim Milsakovitch (E. FITZGERALD)**
  Integration of GaAsP Alloys on Si for High-Efficiency III-V/II-VI PV
• Ashley E. Morishige (T. Buonassissi)  
Predictive Engineering of Metal Impurities in n-type Crystalline Silicon for Cost-Effective, High-Performance Solar Cells

• Jacob Mower (D. Enlund)  
Photonic Quantum Computers and Communication Systems

• Faraz Najafi (K. K. Berggren)  
Superconducting Nanowire Single-Photon Detectors: New Detector Architectures and Integration with Photonic Chips

• Eric Newton (M. A. Schmidt)  
Design of Curved Electrodes to Enable Large Stroke - Low Voltage Micro Actuators

• Samuel Nicaise (K. K. Berggren)  
Template-Based Control for Bottom-Up Nanostructures-Multilayer

• Arun Paidimarri (A. P. Chandrakasan)  
Circuits and Protocols for Low Duty Cycle Wireless Systems

• Brian Pearson (L. C. Kimeling and J. Michel)  
Germanium Photodetectors on Amorphous Substrates for Electronic-Photonic Integration

• Michael Price (A. P. Chandrakasan)  
Energy-Scalable Speech Recognition Circuits

• Ujwal Radhakrishna (D. A. Antoniadis)  
Modeling Gallium Nitride based High Electron Mobility Transistors: Linking Device Physics to High Voltage and High Frequency Circuit Design

• Joaquin Rodriguez-Nieva (M. Dresselhaus)  
Novel Electronic Behaviors in Graphene Nanostructures

• Amelia Servi (K. K. Gleason)  
Advancing Hydrophobic Desalination Membranes using Initiated Chemical Vapor Deposition (iCVD)

• Sophia Sklan (M. Dresselhaus)  
Dynamical Tuning of Phonon Transport for Information and Energy Control

• Brian Solomon (K. K. Varanasi)  
Enhancing Separation and Drag Reduction

• Geoffrey Supran (V. Bulovic)  
Enhancing Quantum Dot Luminescence in Visible and Infrared Light Emitting Devices

• Lidan Wu (J. Han)  
High Throughput Microfluidic Technologies for Cell Separation and Single Cell Analysis

• Gilad Yahalom (A. P. Chandrakasan)  
Analog-Digital Co-Existence in 3D-IC

• Do Yeon Yoon (H.-S. Lee)  
A Continuous-Time Multi-Stage Noise-Shaping Delta-Sigma Modulator for Next Generation Wireless Applications

• Tao Yu (J. L. Hoyt and D. A. Antoniadis)  
InGaAs/GaAsSb Quantum-well Tunnel-FET for Ultra-low Power Applications