

Theses Awarded

S.B.

- **Mariah Hake** (K.K. VARANASI)
Experimental Design to Determine the Effect of Temperature and Mach Number on Entropy Noise
- **Colleen Loynachan** (P.O. ANIKEEVA)
Targeted Magnetic Nanoparticles for Remote Manipulation of Protein Aggregation

M.ENG.

- **Johanna Chong** (R.J. RAM)
Integrated Single and Multiwavelength Fiber Ring Laser with Non-integrated Gain
- **Ragheb El Khaja** (J. HAN)
Electro-chemical Stimulation of Neuromuscular Systems Using Ion-Selective Membranes: Flexible Device Fabrication and Motor Unit Recruitment Order
- **Itaru Hiromi** (C.G. SODINI)
Hybrid Intensity and Time-Off Flight Signal Processing Techniques for Intelligent Distance Sensors
- **Yuxuan Lin** (T. PALACIOS)
Optical properties of 2-dimensional transition metal dichalcogenides
- **Kevin Linke** (C.G. SODINI)
On-Chip Input for a High Voltage SAR ADC
- **Anartya Mandal** (J.A. DEL ALAMO)
Modeling 0.18 μ m BiCMOS (S18) High Sheet Resistance (RPH) Polysilicon Resistor Lifetime Drift
- **Alec Poitsch** (C.G. SODINI)
A High Voltage, High Current, Low Error Operational Amplifier with Novel Features
- **Joohyun Seo** (C.G. SODINI)
Continuous and Non-Invasive Blood Pressure Monitoring Using Ultrasonic Methods
- **Ky-Anh Tran** (C.G. SODINI)
A Spread-Spectrum Clock Generator Using Phase Interpolation for EMI Reduction
- **Theresa Yeh** (T. PALACIOS AND A.P. CHANDRAKASAN)
Efficient Wireless Charging with Gallium Nitride FETs
- **Xianzhen Zhu** (C.G. SODINI)
Build Blocks of a 250MHz bandwidth, 10-bit Continuous-time Delta-Sigma Analog to Digital Converter

S.M.

- **Fahri Erinc Hizir** (N.X. FANG)
Experiments and Simulations on a Metamaterial Based Ultrasonic Scanner
- **Rui Jin** (A.P. CHANDRAKASAN)
Circuits and Systems for Efficient Portable-to-Portable Wireless Charging
- **Karim Khalil** (K.K. VARANASI)
Active Lubricant-Impregnated Surfaces
- **Yoon Kyung Lee** (N.X. FANG)
Light Induced Torque at Multipolar Plasmon Resonance
- **Wenjie Lu** (J.A. DEL ALAMO)
Nano-scale Ohmic Contacts for III-V MOSFETs
- **Ian McKay** (E.N. WANG)
A Thermo-Adsorptive Battery
- **Daniel Preston** (E.N. WANG)
Electrostatic Charging of Jumping Droplets on Superhydrophobic Nanostructured Surfaces: Fundamental Study and Applications
- **Priyanka Raina** (A.P. CHANDRAKASAN)
Architectures for Computational Photography
- **Yufei Wu** (J.A. DEL ALAMO)
Degradation of GaN High Electron Mobility Transistors under High-power and High-Temperature Stress
- **Yang Xi** (H.-S. LEE)
Design of a Continuous-Time Bandpass Delta-Sigma Modulator
- **Yujia Yang** (K.K. BERGGREN)
Development of Optical Field Emitter Arrays
- **Tao Yu** (J.L. HOYT)
InGaAs/GaAsSb Type-II Heterojunction Vertical Tunnel-FETs
- **Dongni Zhang** (A.P. CHANDRAKASAN)
Low-Energy Radix-2 Serial and Parallel FFT Designs

PH.D.

- **Gleb Akselrod** (V. BULOVIĆ)
Exciton Transport and Coherence in Molecular and Nanostructured Materials
- **Mohammad Araghchini** (J.H. LANG)
MEMS Toroidal Magnetics for Integrated Power Electronics
- **Jay-Byum Chang** (K.K. BERGGREN)
Templated Self-Assembly for Complex Pattern Fabrication and Computation

PH.D. (CONTINUED)

- **Albert Chang** (D.S. BONING AND H.-S. LEE)
Low-Power High-Performance SAR ADC with Redundancy and Digital Background Calibration
- **Kailiang Chen** (C.G. SODINI AND A.P. CHANDRAKASAN)
A Column-Row-Parallel ASIC Architecture for 3D Wearable / Portable Medical Ultrasonic Imaging
- **Hyungryul Choi** (N.X. FANG AND G. BARBASTATHIS)
Nanostructured Multifunctional Surfaces
- **Sungwon Chung** (H.-S. LEE)
Energy-Efficient Wireless Transmitter Architecture for Mobile Multimedia
- **Isaac Ehrenberg** (N.X. FANG AND S. SARMA)
Fully Conformal Metamaterials via Rapid 3D Prototyping
- **Feng Gao**, (T. PALACIOS)
Impact of Electrochemical Process on the Degradation Mechanisms of AlGaIn/GaN HEMTs
- **Sushmit Goswami** (H.-S. LEE)
Monolithic RF Frontends for Ubiquitous Wireless Connectivity
- **Stephen A. Guerrero** (A.I. AKINWANDE)
Individually Controlled Field Emission Arrays
- **Amneet Gulati** (S. MANALIS)
Mass-based assay for single-cell growth in budding yeast
- **David He**, (C.G. SODINI)
Dynamic ON-Resistance in High-Voltage GaN Field-Effect Transistors
- **Eric V. Heubel** (L.F. VELÁSQUEZ-GARCÍA)
Enhancing RPA Energy Measurements with Micro-Aligned Electrodes
- **Sha Huang** (J. HAN)
The Relevance of Red Blood Cell Deformability in the Pathophysiology of Blood Disorders
- **Thomas Humplik** (E.N. WANG)
Investigating Transport Through Sub-Nanometer Zeolites Pores
- **Donghyun Jin** (J.A. DEL ALAMO)
Dynamic ON-resistance in High-Voltage GaN Field-Effect Transistors
- **Rhokyun Kwak** (J. HAN)
Nonlinear Ion Concentration Polarization: Fundamentals and Applications
- **Hyuk-Min Kwon** (K.K. VARANASI)
Tailoring Hydrodynamics of Non-wetting Droplets with Nano-engineered Surfaces
- **Dong Seup Lee** (T. PALACIOS)
Deeply-Scaled GaN High Electron Mobility Transistors for RF Applications
- **Sunghyuk Lee** (H.-S. LEE)
Techniques for Low-Power High-Performance ADCs
- **Andrej Lenert** (E.N. WANG)
Tuning Energy Transport in Solar Thermal Systems using Nanostructured Materials
- **Prayudi Lianto** (C.V. THOMPSON)
Mechanism of Catalyst Stability of Metal-Assisted Chemical Etching of Silicon
- **Jill Macko** (V. BULOVIĆ)
Nanostructural Engineering of Vapor-Processed Organic Photovoltaics for Efficient Solar Energy Conversion from Any Surface
- **Mariana Markova**, (H.-S. LEE)
Precision Hybrid Pipeline ADC
- **Nenad Miljkovic** (E.N. WANG)
Development and Characterization of Micro/ Nanostructured Surfaces for Enhanced Condensation
- **Robert R. Mitchell III** (C.V. THOMPSON)
Investigation of Lithium-Air Battery Discharge Product Formed on Carbon Nanotube and Nanofiber Electrodes
- **Adam Paxson** (K.K. VARANASI)
Advanced Materials for Enhanced Condensation Heat Transfer
- **Rahul Rithe** (A.P. CHANDRAKASAN)
Energy-Efficient Systems Design for Mobile Processing Platforms
- **Parthiban Santhanam** (R.J. RAM)
Thermo-Electrically Pumped Semiconductor Light Emitting Diodes
- **Yasuhiro Shirasaki** (V. BULOVIĆ)
Efficiency loss mechanisms in colloidal quantum-dot light-emitting diodes
- **Yildiz Sinangil** (A.P. CHANDRAKASAN)
Energy-Aware System Design Using Circuit Reconfigurability with a Focus on Low-Power SRAMs
- **Han Wang**, (T. PALACIOS)
Two-Dimensional Materials for Electronic Applications
- **Eric Winokur**, (C.G. SODINI)
Single-Site, Noninvasive, Blood Pressure Measurements at the Ear Using Ballistocardiogram (BCG) and Photoplethysmogram (PPG) and a Low Power, Reflectance-Mode PPG SoC
- **Liang Jie Wong** (L.F. VELÁSQUEZ-GARCÍA)
Compact Laser-Driven Electron Acceleration, bunch compression, and Coherent Nonlinear Thompson Scattering (main advisor was F. X. Kärtner)
- **Marcus Yip** (A.P. CHANDRAKASAN),
Ultra-low-power Circuits and Systems for Wearable and Implantable Medical Devices
- **Hang Yu** (C.V. THOMPSON)
Mechanisms for Intrinsic Stress Evolution During and after Polycrystalline Film Growth