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SELECTED PUBLICATIONS

D. Weninger, S. Serna, A. Jain, L. Kimerling, and A. Agarwal, "High Density Vertical Optical Interconnects for Passive Assembly," *Optics Express*, Vol. 31, No. 2, Pages 2816-2832, Optica Publishing Group, 2023.

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L. Ranno, J. X. B. Sia, C. Popescu, D. Weninger, S. Serna, S. Yu, L. C. Kimerling, A. Agarwal, T. Gu, and J. Hu, "Highly Efficient Fiber to Si Waveguide Free-form Coupler for Foundry-scale Silicon Photonics," *Photonics Research*, Vol. 12, Issue 5, Pages 1055-1066, Optica Publishing Group, 2024.

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SELECTED PUBLICATIONS

G. Rughoobur, Á. Sahagún, O. O. Ilori, and A. I. Akinwande, "Nano-fabricated Low Voltage Gated Si Field Ionization Arrays," *IEEE Transactions on Electron Devices (TED)* 2020.

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SELECTED PUBLICATIONS

Y. Lee, F. Koehler, T. Dillon, G. Loke, Y. Kim, J. Marion, M.-J. Antonini, I. C. Garwood, A. Sahasrabudhe, K. Nagao, X. Zhao, Y. Fink, E. T. Roche, P. Anikeeva, "Magnetically Actuated Fiber-Based Soft Robots," *Adv. Mater.* 2023, 35, 2301916. [**Link**]

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SELECTED PUBLICATIONS

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SELECTED PUBLICATIONS

M. Einzinger, T. Wu, J. F. Kompalla, H. L. Smith, C. F. Perkinson, L. Nienhaus, S. Wieghold, D. N. Congreve, A. Kahn, M. G. Bawendi, and M. A. Baldo, "Sensitization of Silicon by Singlet Exciton Fission in Tetracene," *Nature*, 571, 90-94, 2019.

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SELECTED PUBLICATIONS

Z. Zhang, S. I. El-Henawy, C. Rios, and D. Boning, "Inference of Process Variations in Silicon Photonics from Characterization Measurements," *Optics Express*, vol. 31, no. 14, pp. 23651-23661, Jul. 2023.

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SELECTED PUBLICATIONS

E. L. Wassweiler, M. Sponseller, A. Osherov, J. Jean, M. G. Bawendi, and V, Bulović, "Metal Oxide Interlayers Enable Lower-Cost Electrodes in PbS QD Solar Cells," *ACS Applied Energy Materials* 6, 5646–5652 (2023).

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SELECTED PUBLICATIONS

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RECENT PUBLICATIONS

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T. Butruille, J.C. Crone, and C. M. Portela, "Decoupling Particle-impact Dissipation Mechanisms in 3D Architected Materials," *Proc. Natl. Acad. Sci.* 121 (2024)

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SELECTED PUBLICATIONS

A. Chandrasekhar, R. Padrós-Valls, R. Pallares-Lopez, E. Palanques-Tost, N. Houstis, T. M. Sundt, H.-S. Lee, C. G. Sodini, and A. D. Aguirre, "Tissue Perfusion Pressure Enables Continuous Hemodynamic Evaluation and Risk Prediction in the Intensive Care Unit," *Nature Medicine*, vol. 29, no. 8, pp. 1998-2006.

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SELECTED PUBLICATIONS

P. Z. X. Li, S. Karaman, and V. Sze, "GMMap: Memory-Efficient Continuous Occupancy Map Using Gaussian Mixture Model," I*EEE Transactions on Robotics (T-RO)*, Vol. 40, pp. 1339 – 1355, Jan. 2024.

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SELECTED PUBLICATIONS

A. Kachkine and L. F. Velásquez-García, "High-Performance, Low-Cost, Additively Manufactured Electrospray Ion Sources for Mass Spectrometry," *J. of the American Society for Mass Spectrometry*, Vol. 35, No. 5, pp. 862–870, May 2024. doi: 10.1021/jasms.3c00409

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SELECTED PUBLICATIONS

L.-Y. Yu, and S. You, "High-Fidelity and High-Speed Wavefront Shaping by Leveraging Complex Media," *Science Advances*, arXiv preprint arXiv:2302.10254. 2024

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Theses Awarded

S.B.

- **Katherine Lei** (P. ANIKEEVA)
  Functionalization Platform of Magnetic Nano Materials through Silica Shell Formation
- **Nikita Romanov** (R. HAN)
  Edge-Radiating CMOS Sub-THz Phased Array

S.M.

- **Henry Andersen** (J. LANG)
  Modeling, Manufacturing, and Experimental Validation of an Electric Machine for Aircraft Propulsion
- **H. Azzouz** (D. ENGLUND)
  Second Harmonic Generation in Silicon Photonic Crystal Resonator for Quantum Optic Applications
- **Adina Bechhofer** (L. DANIEL)
  Geometrical Optimization of Planar Nano Vacuum Channel Transistors
- **Mercer Boris** (L. DANIEL)
  AI in the Cath Lab: Implications of Clinical AI-Enabled Assistance for Intravascular Ultrasound Procedures
- **Honghao Cao** (S. YOU)
  Adaptive Fiber Source for Label-free Nonlinear Microscopy
- **Jakie Chen** (L. DANIEL)
  Clustering of Similar Incident Tickets Using Natural Language Processing
- **S. Corsetti** (J. NOTAROS)
  Visible-Light Integrated Photonics for 3D-Printing and Trapped-Ion Systems
- **Marc Davis** (D. ENGLUND)
  Numerical Synthesis of Arbitrary Multi-qubit Unitaries with Low T-count
- **Connor Gerlach** (S. YOU)
  Non-diffracting Beam for Microscopy
- **Isaac Harris** (D. ENGLUND)
  Hyperfine Interactions of the Group IV Color Centers
- **A. Hattori** (J. NOTAROS)
  Integrated-Photonics Devices and Architectures for Advanced Cooling of Trapped Ions
- **Lauren Heintz** (L. DANIEL)
  Scenario Analysis of Profitability of New Offerings under Different Business Contract Models
- **Jung-Han (Sharon) Hsia** (T. PALACIOS)
  Optically Controlled Vertical GaN finFET for Power Applications
- **Steven Hubbard** (D. BONING)
  Empowering Delivery Service Partners: A Study on Leveraging Generative Artificial Intelligence and Text Clustering to Support External Partners
- **Ryan Kochert** (D. BONING)
  Process Digitalization: 3D Deep Learning in Manufacturing Applications
- **Mingyuan Li** (D. BONING)
  Cost Analysis and Process Optimization of Electrochemical Micromachining for Volume Manufacturing
- **Kunzan Liu** (S. YOU)
  Deep and Dynamic Metabolic Imaging
- **Andrew Mighty** (L. DANIEL)
  Autonomous Drone Assisted Aircraft Inspections
- **Mikala N. Molina** (L. DANIEL)
  Autonomous Surface Vehicles
- **Ololade Olaleye** (D. BONING)
  Machine Learning and Stochastic Simulation for Inventory Management
- **Rachel Owens** (D. BONING)
  Dynamic Time Warping Constraints for Semiconductor Processing
- **Sarah Spector** (F. NIROUI)
  Nonplanar Nanofabrication via Interface Engineering
- **Grace Tang** (J. LANG)
  Designing an Efficient Power/Control System for a Network of Piezoelectric Speakers
- **Heather L. Willis** (L. DANIEL)
  Analysis of Data from the U.S. Shipbuilding Industry and Application to Improve Performance Metrics
- **Zi Yu Fisher Xue** (V. SZE)
  Accelerating Sparse Tensor Algebra by Overbooking Buffer Occupancy
- **Pradyot Yadav** (T. PALACIOS)
  Design/System Technology Co-optimization of Gallium Nitride High Electron Mobility Transistors for Next-G 3DIC Heterogeneous Integration of Gallium Nitride and Si CMOS
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  Kinetic Inductance Characterization of Thin 2H-NbSe2 Superconductor Using Circuit Quantum Electrodynamics

M. ENG

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  Fast Phase Retrieval: A Robust and Efficient Multidimensional Phase Retrieval Algorithm

M. ENG. (CONTINUED)

- **Sophia Cheung** (D. BONING)
  Machine Learning Methods for Automated Macro-Inspection and Improved Defect Identification in Semiconductor Manufacturing
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  Fully Differential Programmable Gain Chiplet for Integrated Data Acquisition Systems
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  Minimally Invasive Neuromodulation Using Mechanically-sensitive Ion Channels and Magnetically-actuated Nanotransducers
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  Improving Macroscale Defect Detection in Semiconductor Manufacturing using Automated Inspection with Convolutional Neural Networks
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  Switching Dynamics in Ferroelectric $Hf_{0.5}Zr_{0.5}O_2$ Devices: Experiments and Models
- **Ching-Yun (Irene) Ko** (L. DANIEL)
  Robustness of Machine Learning Models
- **Florian Koehler** (P. ANIKEEVA)
  Magnetic Tools for Neural Interfacing
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  Toward Ultra-Resolution Biomolecular Mapping in Cells with Expansion Microscopy
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  Intelligent Textiles for Physical Interactions
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