Appendix C: SENIC 2022 Publications

Publications that acknowledge NSF support of SENIC using the grant number ECCS-1542174 or ECCS-2025462 (as identified through a Google Scholar search) are indicated below by the NNCI logo .

Internal Journal Publications

S. Abdollahramezani, O. Hemmatyar, M. Taghinejad, H. Taghinejad, A. Krasnok, A. A. Eftekhar, C. Teichrib, S. Deshmukh, M. El-Sayed, E. Pop, M. Wuttig, A. Alu, W. Cai, and A. Adibi, "Electrically driven programmable phase-change meta-switch reaching 80% efficiency," *Nature Communications,* vol. 13, p. 1696, 2022.

D. Acero, F. S. T. Khan, I. Rivero-Cruz, A. J. Medina-Ortiz, H. A. Raja, L. Flores-Bocanegra, C. A. Fajardo-Hernández, B. Wan, S. G. Franzblau, S. Hematian, and M. Figueroa, "New Terpenoids from the Corticioid Fungus *Punctularia atropurpurascens* and their Antimycobacterial Evaluation," *Planta Med.,* vol. 88 (09/10), pp. 729–734.

S.C. Adegoke, K. Adrah, K. Nowlin, and R. Tahergorabi, "Microstructural and physicochemical changes of coated and frozen fried chicken," *Journal of Food Processing and Preservation*, vol. *46*(9), p. E16822, 2022.

S. Adesoye, S. Al Abdullah, K. Nowlin, and K. Dellinger, "Mg-Doped ZnO Nanoparticles with Tunable Band Gaps for Surface-Enhanced Raman Scattering (SERS)-Based Sensing," *Nanomaterials*, vol. 12, p. 3564, 2022.

A.O. Adeyeye, C. Lynch, A. Eid, J.G.D. Hester and M.M. Tentzeris, "Energy Autonomous Two-Way Repeater System for Non-Line-of-Sight Interrogation in Next Generation Wireless Sensor Networks," *IEEE Transactions on Microwave Theory and Techniques*, vol.70, pp.1779-1788, 2022.

A. A. Advincula, A. L. Jones, K. J. Thorley, A. M. Österholm, J. F. Ponder Jr., and J. R. Reynolds, "Probing Comonomer Selection Effects on Dioxythiophene-Based Aqueous-Compatible Polymers for Redox Applications," *Chem. Mater.*, vol. 34, issue 10, pp. 4633-4645, 2022.

R. Alaghmandfard, M. Mahdavi, P. Seraj, H. Pirgazi, D. Chalasani, B. S. Amirkhiz, L. Kestens, A. Odeshi, S. Liang, H. Garmestani, and M. Mohammadi, "Characterization and statistical modeling of texture and microstructure evolution in dynamically fractured electron beam melted Ti-6Al-4V," *Materialia*, vol. 21, 101342, 2022.

M. Allam, T. Hu, J. Lee, J. Aldrich, S. S. Badve, Y. Gökmen-Polar, M. Bhave, S. S. Ramalingam, F. Schneider, and A. F. Coskun, "Spatially variant immune infiltration scoring in human cancer tissues," *npj Precision Oncology*, vol. 6, article no. 60, 2022.

Zeinab Y. Al Subeh, Tian Li, Abraham Ustoyev, Jennifer C. Obike, Philip M. West, Manead Khin, Joanna E. Burdette, Cedric J. Pearce, Nicholas H. Oberlies, and Mitchell P. Croatt, "Semisynthesis of Hypothemycin Analogues Targeting the C8-C9 Diol," *Journal of Natural Products*, vol. 85, pp. 2018-2025, 2022.

D. An, Z. Li, H. Chen, C. Liang, Z. Sun, J. Li, J. Yao, Y. Liu, and C. Wong, "Modulation of covalent bonded boron nitride/graphene and three-dimensional networks to achieve highly thermal conductivity for polymer-based thermal interfacial materials," *Composites Part A: Applied Science and Manufacturing*, vol. 156, 106890, 2022.

A. Anele, S. Obare, and J. Wei, “Recent Trends and Advances of Co3O4 Nanoparticles in Environmental Remediation of Bacteria in Wastewater,” *Nanomaterials*, vol. 12, p. 1129, 2022.

X. Ao, Y. Ding, G. Nam, L. Soule, P. Jing, B. Zhao, J. Y. Hwang, J.-H. Jang, C. Wang, and M. Liu, "A Single-Atom Fe-N-C Catalyst with Ultrahigh Utilization of Active Sites for Efficient Oxygen Reduction," *Small*, vol. 18, issue 30, 2203326, 2022.

M. Arslan, S. Bepari, R. Abrokwah, N. Mohammad, J. Shajahan, and D. Kuila, “Effect of Al_2O_3 Support on Co-Based SiO_2 Core–Shell Catalysts for Fischer–Tropsch Synthesis in 3D Printed SS Microchannel Microreactor,” *Topic in Catalysis*, vol. 66, pp. 477-497, 2022.

I. Ashraf, S. Ahmad, D. Dastan, C. Wang, H. Garmestani, and M. Iqbal, "Fabrication of ionic liquid based D-Ti3C2/MoO3 hybrid electrode system for efficient energy storage applications," *Electrochimica Acta*, vol. 429, 141036, 2022.

I. Ashraf, S. Ahmad, F. Nazir, D. Dastan, Z. Shi, H. Garmestani, and M. Iqbal, "Hydrothermal synthesis and water splitting application of d-Ti3C2 MXene/V2O5 hybrid nanostructures as an efficient bifunctional catalyst," *International Journal of Hydrogen Energy*, vol. 47, issue 64, pp. 27383-27396, 2022.

Fabia F. Athena, Matthew P. West, Pradip Basnet, Jinho Hah, Qi Jiang, Wei-Cheng Lee, Eric M. Vogel, “Impact of titanium doping and pulsing conditions on the analog temporal response of hafnium oxide based memristor synapses,” *Journal of Applied Physics*, vol. 131, 204901, 2022.

Fabia F. Athena, Matthew P. West, Jinho Hah, Riley Hanus, Samuel Graham, Eric M. Vogel, “Towards a better understanding of the forming and resistive switching behavior of Ti-doped HfO_x RRAM,” *Journal of Materials Chemistry C*, vol. 10, issue 15, 5896-5904, 2022.

I. A. Atoloye, I. S. Adesina, H. Sharma, K. Subedi, C. L. Liang, A. Shahbazi, A. Bhowmik, “Hemp biochar impacts on selected biological soil health indicators across different soil types and moisture cycles,” *Plos one*, vol. 17(2), pp. e0264620, 2022.

G. Aubry, M. Milisavljevic, and H. Lu, “Automated and dynamic control of chemical content in droplets for scalable screens of small animals,” *Small*, vol. 18, issue 17, 2200319, 2022.

O.O. Ayodele, S. Pourianejad, A. Trofe, A. Prokofjevs, and T. Ignatova, “Application of Soxhlet Extractor for Ultra-clean Graphene Transfer,” *ACS Omega*, vol 7(8), p. 7297, 2022.

E Azizoglu, O Ozer, MR Prausnitz, “Fabrication of pure-drug microneedles for delivery of montelukast sodium,” *Drug Delivery and Translational Research*, vol. 12, issue 1, pp. 444–458, 2022.

R. Bagchi, R. Tinker-Kulberg, M. Salehin, T. Supakar, S. Chamberlin, A. Ligaba-Osena, and E. A. Josephs, “Polyvalent guide RNAs for CRISPR antivirals,” *iScience*, vol. 25, issue 11, 2022.

S. Ban, Y. Lee, K. Kim, J. Kim, and W. H. Yeo, “Advances in Materials, Sensors, and Integrated Systems for Monitoring Eye Movements,” *Biosensors*, vol. 12, issue 11, pp. 1039, 2022.

E. Barbosa and A.K. Menon, “Thermodynamic and kinetic characterization of salt hydrates for thermochemical energy storage,” *MRS Communications*, vol. 12, pp. 678–685, 2022.

K. E. Bates, K. N. Le, and H. Lu, “Deep learning for robust and flexible tracking in behavioral studies for C. elegans,” *PLoS Computational Biology*, vol. 18, issue 4, e1009942, 2022.

J. Bentley and B.P. Bastakoti, “Block copolymer templated synthesis of mesoporous WO3/carbon nanocomposites,” *J Mater Sci*, vol. 57, pp. 14772–14779, 2022.

M. Boya, T. Ozkaya-Ahmadov, B. E. Swain, C. H. Chu, N. Asmare, O. Civelekoglu, R. Liu, D. Lee, S. Tobia, S. Biliya, L. D. McDonald, B. Nazha, O. Kucuk, M. G. Sanda, B. B. Benigno, C. S. Moreno, M. A. Bilen, J. F. McDonald, and A. F. Sarioglu, "High throughput, label-free isolation of circulating tumor cell clusters in meshed microwells," *Nature Communications*, vol. 13, issue 1, pp. 3385, 2022.

Pravalika Butreddy, Hunter Holden, and Hemali Rathnayake, "Metal Ion- Directed Coordination Programming of Biomolecules to Bioinspired Nanoflowers," *Macromolecular Chemistry and Physics*, vol. 223, pp. 1-7, 2022.

O. Canbek, Q. Xu, Y. Mei, N. R. Washburn, and K. E. Kurtis, "Predicting the rheology of limestone calcined clay cements (LC3): Linking composition and hydration kinetics to yield stress through Machine Learning," *Cement and Concrete Research*, vol. 160, 106925, 2022.

O. Canbek, N. R. Washburn, and K. E. Kurtis, "Relating LC^3 microstructure, surface resistivity and compressive strength development," *Cement and Concrete Research*, vol. 160, 106920, 2022.

Kristof B. Cank, Robert A. Shepherd, Sonja L. Knowles, Manuel Rangel-Grimaldo, Huzefa A. Raja, Zoie L. Bunch, Nadja B. Cech, Christopher A. Rice, Dennis E. Kyle, Joseph O. Falkinham, Joanna E. Burdette, and Nicholas H. Oberlies, "Polychlorinated Cyclopentenes from a Marine Derived *Periconia* sp. (strain G1144)," *Phytochemistry*, vol. 199, p. 113200, 2022.

Y.H. Cao, K. Zhang, C. Zhang, and W.J. Koros, "Carbon molecular sieve hollow fiber membranes derived from dip-coated precursor hollow fibers comprising nanoparticles," *J. Membr. Sci*., vol. 649, p. 120279, 2022.

C. Caruso, M. E. Fay, X. Cheng, A. Y. Liu, S. I. Park, T. A. Sulchek, M. D. Graham, and W. A. Lam, "Pathologic mechanobiological interactions between red blood cells and endothelial cells directly induce vasculopathy in iron deficiency anemia," *iScience*. vol. 25, issue 7, 104606, 2022.

A. F. Castro-Méndez, C. A. R. Perini, J. Hidalgo, D. Ranke, J. N. Vagott, Y. An, B. Lai, Y. Luo, R. Li, and J.-P. Correa-Baena, "Formation of a Secondary Phase in Thermally Evaporated MAPbI3and Its Effects on Solar Cell Performance," *ACS Applied Materials and Interfaces*, vol. 14, issue 30, pp. 34269–34280, 2022.

K.A. Cavallaro, S.E. Sandoval, A.C. Thenuwara, and M.T. McDowell "Low-Temperature Behavior of Alloy Anodes for Lithium-Ion Batteries," *Advanced Energy Materials*, vol. 12, 2201584, 2022.

K. Chae, S. F. Lombardo, N. Tasneem, M. Tian, H. Kumarasubramanian, J. Hur, W. Chern, S. Yu, C. Richter, P. D. Lomenzo, M. Hoffman, U. Schroeder, D. Triyoso, S. Consiglio, K. Tapily, R. Clark, G. Leusink, N. Bassiri-Gharb, P. Bandaru, J. Ravichandran, A. Kummel, K. Cho, J. Kacher, and A. I. Khan, "Local epitaxial templating effects in ferroelectric and antiferroelectric ZrO2," *Applied Materials & Interfaces*, vol. 14, issue 32, pp. 36771-36780, 2022.

S. Chaudhary, S. Moon, and H. Lu, "Fast, efficient, and accurate neuro-imaging denoising via supervised deep learning," *Nature Communications*, vol. 13, no. 5165, 2022.

C. Chen, J. M. Hwang, Y. W. Ok, W. J. Choi, V. Upadhyaya, B. Rounsaville, and A. Rohatgi, "Investigation of long-term light stability of negative charge injected into oxide-nitride-oxide passivation stack of crystalline silicon solar cells," *Journal of Applied Physics*, vol. 132, issue 21, 213302, 2022.

T. Chen, A. C. Thenuwara, W. Yao, S. E. Sandoval, C. Wang, D. H. Kang, D. Majumdar, R. Gopalaswamy, and M. T. McDowell, "Benchmarking the Degradation Behavior of Aluminum Foil Anodes for Lithium-Ion Batteries," *Batteries & Supercaps*, vol. 6, issue 1, e202200363, 2022.

Wensi Chen, Eric Mei, Xing Xie, "Virus stabilization with enhanced porous superabsorbent polymer (PSAP) beads for diagnostics and surveillance," *ACS ES&T Water*, vol. 2, issue 12, pp. 2378–2387, 2022.

J. D. Choundraj and J. Kacher, “Influence of misorientation angle and local dislocation density on β-phase distribution in Al 5xxx alloys,” *Scientific Reports*, vol. 12, pp. 1817, 2022.

C.-H. Chu, E. Burentugs, D. Lee, J. M. Owens, R. Liu, A. B. Frazier, and A. F. Sarioglu, “Centrifugation-assisted three-dimensional printing of devices embedded with fully enclosed microchannels,” *3D Printing and Additive Manufacturing,* 2022.

Q.-Q. Chu, Z. Sun, Y. Liu, B. Cheng, D. Dastan, K.-S. Moon, G.-J. Yang, and C.-P. Wong, “Difluorobenzylamine Treatment of Organolead Halide Perovskite Boosts the High Efficiency and Stability of Photovoltaic Cells,” *ACS Appl. Mater. Interfaces*, vol. 14, issue 9, pp. 11388-11397, 2022.

O. Civelekoglu, N. Wang, A. K. M. Arifuzzman, M. Boya, and A. F. Sarioglu, “Automated lightless cytometry on a microchip with adaptive immunomagnetic manipulation,” *Biosensors and Bioelectronics*, vol. 203, 114014, 2022.

O. Civelekoglu, R. Liu, C. F. Usanmaz, C.H. Chu, M. Boya, T. Ozkaya-Ahmadov, A. K. M. Arifuzzman, N. Wang and A. F. Sarioglu. “Electronic measurement of cell antigen expression in whole blood,” *Lab on a Chip*, vol. 22, issue 2, pp. 296-312, 2022.

O. Civelekoglu, T. Ozkaya-Ahmadov, A. K. M. Arifuzzman, S. I. Mutcali and A. F. Sarioglu, “Immunomagnetic leukocyte differential in whole blood on an electronic microdevice,” *Lab on a Chip*, vol. 22, issue 12, pp. 2331-2342, 2022.

O. Civelekoglu, A. B. Frazier, and A. F. Sarioglu, “The origins and the current applications of microfluidics-based magnetic cell separation technologies,” *Magnetochemistry*, vol. 8, issue 1, 10, 2022.

O. Civelekoglu, R. Liu, N. Asmare, A. K. M. Arifuzzman, and A. F. Sarioglu, “Wrap-around sensors for electrical detection of particles in microfluidic channels,” *Sensors and Actuators B: Chemical*, vol. 375, 132874, 2022.

G. C. Collins, T. Brumfiel, Z. L. Bercu, J. P. Desai, and B. D. Lindsey. “Dual-resonance (16/32 MHz) Piezoelectric Transducer with a Single Electrical Connection for Forward-viewing Robotic Guidewire,” *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, vol. 69, issue 4, pp. 1428-1441, 2022.

Y. Cui, R. Bahr, S.A. Nauroze, T.S. Almoneef and M.M. Tentzeris, “3D Printed "Kirigami"-Inspired Deployable Bi-Focal Beam-Scanning Dielectric Reflectarray Antenna for mm-Wave Applications,” *IEEE Transactions on Antennas and Propagation*, vol.70, pp.7683-7690, 2022.

D. Das, P. V. Ravindran, C. Park, N. Tasneem, Z. Wang, H. Chen, W. Chern, S. Yu, S. Datta, and A. Khan, “A Ge-Channel Ferroelectric Field Effect Transistor With Logic-Compatible Write Voltage,” *IEEE Electron Device Letters*, vol. 44, issue 2, p. 257-260, 2022.

S. Das, M.-K. Yau, J. Noble, L. DePascalis, and M.G. Finn, “Transport of Molecular Cargo by Interaction with Virus-like Particle RNA,” *Angew. Chem. Int. Ed.*, vol. 61, issue 2, e202111687, 2022.

S. Dasgupta, Y. W. Ok, V. D. Upadhyaya, W. J. Choi, Y. Y. Huang, S. Duttagupta, and A. Rohatgi, “Novel Process for Screen-Printed Selective Area Front Polysilicon Contacts for TOPCon Cells Using Laser Oxidation,” *IEEE Journal of Photovoltaics*, vol. 12, issue 6, pp. 1282-1288, 2022.

D. Dastan, K. Shan, A. Jafari, F. Gity, X.-T. Yin, Z. Shi, N. D. Alharbi, B. A. Reshi, W. Fu, Ş. Ţălu, L. Aljerf, H. Garmestani, and L. Ansari, "Influence of nitrogen concentration on electrical, mechanical, and structural properties of tantalum nitride thin films prepared via DC magnetron sputtering," *Applied Physics A*, vol. 128, issue 5, pp. 1-16, 2022.

S.N. Daskalakis, A. Georgiadis, M.M. Tentzeris, G. Goussetis and G. Deligiorgis, "The New Era of Long-Range "Zero-Interception" Ambient Backscattering Systems: 130m with 130nA Front-End Consumption," *Sensors*, vol.22, p. 4151, 2022.

D. R. Dautel, W. T. Heller, and J. A. Champion. "Protein Vesicles with pH Responsive Disassembly," *Biomacromolecules*, vol. 23, issue 9, pp. 3678-3687. 2022.

D. R. Dautel and J. A. Champion, "Self-Assembly of Functional Protein Nanosheets from Thermo-responsive Bolaamphiphiles," *Biomacromolecules*, vol. 23, issue 9, pp. 3612-3620, 2022.

S. Devkota, H. Kuchoor, K. Dawkins, R. Pokharel, M. Parakh, J. Li, and S. Iyer, "Heterostructure axial GaAsSb ensemble near-infrared p–i–n based axial configured nanowire photodetectors," *Nanotechnology*, no. 26, 2022.

S. Devkota, M. Parakh, P. Ramaswamy, H. Kuchoor, A. Penn, L. Reynolds, and S. Iyer, "A Study on the Effects of Gallium Droplet Consumption and Post Growth Annealing on Te-Doped GaAs Nanowire Properties Grown by Self-Catalyzed Molecular Beam Epitaxy," *Catalysts*, vol.12, pp. 451, 2022.

E. DiLoreto, A. Berman, R. J. Moon, and K. Kalaitzidou, "Lightweight polyester composites via nanoreinforced syntactic foams," *Journal of Composite Materials*, vol. 56, pp. 3575-3590, 2022.

E. M. Dogan-Guner, F.J. Schork, S. Brownell, G.T. Schueneman, M.L. Shofner, J.C. Meredith, "Encapsulation of cellulose nanocrystals into acrylic latex particles via miniemulsion polymerization", *Polymer*, vol. 240, 124488, 2022.

G. Dong, X. Yang, Y. Fang and M.M. Tentzeris, "Filtering Push-Pull Power Amplifier Based on Multifunctional Impedance Matching Network," *IEEE Microwave and Wireless Components Letters*, vol.32, pp.422-425, 2022.

X. Duan, S. Cheng, Z. Li, C. Liang, Z. Zhang, G. Zhao, Y. Liu, D. An, Z. Sun, and C. Wong, "Flexible and environmentally friendly graphene natural rubber composites with high thermal conductivity for thermal management," *Composites Part A: Applied Science and Manufacturing*, vol. 163, 107223, 2022.

X. Duan, R. He, D. An, J. He, R. Tao, Y. Cui, C. Liang, Z. Sun, Y. Liu, and C. Wong, "Improving the thermal conductivity of natural rubber by constructing three-dimensional thermal conductivity networks and chemically bonded filler-matrix interaction," *Diamond and Related Materials*, vol. 130, 109512, 2022.

Z. A. Enderson, H. Murali, R. R. Dasari, Q. Dai, H. Li, T. C. Parker, J.-L. Brédas, S. R. Marder, and P. N. First, "Tailoring on-surface molecular reactions and assembly through hydrogen-modified synthesis: From triarylamine monomer to 2D covalent organic framework," *arXiv Preprint*, arXiv:2211.08552, 2022.

C. A. Fajardo-Hernández, F. S. T. Khan, L. Flores-Bocanegra, A. Prieto-Davó, B. Wan, R. Ma, M. Qader, R. Villanueva-Silva, A. Martínez-Cárdenas, M. A. López-Lobato, S. Hematian, S. G. Franzblau, H. A. Raja, R. García-Contreras, and M. Figueroa, "Insights into the Chemical Diversity of Selected Fungi from the Tza Itzá Cenote of the Yucatan Peninsula," *ACS Omega* vol. *7* (14), pp. 12171–12185, 2022.

D. Field, H. Garmestani, T. Khraishi, and M. Zikry, "The Behavior of Crystalline Materials: In Honor of Professor Hussein Zbib," *Journal of Engineering Materials and Technology*, vol. 144, 010201, 2022.

M. G. Finn, H. C. Kolb, and K. B. Sharpless, "Click chemistry connections for functional discovery," *Nat. Synth*., vol. 1, 8-10, 2022.

P. Flouda, D. Bukharina, K. J. Pierce, A. V. Stryutsky, V. V. Shevchenko, and V. V. Tsukruk, "Flexible Sustained Ionogels with Ionic Hyperbranched Polymers for Enhanced Ion-Conduction and Energy Storage," *ACS Appl. Mater. Interfaces*, vol. 14, issue 23, pp. 27038-27039, 2022.

P. Flouda, A. V. Stryutsky, M. L. Buxton, K. M. Adstedt, D. Bukharina, V. V. Shevchenko, and V. V. Tsukruk, “Reconfiguration of Langmuir Monolayers of Thermo-Responsive Branched Ionic Polymers with LCST Transition,” *Langmuir*, vol. 38, issue 39, pp. 12070-12081, 2022.

Q. Fu, M. L. Shofner, S. A. Sinquefield, and S. Nair, “Recovery and Enrichment of Organic Acids from Kraft Black Liquor by an Adsorption-Based Process,” *ACS Sustainable Chemistry & Engineering*, vol. 10, issue 34, pp. 11165-11175, 2022.

H. Gao, S. Zhong, W. Zhang, T. Igou, E. Berger, E. Reid, Y. Zhao, D. Lambeth, L. Gan, M. A. Afolabi, Z. Tong, G. Lan, and Y. Chen, “Revolutionizing Membrane Design Using Machine Learning-Bayesian Optimization,” *Environ. Sci. Technol*., vol. 56, issue 4, pp. 2572−2581, 2022.

H. F. Gezahagne, E. L. Brightbill, D. S. Jin, S. Krishnathas, B. Brown, M. H. Mooney, A. O’Riordan, N. Creedon, C. Robinson, and E. M. Vogel, “Suppression of Impedimetric Baseline Drift for Stable Biosensing,” *ECS Sensors Plus*, vol. 1, 031605, 2022.

N. J. Ginga and S. K. Sitaraman, “Cohesive fracture toughness measurement technique for free-hanging thin films using highly stressed superlayer,” *Thin Solid Films*, vol. 757, 139379, 2022.

N. J. Ginga and S. K. Sitaraman, "Thermomechanical Reliability Investigation of Carbon Nanotube Off-Chip Interconnects for Electronic Packages," *IEEE Transactions on Components, Packaging and Manufacturing Technology*, vol. 12, no. 8, pp. 1282-1292, 2022.

N. J. Ginga, J. H-C Chiu, J-H Lee, M.D Thouless, S. Takayama, “High-Force, Precise, and Bidirectional Uniaxial Stretcher for Real-Time Imaging of Normally Closed Crack-Valves for Femto-Liter Fluid Delivery,” *Microfluid Nanofluid*, vol. 26, article 27, 2022.

N. J. Ginga, R. Slyman, G-A Kim, E. Parigoris, S. Huang, V. K. Yadagiri, V. B. Young, J. R. Spence, S. Takayama,“Perfusion System for Modification of Luminal Contents of Human Intestinal Organoids and Realtime Imaging Analysis of Microbial Populations,” *Micromachines,* vol. 13, issue 1, article 131, 2022.

Hilena F. Gezahagne, Eleanor L. Brightbill, Decarle S. Jin, Siamalan Krishnathas, Billyde Brown, Mark H. Mooney, Alan O’Riordan, Niamh Creedon, Caoimhe Robinson, Eric M. Vogel, “Suppression of impedimetric baseline drift for stable biosensing,” *ECS Sensors Plus,* vol. 1, 031605, 2022.

P.S. Goley, G.M. Maggioni, E. Preisler, and J.D. Cressler, “Modeling Transient Loss Due to Ionizing Particles in Silicon Photonic Waveguides,” *IEEE Transactions of Nuclear Science,* vol. 69, pp. 518-529, 2022.

R. Golovchak, J. Plummer, A. Kovalskiy, Y. Holovchak, T. Ignatova, K. Nowlin, A. Trofe, Y. Shpotyuk, C. Boussard-Pledel, and B. Bureau, “Broadband Photosensitive Medium Based on Amorphous Equichalcogenides,” *ACS Applied Electronic Materials*, vol. 4(11), p. 5397, 2022.

M. A. Gonzalez, W. H. Freer, M. Wang, S. Jeon, T. Fuller, E. S. Takeuchi, K. J. Takeuchi, A. Marschilok, and E. Reichmanis, “Understanding the Role of Polymer Interactions within Binders in Composite Lithium-Ion Anodes,” *J. Phys. Chem. C*, vol. 126, issue 46, pp. 19603-19617, 2022.

S. Gorgannejad, E. A. Estrada Rodas, and R. W. Neu, “Employing sequential experiments to gain insights on the interaction between creep and fatigue damage in Ni-base superalloys,” *Fatigue & Fracture of Engineering Materials & Structures*, vol. 45, issue 7, pp. 1981-1994, 2022.

Jinho Hah, Matthew P. West, Fabia F. Athena, Riley Hanus, Eric M. Vogel, Samuel Graham “Impact of oxygen concentration at the HfO_x/Ti interface on the behavior of HfO_x filamentary memristors,” *Journal of Materials Science*, vol. 57, issue 20, pp. 9299-9311, 2022.

M. J. Han, M. Kim, and V. V. Tsukruk, "Multivalued Logic for Optical Computing with Photonically Enabled Chiral Bio-organic Structures," *ACS Nano*, vol. 16, issue 9, pp. 13684–13694, 2022.

L. Hao, C. Dong, L. Zhang, K. Zhu, D. Yu, "Polypyrrole Nanomaterials: Structure, Preparation and Application," *Polymers,* vol. 14(23), pp. 5139, 2022.

M. F. Hasan, S. Mantripragada, S. Gbewonyo, S. Xiu, A. Shahbazi, L. Zhang, "Carbon nanofibrous electrode material from electrospinning of chlorella (microalgae) with polyacrylonitrile for practical high-performance supercapacitor," *International Journal of Energy Research*, vol. 46 pp. 22867-22882, 2022.

E. Anne. Hatmaker, Manuel Rangel-Grimaldo, Huzefa A. Raja, Hadi Pourhadi, Sonja L. Knowles, Kevin Fuller, Emily M. Adams, Jorge D. Lightfoot, Rafael W. Bastos, Gustavo H. Goldman, Nicholas H. Oberlies, and Antonis Rokas, "Genomic and Phenotypic Trait variation of the Opportunistic Human Pathogen *Aspergillus flavus* and Its Close Relatives," *Microbiology Spectrum*, vol. 10, pp. e03069-03022, 2022.

X. He, Y. Cui and M.M. Tentzeris, "Tile-Based Massively Scalable MIMO and Phased Arrays for 5G/B5G-Enabled Smart Skins and Reconfigurable Intelligent Surfaces," *Scientific Reports*, vol. 12, p. 2741, 2022.

X. He, K. Hu, Y. Cui, R. Bahr, B. Tehrani and M.M. Tentzeris, "Additively Manufactured "Smart" RF Packaging Structures: A Quantum-Leap for On-Demand Customizable Integrated 5G and IoT Modules," *IEEE Microwave Magazine*, vol.23, pp.94-106, 2022.

R. Herbert, M. Elsisy, B. Rigo, H. Lim, S. Kim, S. Ye, W. Wagner, Y. Chun, and W. H. Yeo, "Fully implantable batteryless soft platforms with printed nanomaterial-based arterial stiffness sensors for wireless continuous monitoring of restenosis in real time", *Nano Today*, vol. 46, 101557, 2022.

R. Herbert, H. Lim, B. Rigo, and W. H. Yeo, "Fully implantable wireless batteryless vascular electronics with printed soft sensors for multiplex sensing of hemodynamics", *Science Advances*, vol. 8, issue 19, eabm1175, 2022.

M. Hoffmann, Z. Wang, N. Tasneem, A. Zubair, P. V. Ravindran, M. Tian, A. A. Gaskell, D. Triyoso, S. Consiglio, K. Tapily, R. Clark, J. Hur, S. S. K. Pentapati, S. K. Lim, M. Dopita, S. Yu, W. Chern, J. Kacher, S. E. Reyes-Lillo, D. Antoniadis, J. Ravichandran, S. Slesazeck, T. Mikolajick, and A.I. Khan, "Antiferroelectric negative capacitance from a structural phase transition in zirconia," *Nature Communications*, vol. 13, pp. 1228, 2022.

S. Hu, Y. Xiang, Z. Sun, X. Fu, Q. Liu, D. Lou, T. Hu, C. Ping Wong, and R. Zhang, "Highly flexible composite with improved Strain-Sensing performance by adjusting the filler network morphology through a soft magnetic elastomer," *Composites Part A: Applied Science and Manufacturing*, vol. 163, 107188, 2022.

J. Hur, C. Park, G. Choe, P. V. Ravindran, A. I. Khan, and S. Yu, "Characterizing HfO_2-based ferroelectric tunnel junction in cryogenic temperature," *IEEE Trans. Electron Devices*, vol. 69, no. 10, pp. 5948-5951, 2022.

J. Hur, Y.-C. Luo, A. Lu, T.-H. Wang, S. Li, A. I. Khan, and S. Yu, "Nonvolatile Capacitive Crossbar Array for In-Memory Computing," *Advanced Intelligent Systems*, vol. 4, issue 8, p. 2100258, 2022.

T. Ignatova, S. Pourianejad, X. Li, K. Schmidt, F. Aryeetey, S. Aravamudhan, and S.V. Rotkin, "Multidimensional Imaging Reveals Mechanisms Controlling Multimodal Label-Free Biosensing in Vertical 2DM-Heterostructures," *ACS Nano*, vol. 16(2), p. 2598, 2022.

A. Ildefonso, J.P. Kimball, J.D. Cressler, and D. McMorrow, "Using Machine Learning to Mitigate Single-Event Upsets in RF Circuits and Systems," *IEEE Transactions of Nuclear Science,* vol. 69, pp. 381-389, 2022.

I. Jahan and L. Zhang, “Natural polymer-based electrospun nanofibrous membranes for wastewater treatment: A review,” *Journal of Polymers and the Environment*, vol. 30, pp. 1709-1729, 2022.

D. Jang, J. Tang, S.P. Schwendeman, and M.R. Prausnitz, “Effect of surface interactions on microsphere loading in dissolving microneedle patches,” *ACS Applied Materials & Interfaces*, vol. 14, issue 26, pp. 29577-29587, 2022.

A. Janssen, Z. Lyu, M. Figueras-Valls, H.-Y. Chaom Y. Shi, V. Pawlik, M. Chim M. Mavrikakis, and Y. Xia, “Phase-Controlled Synthesis of Ru Nanocrystals via Template-Directed Growth: Surface Energy versus Bulk Energy,” *Nano Lett.*, vol. 22, issue 9, pp.3591-3597, 2022.

B. C. Jean, Y. Ren, E. K. McGuinness, R. P. Lively, M. D. Losego, “Effects of Trimethylaluminum Vapor Pressure and Exposure Time on Inorganic Loading in Vapor Phase Infiltrated PIM-1 Polymer Membranes,” *Mater. Chem. Phys*., vol. 290, p. 126577, 2022.

H. Jeong, M. Cho, Z. Xu, F. Mehnke, M. Bakhtiary-Noodeh, T. Detchprohm, S.-C. Shen, N. Otte, and R. D. Dupuis, “Breakdown Characteristics of Deep-Ultraviolet Al0.6Ga0.4N p-i-n Avalanche Photodiodes,” *J. Appl. Phys*., vol. 131, p. 103102, 2022.

Y. Ji, S. Waters, E. Lim, A.W. Lang, P.N. Ciesielski, M.L. Shofner, J.R. Reynolds, J.C. Meredith, “Minimizing oxygen permeability in chitin/cellulose nanomaterial coatings by tuning chitin deacetylation,” *ACS Sustainable Chemistry & Engineering*, vol. 10, issue 1, pp.124-133, 2022.

Y. Ji, D.E. Shen, E.K. Young, C.L. Goins, J.R. Reynolds, M.L. Shofner, J.C. Meredith, “Optimization of spray-coated nanochitin/nanocellulose films as renewable oxygen barrier layers via thermal treatment”, *Materials Advances*, vol. 3, issue 22, pp. 8351-8360, 2022.

N. Jiang, J. Zhou, X.-L. Hao, J. Li, D. Zhang, J. Basca, E. S. Choi, A. Ramanathan, R. E. Baumbach, H. Li, J.-L. Brédas, Y. Han, and H. S. La Pierre, “Ground-State Spin Dynamics in d^1 Kagome-Lattice Titanium Fluorides,” *J. Am. Chem. Soc.*, vol. 145, issue 1, pp. 207-215, 2022.

Y. Jiang, T. Zhao, L. Zhang, Q. Chen, H. Zhou, M. Ozerov, D. Smirnov, and Z. Jiang, “Anomalous temperature evolution of the Dirac band in ZrTe5 across topological phase transition,” *arXiv*, https://arxiv.org/abs/2211.16711, 2022.

S. Jin, O. Allam, K. Lee, J. Lim, M. J. Lee, S. H. Loh, S. S. Jang, S. W. Lee, “Carbon Quantum Dot Modified Reduced Graphene Oxide Framework for Improved Alkali Metal Ion Storage Performance,” *Small*, vol. 18, issue 35, p. 2202898, 2022.

J. N. Jocz, Y. Lyu, B. J. Hare, and C. Sievers, “Characterization of Surface Species During Benzene Hydroxylation over a NiO-Ceria-Zirconia Catalyst,” *Langmuir,* vol. 38, pp. 458–471, 2022.

I. Ju, S. Lee, and J.D. Cressler, “An Efficient, Broadband SiGe HBT Non-Uniform Distributed Power Amplifier Leveraging Compact, Two-Section λ/4 Output Impedance Transformers,” *IEEE Transactions on Microwave Theory and Techniques*, vol. 70, pp. 3524-3533, 2022.

L. A. Ju, S. Kossmann, Y. C. Zhao, L. Moldovan, Y. Zhang, S. De Zoysa Ramasundara, F. Zhou, H. Lu, I. Alwis, S. M. Schoenwaelder, Y. Yuan, and S. P. Jackson, “Microfluidic post method for 3-dimensional modeling of platelet–leukocyte interactions,” Analyst, vol. 147, issue 6, pp. 1222-1235, 2022.

J. Kacher, T. Ruggles, J. Key, M. Nowell, and S. Wright, “Characterizing defect structures in AM steel using direct electron detection EBSD,” *Scripta Materialia*, vol. 221, p. 114952, 2022.

P. P. Kalelkar, Z. Geng, M.G. Finn, and D. M. Collard, “Surface-initiated Atom-transfer Radical Polymerization (SI-ATRP) of bactericidal polymer brushes on poly(lactic acid) surfaces," *Colloids and Surfaces B: Biointerfaces*, vol. 211, 112242, 2022.

N. Kane, Y. Zhou, W. Zhang, Y. Ding, Z. Luo, X. Hu, and M. Liu, “Precision surface modification of solid oxide fuel cells via layer-by-layer surface sol–gel deposition,” *Journal of Materials Chemistry A*, vol. 10, issue 16, pp. 8798-8806, 2022.

S. Kaul, H. T. Chou, S. Charles, G. Aubry, H. Lu, and A. B. Paaby, “Single-molecule FISH in C. elegans embryos reveals early embryonic expression dynamics of par-2, lgl-1 and chin-1 and possible differences between hyper-diverged strains”, *microPublication Biology*, 10.17912/micropub.biology.000609, 2022.

Z.M. Karimi and J.A. Davis, “Interfacial Permittivity Characterization of Heterogeneous Dielectric Bi-Layers,” *IEEE Transactions on Electron Devices*, vol. 69, issue 4, pp. 1950-1955, 2022.

Kim, J., Francis, D.M., Sestito, L.F., Archer, P., Manspeaker, M.P., O’Melia, M.J., Thomas, S.N., “Thermosensitive hydrogel releasing nitric oxide donor and anti-CTLA-4 micelles for anti-tumor immunotherapy,” *Nature Communications*, vol. 13, p. 1479, 2022.

M. Kim, H. Lee, R. T. Snipes, M. J. Han, and V. V. Tsukruk, “Co-Assembly of Biosynthetic Chiral Nematic Adhesive Materials with Dynamic Polarized Luminescence,” *Small*, vol. 18, issue 2, 2022.

M. Kim, J. Park, M. Wang, Q. Wang, M. J. Kim, J. Y. Kim, H.-S. Cho, C.-H. Kim, Z. Feng, B-H Kim, and S. W. Lee, “Role of surface steps in activation of surface oxygen sites on Ir nanocrystals for oxygen evolution reaction in acidic media,” *Applied Catalysis B: Environmental*, vol. 302, 120834, 2022.

Y. Kim, J. Kim, R. Chicas, N. Xiuhtecutli, J. Matthews, N. Zavanelli, S. Lee, V. Hertzberg, and W. H. Yeo, “Soft Wireless Bioelectronics Designed for Real-Time, Continuous Health Monitoring of Farmworkers”, *Advanced Healthcare Materials*, vol. 11, issue 13, 2200170, 2022.

A. Kiourti, A.M. Abbosh, M. Athanasiou, T. Bjorninen, A. Eid, C. Furse, K. Ito, G. Lazzi, M. Manoufali, M. Pastorino, M.M. Tentzeris, K. Tisdale, E. Topsakal, L. Ukkonen, W.G. Whittow, H. Zhang and K.S. Nikita, “Next-Generation Healthcare: Enabling Technologies for Emerging Bioelectromagnetics Applications,” *IEEE Open Journal of Antennas and Propagation*, vol.3, pp.363-390, 2022.

M. H. Kirmani, J. Ramachandran, P. J. Arias-Monje, P. Gulgunje, and S. Kumar, “The effects of processing and carbon nanotubes type on the impact strength of aerospace grade bismaleimide based nanocomposites,” *Polymer Engineering Science,* vol. 62, issue 4, pp. 1187-1196, 2022.

M. H. Kirmani, B. Jony, K. Gupta, N. Kondekar, J. Ramachandran, P. J. Arias-Monje, and S. Kumar, “Using a Carbon Fiber Sizing to Tailor the Interface-Interphase of a Carbon Nanotube-Polymer System,” *Composites Part B:* Engineering, vol. 247**,** 110284, 2022.

S. Kochupurackal Rajan, B. Ramakrishnan, H. Alissa, W. Kim, C. Belady, and M. S. Bakir, "Integrated Silicon Microfluidic Cooling of a High-Power Overclocked CPU for Efficient Thermal Management," *IEEE Access*, vol. 10, pp. 59259-59269, 2022.

A. Korde, B. Min, E. Kapaca, O. Knio, I. Nezam, Z. Wang, J. Leisen, X. Yin, X. Zhang, D.S. Sholl, X. Zou, T. Willhammar, C. W. Jones, S. Nair, “Single-walled zeolitic nanotubes,” *Science*, vol. 375, issue 6576, pp. 62-66, 2022.

R. M. Krishna, A. A. Eftekhar, S. Lee, T. Fan, X. Wu, A. H. Hosseinnia, H. Wang, M. Swaminathan, and A. Adibi, "Polysilicon micro-heaters for resonance tuning in CMOS photonics," *Optic Letters,* vol. 47, pp. 1097-1100, 2022.

R. M. Krishna, R. Zhang, S. Ravichandran, T. Fan, A. H. Hosseinnia, J. L.Ninantay, F. Liu, M. Kathaperumal, M. Swaminathan, and A. Adibi, "Polymer waveguide photonic interconnect for multichip communications-based heterogeneous integration," *J. Nanophoton.*, vol. 16, p. 036002, 2022.

S. A. Krovi, M. M. Moreno Caffaro, S. Aravamudhan, N. P. Mortensen, and L. M. Johnson, "Fabrication of Nylon-6 and Nylon-11 Nanoplastics and Evaluation in Mammalian Cells," *Nanomaterials*, vol. 12, issue 15, 2022.

K. Al Kurdi, S. A. Gregory, M. P. Gordon, J. F. Ponder Jr, A. Atassi, J. M. Rinehart, A. L. Jones, J. J. Urban, J. R. Reynolds, S. Barlow, S. R. Marder, and S. K. Lee, "Iron(III) Dopant Counterions Affect the Charge-Transport Properties of Poly(Thiophene) and Poly(Dialkoxythiophene) Derivatives," *ACS Appl. Mater. Interfaces*, vol. 14, issue 25, pp. 29039-29051, 2022.

K. Kwon, S. Kwon, and W. H. Yeo, "Automatic and Accurate Sleep Stage Classification via a Convolutional Deep Neural Network and Nanomembrane Electrodes", *Biosensors*, vol 12, issue 3, 155, 2022.

J. Lee, Y. Yoon, H. Park, J. Choi, Y. Jung, S. Ko, and W. H. Yeo, "Bioinspired Soft Robotic Fish for Wireless Underwater Control of Gliding Locomotion Advanced Intelligent Systems", *Advanced Intelligent Systems*, vol. 4, issue 7, 2100271, 2022.

K. Lee, Y. J. Lee, M. J. Lee, J. Han, J. Lim, K. Ryu, H. Yoon, B-H Kim, B.J. Kim, S.W. Lee, "A 3D Hierarchical Host with Enhanced Sodiophilicity Enabling Anode-Free Sodium Metal Batteries," *Advanced Materials*, vol. 34, issue 14, 2109767, 2022.

K. Lee, M. J. Lee, J. Lim, K. Ryu, M. Li, S. Noda, S. J. Kwon, and S. W. Lee, "Controlled Nitrogen Doping in Crumpled Graphene for Improved Alkali Metal-Ion Storage under Low-Temperature Conditions," *Advanced Functional Materials*, vol. 33, issue 2, 2209775, 2022.

K.-T. Lee, B. Kim, L. Raju, S. P. Rodrigues, D.-H. Ko, and W. Cai, "Enantiomer-selective molecular sensing in the nonlinear optical regime via upconverting chiral metamaterials," *Advanced Functional Materials*, vol. 32, issue 43, 2208641, 2022.

M. J. Lee, J. Han, K. Lee, Y. J. Lee, B. G. Kim, K-N Jung, B.J. Kim, S. W. Lee, "Elastomeric electrolytes for high-energy solid-state lithium batteries," *Nature*, vol. 601, pp. 217-222, 2022.

K. Lee, J. Lim, M. J. Lee, K. Ryu, H. Lee, J. Y. Kim, H. Ju, H-S Cho, B-H Kim, M.C. Hatzell, J. Kang, and S.W. Lee, "Structure-Controlled Graphene Electrocatalysts for High-Performance H2O2 Production," *Energy & Environmental Science*, vol. 15, issue 7, pp. 2858-2866, 2022.

S. Lee, Y. Kim, M. Yeo, M. Mahmood, N. Zavanelli, C. Chung, J. Heo, Y. Kim, S. Jung, and W. H. Yeo, "Fully Portable Continuous Real-Time Auscultation with a Soft Wearable Stethoscope Designed for Automated Disease Diagnosis", *Science Advances*, vol. 8, issue 21, abo5867, 2022.

N.E. Leon, Z.Y. Liu, M. Irani, and W.J. Koros, "How to Get the Best Gas Separation Membranes from State-of-the-Art Glassy Polymers," *Macromolecules*, vol. 55, pp. 1457-1473, 2022.

J. A. Lewis, C. Lee, Y. Liu, S. Y. Han, D. Prakash, E. J. Klein, H.-W. Lee, and M. T. McDowell "Role of Areal Capacity in Determining Short Circuiting of Sulfide-Based Solid-State Batteries," *ACS Applied Materials & Interfaces*, vol. 14, issue 3, pp. 4051-4060, 2022.

C. Li, X. Chai, L. Zhuo, B. Wei, A. Lotfi, F. Ayazi, and C. Raman, "Stimulated Laser Cooling Using Microfabrication," *arXiv Preprint*, https://arxiv.org/abs/2208.12784, 2022.

J. Li, Y. Liu, Z. Sun, M. Zhang, H. Hong, K. Moon, and C. Wong, "Controlled Triphenylphosphine Reactivity for Epoxy Resin Cure by Transition-Metal β-Diketonates," *Chem. Mater.*, vol. 34, issue 7, pp. 3280-3300, 2022.

M. Li, B. Hua, W. Wu, L.-C. Wang, Y. Ding, M. M. Welander, R. A. Walker, and D. Ding, "Activating nano-bulk interplays for sustainable ammonia electrosynthesis," *Materials Today*, vol. 60, pp. 31-40, 2022.

Q. Li, A. Antoniou, O. Pierron, "Understanding resistance increase in composite inks under monotonic and cyclic stretching," *IOP Flexible and Printed Electronics*, vol. 7, 045010, 2022.

R. Li, F. S. T. Khan, and S. Hematian, "Dioxygen Reactivity of Copper(I)-Manganese(II) Porphyrin Assemblies: Mechanistic Studies and Cooperative Activation of O_2", *Molecules*, vol. *27* (3), pp. 1000–1015, 2022.

R. Li, F. S. T. Khan, M. Tapia, S. and Hematian, "Oxygenation of Copper(I) Complexes Containing Fluorine Tagged Tripodal Tetradentate Chelates: Significant Ligand Electronic Effects," *J. Coord. Chem.,* vol. *75* (11-14), pp. 1617-1635, 2022.

S Li, Y Kim, JW Lee, and MR Prausnitz, "Microneedle patch tattoos," *iScience*, vol. 25, issue 10, 105014, 2022.

T. Li, G. Nam, K. Liu, J. H. Wang, B. Zhao, Y. Ding, L. Soule, M. Avdeev, Z. Luo, W. Zhang, T. Yuan, P. Jing, M. G. Kim, Y. Song, and M. Liu, "A niobium oxide with a shear structure and planar defects for high-power lithium ion batteries," *Energy & Environ. Sci.,* vol. 15, issue 1, pp. 254-264, 2022.

T. Li, K. Liu, G. Nam, M.G. Kim, Y. Ding, B. Zhao, Z. Luo, Z. Wang, W. Zhang, C. Zhao, J. H. Wang, Y. Song, M. Liu, "A Nonstoichiometric Niobium Oxide/Graphite Composite for Fast-Charge Lithium-Ion Batteries," *Small*, vol. 18, issue 26, 2200972, 2022.

W Li, JY Chen, RN Terry, J Tang, AV Romanyuk, SP Schwendeman and MR Prausnitz, "Core-shell microneedle patch for six-month controlled-release contraceptive delivery," *Journal of Controlled Release*, vol. 347, pp. 489-499, 2022.

Z. Li, R. He, D. An, H. Chen, R. Tao, Z. Sun, J. Li, Z. Zhang, Y. Liu, and C. Wong, "Elastomer-based thermal interface materials by introducing continuous skeleton to achieve the improved thermal conductivity and smart stress sensing capability," *Composites Part A: Applied Science and Manufacturing*, vol. 163, 107207, 2022.

H. Lim, S. Lee, S. Park, C. Choi, H. Kim, M. Mahmood, Y. Lee, J. Kim, and W. H. Yeo, "Smart Bioelectronic Pacifier for Real-Time Continuous Monitoring of Salivary Electrolytes", *Biosensors and Bioelectronics*, vol. 210, 114329, 2022.

Xuhui Lin and Yirong Mo, "On the Bonding Nature in the Crystalline Tri-Thorium Cluster: Core-Shell Syngenetic σ-Aromaticity", *Angewandte Chemie International Edition*, vol. 61, p. e202209658, 2022.

X. Lin and Y. Mo, "Partial Double Metal–Carbon Bonding Model in Transition Metal Methyl Compounds," *Inorg. Chem.*, vol. 61, issue 6, pp. 2892-2902, 2022.

Xuhui Lin, Weiqin Tian, Wei Wu, and Yirong Mo, "Evidence for πCHR→dM Bonding in Transition Metal Carbene Compounds (LnM=CHR) and Its Decisive Role in the α-Agostic Effect", *Physical Chemistry Chemical Physics*, vol. 24(38), pp. 23420-23426 2022.

A. L. Liu, E.M. Dogan-Guner, M. McBride, R. Venkatesh, M.A. Gonzalez, E. Reichmanis, M. Grover, and J.C. Meredith, "Composition Gradient High-Throughput Polymer Libraries Enabled by Passive Mixing and Elevated Temperature Operability," *Chemistry of Materials*, vol. 34, issue 15, pp. 6659-6670, 2022.

Mengting Liu, Samik Jhulki, Alexandre Magasinski, Peng-Fei Wang, and Gleb Yushin, "Porous TiO2–x/C Nanofibers with Axially Aligned Tunnel Pores as Effective Sulfur Hosts for Stabilized Lithium–Sulfur Batteries," *ACS Applied Materials & Interfaces*, vol. 14 (49), pp. 54725-54735, 2022.

Z.Y. Liu, W.L. Qiu, and W.J. Koros, “New Insights into Physical Aging-Induced Structure Evolution in Carbon Molecular Sieve Membranes,” *Angew. Chemie International. Edition*, vol. 61, p. e202210831, 2022.

Z. Luo, Y. Zhou, X. Hu, N. Kane, T. Li, W. Zhang, Z. Liu, Y. Ding, Y. Liu, and M. Liu, “Critical role of acceptor dopants in designing highly stable and compatible proton-conducting electrolytes for reversible solid oxide cells,” *Energy & Environ. Sci.,* vol. 15, issue 7, 10.1039/D2EE01104B, 2022.

Z. Luo, Y. Zhou, X. Hu, N. Kane, W. Zhang, T. Li, Y. Ding, Y. Liu, and M. Liu, "Highly Conductive and Durable Nb (Ta)-Doped Proton Conductors for Reversible Solid Oxide Cells," *ACS Energy Letters*, vol. 7, no. 9, pp. 2970-2978, 2022.

Q. D. Mac, A. Sivakumar, H. Phuengkham, C. Xu, J. R. Bowen, F.-Y. Su, S. Z. Stentz, H. Sim, A. M. Harris, T. T. Li, P. Qiu, and G. A. Kwong, “Urinary detection of early responses to checkpoint blockade and of resistance to it via protease-cleaved antibody-conjugated sensors,” *Nature Biomedical Engineering*, vol. 6, pp. 310-324, 2022.

M. Mahdavi, S. Liang, and H. Garmestani, "Prediction of Yield Strength of Selective Laser Melted Ti–6Al–4V Alloy Using Melt Pool Geometry," *Journal of Engineering Materials and Technology*, vol. 144, 011009, 2022.

M. Mahmood, N. Kim, M. Mahmood, H. Kim, H. Kim, N. Rodeheaver, K. Yu, and W. H. Yeo, “VR-enabled portable brain-computer interfaces via wireless soft bioelectronics”, *Biosensors and Bioelectronics*, vol. 210, 114333, 2022.

A. Malhotra, G. Tutuncuoglu, S. Kommandur, P. Creamer, A. Rajan, A. T. Mohabir, S. Yee, M. A. Filler, and M. Maldovan, “Impact of Porosity and Boundary Scattering on Thermal Transport in Diameter Modulated Nanowires,” *ACS Appl. Mater. Interfaces*, vol. 14, issue 1, pp. 1740-1746, 2022.

K. L. Malinowski, S. A. Gregory, J. P. Wooding, O. B. Hvidsten, A. Jungreis, M. D. Losego, “Use of *in situ* electrical conductance measurements to understand the chemical mechanisms and chamber wall effects during vapor phase infiltration doping of poly(aniline) with $TiCl_4 + H_2O$,” *J. Vac. Sci. Technol. A.*, vol. 40, 013418, 2022.

M. Mao, D. Lou, D. Wang, H. Younes, H.Hong, H. Chen, G.P. Peterson, “$Ti_3C_2T_x$ MXene Nanofluids with Enhanced Thermal Conductivity,” *Chemical Thermodynamics and Thermal Analysis,* vol 8, 100077, 2022.

A. Marnot, A. Dobbs, and B. Brettmann, “Material extrusion additive manufacturing of dense pastes consisting of macroscopic particles,” *MRS Communications*, vol. 12, pp. 483–494, 2022.

Adesewa O. Maselugbo, James E. Knoop, Kyle S. Nowlin, Gayani Pathiraja, Haley B. Harrison, and Jeffrey R. Alston, “Controlled ultrasonication for covalent functionalization of boron nitride nanotubes,” *Journal of Materials Research*, vol. 37, pp. 4496–4507, 2022.

F. M. Mehnke, A. M. Fischer, Z. Xu, H. Bouchard, T. Detchphrom, S.-C. Shen, F. A. Ponce, and R. D. Dupuis, “Realizing Crack-Free High-Aluminum-Mole-Fraction AlGaN on Patterned GaN Beyond the Critical Layer Thickness,” *J. Appl. Phys.,* vol. 131, p. 073103, 2022.

P. C. Metz, M. R. Ryder, A. Ganesan, S. Bhattacharyya, S. C. Purdy, S. Nair, and K. Page, “Structure Evolution of Chemically Degraded ZIF-8,” *The Journal of Physical Chemistry C*, vol. 126, issue 23, pp. 9736-9741, 2022.

Y. J. Min, A. Ganesan, M. J. Realff, C. W. Jones, “Direct Air Capture of CO_2 using poly(ethyleneimine)-functionalized expanded poly(tetrafluoroethylene)/silica composite structured sorbents,” *ACS Appl. Mater. Interfaces*, vol. 14, pp. 40992−41002, 2022.

P.K.C. Mishu, M.-K. Cho, A. Khachatrian, S.P. Buchner, D. McMorrow, P. Paki, J.D. Cressler, and I. Song, "Voltage-Controlled Oscillator Utilizing Inverse-Mode SiGe-HBT Biasing Circuit, for SET Mitigation," *IEEE Transactions on Nuclear Science*, vol. 69, p. 124201248, 2022.

J. Mo, D. Danovich, and S. Shaik, "The roles of charge transfer and polarization in non-covalent interactions: a perspective from ab initio valence bond methods," *Journal of Molecular Modeling*, vol. 28, article no. 274, 2022.

Amar T. Mohabir, Daniel Aziz, Amy C. Brummer, Kathleen E. Taylor, Eric M. Vogel, Michael A Filler, "Bottom-up nanoscale patterning and selective deposition on silicon nanowires," *Nanotechnology*, vol. 33, 105604, 2022.

N. Mohammad, S. Aravamudhan, D. Kuila, "Atomic Layer Deposition of Cobalt Catalyst for Fischer–Tropsch Synthesis in Silicon Microchannel Microreactor," *Nanomaterials*. vol. 12(14), p. 2425, 2022.

N. Mohammad, C. Chukwudoro, S. Bepari, O. Basha, S. Aravamudhan, D. Kuila, "Scale-up of high-pressure FT synthesis in 3D printed stainless steel microchannel microreactors: Experiments and modeling," *Catalysis Today*. vol. 397, pp. 182-196, 2022.

N. P. Mortensen, M. M. Caffaro, K. Davis, S. Aravamudhan, S. J. Sumner, and T. R. Fennell, "Investigation of eight cellulose nanomaterials' impact on Differentiated Caco-2 monolayer integrity and cytotoxicity," *Food and Chemical Toxicology*, vol. 166, 2022.

N. P. Mortensen, W. Pathmasiri, R. W. Snyder, M. M. Caffaro, S. L. Watson, P. R. Patel, L. Beeravalli, S. Prattipati, S. Aravamudhan, S. J. Sumner, and T. R. Fennell, "Oral administration of TiO_2 nanoparticles during early life impacts cardiac and neurobehavioral performance and metabolite profile in an age- and sex-related manner," *Particle and Fibre Toxicology*, vol. 19, article no. 3, 2022.

S. Movva, R. K. Burrell, P. Pooyan, H. Garmestani, and K. I. Jacob, "Crystallographic texture evolution in ultra high molecular weight polyethylene during uniaxial tension," *Polymer*, vol. 245, 124649, 2022.

M. Mujica, A. T. Mohabir, P. P. Shetty, W. R. Cline, D. Aziz, M. T. McDowell, V. Breedveld, S. H. Behrens, and M. A. Filler, "Programming Semiconductor Nanowire Composition with Sub–100-nm Resolution via the Geode Process," *Nano Letters*, vol. 22, issue 2, pp. 554-560, 2022.

P. Murali, C. Alvarez, S. Suresh, M. D. Losego, M. Swaminathan, Y. Oishi, T. Uemura, R. Nagatsuka, N. Watanabe, "Semi-additive patterning process based fabrication of miniaturized, package-embedded high conversion ratio inductors for DC-DC converters," *Power Elec. Dev. Comp.*, vol. 3, 100023, 2022.

R Murty, A Sankaranarayanan, II Bowland, J Mena Lapaix, and M. R. Prausnitz, "Angled insertion of microneedles for targeted antigen delivery to the epidermis," *Pharmaceutics* vol. 14, issue 2, pp. 347, 2022.

D. Nergui, J.W. Teng, M. Hosseinzadeh, Y. Mensah, K. Li, M. Gorchichko, A. Ildefonso, B. L. Ringel, E.X. Zhang, D.M. Fleetwood, and J.D. Cressler, "Total Ionizing Dose Response of SiGe HBTs at Elevated Temperature," *IEEE Trans. Nucl. Sci.,* vol. 69, pp. 1079-1084, 2022.

Y. Niu, Y. Zhou, W. Zhang, Y. Zhang, C. Evans, Z. Luo, N. Kane, Y. Ding, Y. Chen, X. Guo, W. Lv, and M. Liu, "Highly Active and Durable Air Electrodes for Reversible Protonic Ceramic Electrochemical Cells Enabled by an Efficient Bifunctional Catalyst," *Advanced Energy Materials* vol. 12, p. 2103783, 2022.

V. Palazzi, L. Roselli, M.M. Tentzeris, P. Mezzanotte and F. Alimenti, "Energy-Efficient Harmonic Transponder Based on On-Off Keying Modulation for Both Identification and Sensing," *Sensors*, vol.22, p. 620, 2022.

S. A. Paluskiewicz, S. B. Narasimhachary, S. R. Shinde, C. Kain, Z. B. Towner, and C.L. Muhlstein, "Crack Closure of Nickel-based Superalloy 718 at High Negative Stress Ratios," *International Journal of Fatigue*, vol. 160, p. 106822, 2022.

A.D. Papadopoulos, B.K. Tehrani, R.A. Bahr, E.M. Tentzeris and E.N. Glytsis, "Uncertainty Quantification of Printed Microwave Interconnects by Use of the Sparse Polynomial Chaos Expansion Method," *IEEE Microwave and Wireless Components Letters*, vol. 32, pp.1-4, 2022.

Marc Papakyriakou, Mu Lu, and Shuman Xia, "Nanoindentation Size Effects in Lithiated and Sodiated Battery Electrode Materials," *Journal of Applied Mechanics*, vol. 89, issue 7, 071007, 2022.

M. Parakh, R. Pokharel, K. Dawkins, S. Devkota, J. Li, and S. Iyer, "Ensemble GaAsSb/GaAs axial configured nanowire-based separate absorption, charge, and multiplication avalanche near-infrared photodetectors," *Nanoscale Advances*, vol. 4, pp. 3919-3927, 2022.

SM. Parakh, P. Ramaswamy, S. Devkota, H. Kuchoor, K. Dawkins and S. Iyer, "Passivation efficacy study of Al2O3 dielectric on self-catalyzed molecular beam epitaxially grown GaAs1-xSbx nanowires," *Nanotechnology,* vol. 33, p. 315602, 2022.

S. Park, S. Ban, A. Bunn, S. Kwon, H. Lim, N. Zavanelli, W. H. Yeo, and J. Kim, "Fully Screen-printed, PI/PEG Blends Enabled Patternable Electrodes for Scalable Manufacturing of Skin-Conformal, Stretchable, Wearable Electronics," *ACS Applied Materials & Interfaces*, vol. 15, issue 1, pp. 2092–2103, 2022.

S. J. Park, X. Wang, M. R. Ball, L. Proano, Z. Wu, C. W. Jones, "CO_2 methanation reaction pathways over unpromoted and $NaNO_3$-promoted Ru/Al_2O_3 catalysts," *Catalysis Science and Technology*, vol. 12, pp. 4637-4652, 2022.

W.P. Parker, A.K. Menon, "Wettability and durability of superhydrophobic-coated polymer surfaces for managed salt precipitation in desalination," *MRS Communications*, vol. 12, pp. 616–623, 2022.

G. Pathiraja, D. J. C. Herr, and H. Rathnayake, "Nanoscopic Insight into Sol–Gel Chemical Kinetics of Oriented Attachment Crystal Growth in Anisotropic Copper Hydroxide Nanowires," *Crystal Growth & Design*, vol. 22(5), pp. 2889–2902, 2022.

K. Pei, Y. Zhou, K. Xu, H. Zhang, Y. Ding, B. Zhao, W. Yuan, K. Sasaki, Y. Choi, Y. Chen, and M. Liu, "Surface restructuring of a perovskite-type air electrode for reversible protonic ceramic electrochemical cells," *Nature Communications*, vol. 13, no. 2207, 2022.

X. Peng, S. Wu, X. Sun, L. Yue, S. M. Montgomery, F. Demoly, K. Zhou, R. R. Zhao, and H. J. Qi, "4D Printing of Freestanding Liquid Crystal Elastomers via Hybrid Additive Manufacturing," *Advanced Materials*, 2204890, 2022.

X. Peng, L. Yue, S. Liang, S. Montgomery, C. Lu, C.-M. Cheng, R. Beyah, R. R. Zhao, and H. J. Qi, "Multi-color 3D Printing via Single-Vat Grayscale Digital Light Processing," *Advanced Functional Materials*, vol. 32, issue 28, 2112329, 2022.

Xinru Peng, Li Chen, Jingshuang Dang, Changwei Wang, and Yirong Mo, "How External Electric Field Modulates the Rotation of Dipolar Dopants Inside C70: A Theoretical Interpretation with Electrostatic Shielding Effect Incorporated", *ChemNanoMat*, vol. 8(12), pp. e202200405, 2022.

C. A. Perini, E. Rojas-Gatjens, M. Ravello, A.-F. Castro-Mendez, J. Hidalgo, Y. An, S. Kim, B. Lai, R. Li, C. Silva-Acuña, and J.-P. Correa-Baena, "Interface Reconstruction from Ruddlesden–Popper Structures Impacts Stability in Lead Halide Perovskite Solar Cells," *Advanced Materials*, vol. 34, issue 51, 2204726, 2022.

S. Phuyal, S. S. Suarez, and C-K. Tung, "Biological benefits of collective swimming of sperm in a viscoelastic fluid," *Front. Cell Dev. Biol.,* vol. 10, p. 961623, 2022.

B. D. Piercy, J. P. Wooding, S. A. Gregory, M. D. Losego, "Pulsed heating atomic layer deposition (PH-ALD) for epitaxial growth of zinc oxide thin films on c-plane sapphire," *Dalton Trans.,* vol. 51, pp. 303-311, 2022.

James F. Ponder Jr., Shawn A. Gregory, Amalie Atassi, Akanksha K. Menon, Augustus W. Lang, Lisa R. Savagian, John R. Reynolds, and Shannon K. Yee, "Significant Enhancement of the Electrical Conductivity of Conjugated Polymers by Post-Processing Side Chain Removal", *J. Am. Chem. Soc.*, vol. 144, issue 3, pp. 1351–1360, 2022.

V. S. Prudkovskiy, Y. Hu, K. Zhang, Y. Hu, P. Ji, G. Nunn, J. Zhao, C. Shi, A. Tejeda, D. Wander, A. De Cecco, C. B. Winkelmann, Y. Jiang, T. Zhao, K. Wakabayashi, Z. Jiang, L. Ma, C. Berger, and W. A. de Heer, "An epitaxial graphene platform for zero-energy edge state nanoelectronics," *Nat. Commun*., vol. 13, article no. 7814, 2022.

W.Y. Quan, H.E. Holmes, F.Y. Zhang, B.L. Hamlett, M.G. Finn, C.W. Abney, M.T. Kapelewski, S.C. Weston, R.P. Lively, and W.J. Koros, "Scalable Formation of Diamine-Appended Metal-Organic Framework Hollow Fiber Sorbents for Postcombustion CO_2 Capture," *JACS Au,* vol. 2, pp. 1350-1358, 2022.

J. Qiu, J. Ahn, D. Qin, S. Thomopoulos, Y. Xia, "Biomimetic scaffolds with a mineral gradient and funnel-shaped channels for spatially-controllable osteogenesis," *Advanced Healthcare Materials*, vol. 11, issue 9, p. 2100828, 2022.

W. Quan, H. E. Holmes, F. Zhang, B. L. Hamlett, M. G. Finn, C. W. Abney, M. T. Kapelewski, S. C. Weston, R. P. Lively, and W. J. Koros, "Scalable Formation of Diamine-Appended Metal Organic Framework Hollow Fiber Sorbents for Post-Combustion CO2 Capture," *JACS Au*, vol. 2, issue 6, pp. 1350-1358, 2022.

N. Rafat, H. Zhang, J. Rudge, Y. Kim, S. P. Peddireddy, N. Das, and A. Sarkar, "Enhanced Enzymatically Amplified Metallization on Nanostructured Surfaces for Multiplexed Point-of-Care Electrical Detection of COVID-19 Biomarkers," *Small*, vol. 18, issue 49, 2022.

J. Ramachandran, J. M. Serrano, T. Liu, J. Cho, P. J. Arias-Monje, M. Lu, M. H. Kirmani, J. Elliott, S. S. Jang, G. Liu, and S. Kumar, "Porous carbon fibers from gel-spun polyacrylonitrile and poly(methyl methacrylate)-block-poly(acrylonitrile)," *Carbon,* vol. 192, pp. 332-346, 2022.

Priyanka Ramaswamy, Kendall Dawkins, Hirandeep Kuchoor, Rabin Pokharel, Jia Li, and Shanthi Iyer, "MBE-grown hybrid axial core-shell n-i-p GaAsSb heterojunction ensemble nanowires based near infrared photodetectors up to 1.5 μm", *Crystal Growth and Design*, vol. 22(10), pp. 6004-6014, 2022.

S.G. Rao, C.D. Cheon, and J.D. Cressler, "A Millimeter-Wave, Transformer-Based, SiGe Distributed Attenuator," *IEEE Microwave and Components Letters*, vol. 32, pp. 145-148, 2022.

S.G. Rao and J.D. Cressler, "A D-band Reflective-Type Phase Shifter Using a SiGe PIN Diode Resonant Load," *IEEE Microwave and Wireless Components Letters*, vol. 32, pp. 1191-1194, 2022.

Hemali Rathnayake, Sheeba Dawood, Gayani Pathiraja, Kelvin Adrah, and Olubunmi Ayodele, "Green Synthesis of De Novo Bioinspired Porous Iron-Tannate Microstructures with Amphoteric Surface Properties," *Sustainable Chemistry*, vol. 3(2), pp. 192-204, 2022.

S. R. Ravigopal, T. A. Brumfiel, A. Sarma, and J. P. Desai, "Fluoroscopic Image-Based 3-D Environment Reconstruction and Automated Path Planning for a Robotically Steerable Guidewire," *IEEE Robotics and Automation Letters*, vol. *7,* pp. 11918–11925, 2022.

V. B. B. Reddy, S. Gupta, J. Williamson, and S. K. Sitaraman, "Correlation Studies Between Laser Ultrasonic Inspection Data and Finite-Element Modeling Results in Evaluation of Solder Joint Quality in Microelectronic Packages," *ASME. J. Electron. Packaging*, vol. 144, issue 1, 011009, 2022.

M. P. Rivera and R. P. Lively, "Analysis of gas transport in molecularly-mixed composite membranes," *Journal of Membrane Science*, vol. 661, p. 120880, 2022.

N. Rodeheaver, H. Kim, R. Herbert, H. Seo, and W. H. Yeo, "Breathable, Wireless, Thin-Film Wearable Biopatch Using Noise-Reduction Mechanisms," *ACS Applied Electronic Materials*, vol. 4, issue 1, pp. 503-512, 2022.

Daniel J. Rodriguez, Chris Y. Lau, Abigail M. Friese, Alexandre Magasinski, Gleb Yushin, and Scott L. Anderson, "High-Temperature Oxidation of Single Carbon Nanoparticles: Dependence on the Surface Structure and xg Real-Time Structural Evolution via Kinetics," *Journal of the American Chemical Society*, vol. 144 (11), pp. 4897-4912, 2022.

C. D. Sago, M. P. Lokugamage, D. Loughrey, K. E. Lindsay, R. Hincapie, B. R. Krupczak, S. Kalathoor, M. Sato, E. S. Echeverri, J. P. Fitzgerald, Z. Gan, L. Gamboa, K. Paunovska, C. A. Sanhueza, M. G. Finn, P. J. Santangelo, and J. E. Dahlman, "Augmented lipid-nanoparticle-mediated in vivo genome editing in the lungs and spleen by disrupting Cas9 activity in the liver," *Nat. Biomed. Eng.*, vol. 6, pp. 157-167, 2022.

A. Sarma, T. A. Brumfiel, Y. Chitalia and J. P. Desai, "Kinematic Modeling and Jacobian-Based Control of the COAST Guidewire Robot," *IEEE Transactions on Medical Robotics and Bionics*, vol. 4, no. 4, pp. 967-975, 2022.

R. Sarreal, D. Blake, and P. Bhatti, "Development and Characterization of a Magnetic Alternative Cochlear Implant Electrode Array," *IEEE Trans Neural Systems & Rehabilitation Engineering*, vol. 30, pp. 2116-2125, 2022.

K. Schmidt, A. Trofe, and T. Ignatova, "Communication–Multimodal Image Correlation in Two-Dimensional Materials via Automated Image Processing by Strain and Doping Analysis," *ECS Journal of Solid State Science and Technology*, vol. 11(12), p. 121007, 2022.

K. Schmidt, A. Trofe, and T. Ignatova, "Multimodal Image Registration of Raman Spectral Maps in Two Dimensional Materials by Strain and Doping Analysis," *arXiv*, https://arxiv.org/abs/2207.04292, 2022.

Z. Shen, A. I. Wiechert, S. Choi, A. P. Ladshaw, L. L. Tavlarides, C. Tsouris, and S. Yiacoumi, "Silver-functionalized Silica Aerogel for Iodine Capture: Adsorbent Aging by NO_2 in Spent Nuclear Fuel Reprocessing Off-Gas," *Microporous and Mesoporous Materials*, vol. 336, 111898, 2022.

Z. Shen, A. I. Wiechert, S. Choi, L. L. Tavlarides, C. Tsouris, and S. Yiacoumi, "Silver Sulfide and Silver Sulfate as Aging Byproducts and Adsorbents for Gaseous Iodine Capture in Spent Nuclear Fuel Reprocessing," *Industrial & Engineering Chemistry Research*, vol. 61, issue 38, pp. 14393–1440, 2022.

Y. Shi, A. O. Elnabawy, K. D. Gilroy, Z. D. Hood, R. Chen, C. Wang. M. Mavrikakis, and Y. Xia, "Decomposition Kinetics of H_2O_2 on Pd Nanocrystals with Different Shapes and Surface Strains," *ChemCatChem*, vol. 14, issue 16, 2022.

Y. Shi, R. Schimmenti, S. Zhu, K. Venkatraman, R. Chen, M. Chi, M. Shao, M. Mavrikakis, Y. Xia, "Solution-phase synthesis of $PdH_{0.706}$ nanocubes with enhanced stability and activity toward formic acid oxidation," *Journal of the American Chemical Society* 2022, vol. 144, issue 6, pp. 2556-2568, 2022.

A. Shokouhmand, H. Wen, S. Khan, J. A. Puma, A. Patel, P. Green, F. Ayazi, and N. Tavassolian, “Diagnosis of Peripheral Artery Disease Using Backflow Abnormalities in Proximal Recordings of Accelerometer Contact Microphone (ACM),” *IEEE J Biomed Health Inform*., Nov 1;PP. doi: 10.1109/JBHI.2022.3218595. Epub ahead of print. PMID: 36318550, 2022.

S. Sivapurapu, R. Chen, K. Kanno, T. Kakutani, M. Letz, F. Liu, S. K. Sitaraman, and M. Swaminathan, "Mechanical Characterization of Ultra-Thin, Flexible Glass Substrates for RF Applications," *IEEE Transactions on Components, Packaging and Manufacturing Technology*, vol. 12, issue 9, doi: 10.1109/TCPMT.2022.3196912, 2022.

C. Song, Y. Ding, J.G.D. Hester, X. He, R. Bahr, A. Georgiadis, G. Goussetis and M.M. Tentzeris, “Advances in Wirelessly Powered Backscatter Communications: Antenna/RF Circuitry Design to Printed Flexible Electronics,” *Proceedings of IEEE*, vol.110, pp.171-192, 2022.

S. Sripada and J. R. Kastner, “Catalytic Esterification Using Solid Acid Carbon Catalysts Synthesized by Sustainable Hydrothermal and Plasma Sulfonation Techniques,” *Ind. Eng. Chem. Res.*, vol. 61, issue 11, pp. 3928-3940, 2022.

S. Stangebye, Y. Zhang, S. Gupta, T. Zhu, O. Pierron, J. Kacher, “Understanding and quantifying electron beam effects during in situ TEM nanomechanical tensile testing on metal thin films,” *Acta Materialia*, vol. 222, p. 117441, 2022.

L. Stoy, Y. Kulkarni, and C.-H. Huang, “Optimization of iron removal in recovery of rare earth elements from coal fly ash using a recyclable ionic liquid,” *Environmental Science & Technology*, vol. 56, issue 8, pp. 5150-5160, 2022.

S. Strassle Rojas, S. Tridandapani, and B. D. Lindsey, “A thin transducer with integrated acoustic metamaterial for cardiac CT imaging and gating,” *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, vol. 69, issue 3, pp. 1064-1076, 2022.

F.-Y. Su, Q. H. Zhao, S. N. Dahotre, L. Gamboa, S. S. Bawage, A. D. Silva Trenkle, A. Zamat, H. Phuengkham, R. Ahmed, P. J. Santagelo, and G. A. Kwong, “In vivo mRNA delivery to virus-specific T cells by light-induced ligand exchange of MHC class I antigen-presenting nanoparticles,” *Science Advances*, vol. 8, issue 8, 2022.

Z. Y. Al Subeh, A. Ustoyev, J. C. Obike, P.M. West, M. Khin, J.E. Burdette, C. J. Pearce, N. H. Oberlies, and M. P. Croatt, “Semisynthesis of Hypothemycin Analogues Targeting the C8-C9 Diol,” *Journal of Natural Products,* vol. 85, pp. 2018-2025, 2022.

Z. Sun, J. Li, M. Yu, M. Kathaperumal, and C.-P. Wong, “A review of the thermal conductivity of silver-epoxy nanocomposites as encapsulation material for packaging applications,” *Chemical Engineering Journal*, vol. 446, part 5, 137319, 2022.

Z. Sun, Y. Liu, R. Wong, M. Yu, J. Li, M. Moran, M. Kathaperumal, and C.-P. Wong, “Crumpled graphene epoxy nanocomposites modified with polydopamine for advanced semiconductor packaging applications,” *Composites Science and Technology*, vol. 230, part 1, 109709, 2022.

Z. Sun, Y. Liu, R. Wong, M. Yu, J. Li, M. Moran, M. Zhang, S. Dahariya, and C.-P. Wong, “Polydopamine-modified graphene with cellulose nanofibers to act as fillers in epoxy nanocomposites for application in the next generation of green electronic packaging materials,” *Chemical Engineering Journal*, vol. 450, part 3, 138299, 2022.

Z. Sun, B. Wang, M. G. Boebinger, A. Magisinski, S. Jhulki, Y. Zhang, M. T. McDowell, and G. Yushin, “Stability of FeF_3-Based Sodium-Ion Batteries in Nonflammable Ionic Liquid Electrolytes at Room and Elevated Temperatures,” *ACS Applied Materials & Interfaces*, vol. 14, issue 29, pp. 33447-33456, 2022.

Z. Sun, R. Wong, Y. Liu, M. Yu, J. Li, H. Liu, D. An, M. Moran, A. Muslu, and C.-P. Wong, "A fundamental study of improving thermal interface connection by using silane modified, in-situ formed silver-graphene fillers in epoxy polymers for future semiconductor device packaging," *Composites Science and Technology*, vol. 230, part 1, 109759, 2022.

Z. Sun, R. Wong, Y. Liu, M. Yu, J. Li, D. Spence, M. Zhang, M. Kathaperumal, and C.-P. Wong, "Melamine–graphene epoxy nanocomposite based die attach films for advanced 3D semiconductor packaging applications," *Nanoscale*, vol. 14, issue 40, pp. 15193-15202, 2022.

Z. Sun, R. Wong, M. Yu, J. Li, M. Zhang, L. Mele, J. Hah, M. Kathaperumal, and C.-P. Wong, "Nanocomposites for future electronics device Packaging: A fundamental study of interfacial connecting mechanisms and optimal conditions of silane coupling agents for Polydopamine-Graphene fillers in epoxy polymers," *Chemical Engineering Journal*, vol. 439, 135621, 2022.

I. Taghavi, R. Dehghannasiri, T. Fan, A. Tofini, H. Moradinejad, A. Efterkhar, S. Shekhar, L. Chrostowski, N.AF. Jaeger, and A. Adibi," Enhanced Polling and Infiltration for Highly-Efficient Electro-Optic Polymer-Based Mach-Zehnder Modulators," *Optics Express*, vol. 30, p. 2784, 2022.

Y. Tao, A. Erickson, "Enhanced Surface Passivation by Atomic Layer Deposited Al_2O_3 for Ultraviolet Sensitive Silicon Photomultipliers," *IEEE Trans. Nucl. Sci.,* vol. 69, p. 187–191, 2022.

Y. Tao, A. Rajapakse, and A. Erickson, "Advanced antireflection for back-illuminated silicon photomultipliers to detect faint light," *Sci. Rep.,* vol. 12, p. 13906, 2022.

N. Tasneem, H. Kashyap, K. Chae, C. Park, P.-C. Lee, S. F. Lombardo, N. Afroze, M. Tian, H. Kumarasubramanian, J. Hur, H. Chen, W. Chern, S. Yu, P. Bandaru, J. Ravichandran, K. Cho, J. Kacher, A. C. Kummel, and A. I. Khan, "Remote oxygen scavenging of the interfacial oxide layer in ferroelectric hafnium-zirconium oxide-based metal-oxide-semiconductor structures," *Applied Materials & Interfaces*, vol. 14, issue 38, pp. 43897-43906, 2022.

H. Tian, Z. Luo, Y. Song, Y. Zhou, M. Gong, W. Li, Z. Shao, M. Liu, and X. Liu, "Protonic ceramic materials for clean and sustainable energy: advantages and challenges," *International Materials Reviews*, pp. 1-29, 2022.

M. Tian, J. D. Choundraj, T. Voisin, Y. M. Wang, and J. Kacher, "Discovering the nanoscale origins of localized corrosion in additive manufactured stainless steel 316L by liquid cell transmission electron microscopy," *Corrosion Science*, vol. 208, 110659, 2022.

X. Tong, S. Liu, Y. Zhao, L. Huang, J. Crittenden, and Y. Chen, "Xene Composite Membranes with Enhanced Ion Transport and Regulated Ion Selectivity," *Environ. Sci. Technol.*, vol. 56, issue 12, pp. 8964-8974, 2022.

X. Tong, S. Liu, Y. Zhao, C. Xiao, Y. Chen, and J. Crittenden, "A freestanding graphene oxide framework membrane for forward osmosis: Separation performance and transport mechanistic insights," *Journal of Membrane Science*, vol. 661,120919, 2022.

M.-H. Tremblay, A. Boyington, S. Rigin, J. Jiang, J. Basca, K. Al Kurdi, V. N. Khrustalev, R. Pachter, T. V. Timofeeva, N. Jui, S. Barlow, and S. R. Marder, "Hybrid Organic Lead Iodides: Role of Organic Cation Structure in Obtaining 1D Chains of Face-Sharing Octahedra vs 2D Perovskites," *Chem. Mater.*, vol. 34, issue 3, pp 935-946, 2022.

G.N. Tzintzarov, J.W. Teng, A.N. Bozovich, G.R. Allen, D. Nergui, and J.D. Cressler, "Single-Event Transients in a Commercially-Available, Integrated Germanium Photodiode for Silicon Photonic Systems," *IEEE Transactions of Nuclear Science,* vol. 69, pp. 527-533, 2022.

J. N. Vagott, K. Bairley, J. Hidalgo, C.A.R. Perini, A.-F. Castro-Méndez, S. Lombardo, B. Lai, L. Zhang, K. Kisslinger, J. Kacher, and J. P. Correa-Baena, "PbI2 Nanocrystal Growth by Atomic Layer Deposition from Pb(tmhd)2 and HI," *Chemistry of Materials*, vol. 34, issue 6, pp. 2553–2561, 2022.

M. Valizadehderakhshan, M. Kazem-Rostami, A. Shahbazi, M. Azami, A. Bhowmik, L. Wang, "Refining cannabidiol using wiped-film molecular distillation: Experimentation, process modeling, and prediction," *Industrial & Engineering Chemistry Research*. vol. 61(19), pp. 6628-6639, 2022.

P. Verma, C.L. Smith, A.C. Griffin, M.L. Shofner, "Towards textile metamaterials: A pathway to auxeticity and tensegrity in a needle-punched nonwoven stiff felt," *Materials Advances*, vol. 3, issue 15, pp. 6324-6334, 2022.

B. Wan, R. Huang, J. M. Diaz, and Y. Tang, "Rethinking the biotic and abiotic remineralization of complex phosphate molecules in soils and sediments," *Science of the Total Environment*, vol. 833, 155187, 2022.

C. Wang, Z. Huang, Y. Ding, M. Xie, M. Chi, and Y. Xia, "Facet-Controlled Synthesis of Platinum-Group-Metal Quaternary Alloys: The Case of Nanocubes and {100} Facets," *J. Am. Chem. Soc.*, vol. 145, issue 4, pp. 2553-2560, 2022.

J. Wang, M. Park, and A. Ansari, "High-Temperature Acoustic and Electric Characterization of Active site structure and methane oxidation reactivity of bimetallic Pd and Pt nanoparticles Ferroelectric $Al_{0.7}Sc_{0.3}N$ Films," *Journal of Microelectromechanical Systems*, vol. 31, issue 2, pp. 234-240, 2022.

Ting Wang, Devin Brown, Xing Xie, "Nano-enhanced electric-field treatment harnessing lightning-rod effect for rapid bacteria inactivation," *Nano Letters*, vol. 22, issue 2, pp. 860–867, 2022.

W. Wang, H. Garmestani, and S. Y. Liang, "Prediction of molten pool size and vapor depression depth in keyhole melting mode of laser powder bed fusion," *The International Journal of Advanced Manufacturing Technology*, vol. 119, issue 9, pp. 6215-6223, 2022.

W. Wang, Y. Shi, Z. Chen, M. Zhao, Z. Cao, Z. Lyu, R. Chen, K. Xiao, M. Chi, Y. Xia, "Synthesis and characterization of Pt-Ag icosahedral nanocages with enhanced catalytic activity toward oxygen reduction," *ChemNanoMat*, vol. 8, issue 9, e202200186, 2022.

Z. Wang, C. Xu, Q. Fu, and S. Nair, "Transport properties of graphene oxide nanofiltration membranes: Electrokinetic modeling and experimental validation," *AIChE Journal*, vol. 68, issue 11, e17865, 2022.

B. Wei, C. Li, C. Pei and C. Raman, "Bottom-up approach to room temperature quantum systems," *arXiv Preprint*, https://arxiv.org/abs/2212.03970, 2022.

B. Wei, A. Crawford, Y. Andeweg, L. Zhuo, C. Li, and C. Raman, *"*Collimated versatile atomic beam source with alkali dispensers,*" Appl. Phys. Lett.*, vol. 120, 144001, 2022.

H. Wong, N. Liu, and E. Reichmanis, "Single-Pot Fabrication of Cellulose-Reinforced Solid Polymer Lithium-Ion Conductors," *ACS Applied Polymer Materials*, vol. 4, issue 3, pp. 1948-1955, 2022.

J. P. Wooding, S. A. Gregory, A. Atassi, G. Freychet, K. Kalaitzidou, and M. D. Losego, "Transformation kinetics for low temperature post-deposition crystallization of TiO_2 thin films prepared via atomic layer deposition from TDMAT and water," *ALDJ*, vol. 1, pp. 1-24, 2022.

S. C. Wright, S. Saini, T. K. Raman, M. Tian, P. P. Shetty, J. Kacher, and M.T. McDowell, "The influence of graphene and its substrate on the electrodeposition of metals," *ACS Materials Letters*, vol. 5, issue 2, pp. 370-378, 2022.

M. Xie, Y. Shi, R. Chen, M. Shen, and Y. Xia, "Continuous production of carbon-supported and surfactant-free Pt-M (M=Fe, Co, Ni, and Cu) nanocrystals for catalyzing oxygen reduction," *Journal of the*

Electrochemical Society, vol. 169, number 12, 126507, 2022.

J. Xu, J. Qiu, H. Zhang, Y. Hu, and Y. Xia, "Polystyrene-silica colloidal Janus particles with uniform shapes and complex structures," *Particle & Particle Systems Characterization*, vol. 39, p. 2200085, 2022.

K. Xu, Y. Chen, and M. Liu, "Triple-Phase Boundaries (TPBs) in Fuel Cells and Electrolyzers," *Encyclopedia of Energy Storage*, vol. 2, pp. 299-328, 2022.

L. Yan, S. Zhong, T. Igou, H. Gao, J. Li, and Y. Chen, "Development of machine learning models to enhance element-doped g-C3N4 photocatalyst for hydrogen production through splitting water," *International Journal of Hydrogen Energy*, vol. 47, issue 80, pp. 34075-34089, 2022.

S. Yang, B. Min, Q. Fu, C. W. Jones, and S. Nair, "High-Performance Zeolitic Hollow-Fiber Membranes by a Viscosity-Confined Dry Gel Conversion Process for Gas Separation," *Angewandte Chemie*, vol. 61, issue 29, e202204265, 2022.

Y. Yao, A. Naden, M. Tian, S. Lisenkov, Z. Beller, A. Kumar, J. Kacher, I. Ponomareva, and N. Bassiri-Gharb, "Ferrielectricity in the archetypal antiferroelectric PbZrO3," *Advanced Materials*, vol. 35, issue 3, p. 2206541, 2022.

C. Ye, R. Chen, and S. K. Sitaraman, "An Automatic Numerical Approach to Optimize Flexible Serpentine Structure Design," *Flexible and Printed Electronics*, vol. 7, no. 2, 2022.

Z. Yin, Z. Ji, B.P. Bloom, A. Jayapalan, M. Liu, X. Zeng, D.H. Waldeck, and J. Wei, "Manipulating Cobalt Oxide on N-Doped Aligned Electrospun Carbon Nanofibers towards Instant Electrochemical Detection of Dopamine Secreted by Living Cells," *Applied Surface Science*, vol. 577, p. 151912, 2022.

Y. S. J. Yoo, Y. Su. S. Das, R. Hamerton, and J. Kacher, "Multiscale electron microscopy investigation of grain boundary-mediated crack initiation in AA6451 during three-point bending," *Materials Science and Engineering: A*, vol. 833, p. 142572, 2022.

H. Younes, M. Mao, S. M Murshed, D. Lou, H. Hong, G.P. Peterson, "Nanofluids: Key Parameters to Enhance Thermal Conductivity and Its Applications," *Applied Thermal Engineering,* vol. 207, 118202, 2022.

S. Yu, T. K. Gaylord, and M. S. Bakir, "Fiber-Array-to-Chip Interconnections with Sub-Micron Placement Accuracy via Self-Aligning Chiplets," *IEEE Photon. Technol. Lett.*, vol. 34, pp. 1023-1025, 2022.

Zeyang Yu, Yue Ji, and J. Carson Meredith, "Multilayer Chitin–Chitosan–Cellulose Barrier Coatings on Poly(ethylene terephthalate)," *ACS Appl. Polym. Mater.*, vol. 4, issue 10, pp. 7182–7190, 2022.

L. Yuan, R. Pokharel, S. Devkota, H. Kuchoor, K. Dawkins, M.-C. Lee, Y. Huang, D. A. Yarotski, S. Iyer and R. P. Prasankumar. "Revealing Charge Carrier Dynamics and Transport in Te-doped GaAsSb and GaAsSbN Nanowires by Correlating Ultrafast Terahertz Spectroscopy and Optoelectronic Characterization," *Nanotechnology*, vol. 33, pp. 425702-425710, 2022.

H. Yuce, D. K. LaFollette, M. M. Demir, C. A. R. Perini, and J. P. Correa-Baena, "Effects of Alkaline Earth Metal Additives on Methylammonium-Free Lead Halide Perovskite Thin Films and Solar Cells," *Solar RRL*, vol 6, issue 8, 2100999, 2022.

H. Yuce, C. A. R. Perini, J. Hidalgo, A. F. Castro-Méndez, C. Evans, P.F. Betancur, J.N. Vagott, Y. An, K. Bairley, M. M. Demir, and J. P. Correa-Baena, "Understanding the impact of SrI_2 additive on the properties of Sn-based halide perovskites," *Optical Materials*, vol. 123, 111806, 2022.

H. Zhang, B. Wang, and B. Brown. “Area-Selective Atomic Layer Deposition of Titanium Oxide and Nitride on Vertically Aligned Carbon Nanotubes Patterned by Aerosol Jet Printing for 3D Microsupercapacitors,” *Journal of Power Sources*, vol. 551, 232154, 2022.

H. Zhang, Y. Zhou, K. Pei, Y. Pan, K. Xu, Y. Ding, B. Zhao, K. Sasaki, Y. Choi, Y. Chen, and M. Liu, “An efficient and durable anode for ammonia protonic ceramic fuel cells,” *Energy Environ. Sci.*, vol. 15, pp. 287-295, 2022.

Mingyue Zhang, Wensi Chen, Woosung Choi, Jiwoo Yu, Yulin Deng, Xing Xie, Zhiqun Lin, “Ternary Biocidal-Photocatalytic-Upconverting Nanocomposites for Enhanced Antibacterial Activity,” *ACS Sustainable Chemistry & Engineering*, vol. 10, issue 14, pp. 4741-4749, 2022.

R. Zhang, Z. Liu, Z.Sun, X. He, Q. Lin, Y. Xiang, X. Fang, S. Li, X. Fu, Q. Liu, S. Hu, and C. Ping Wong, “A scalable highly thermal conductive silicone rubber composite with orientated graphite by pre-vulcanizing and multilayer stacking method,” *Composites Part A: Applied Science and Manufacturing*, vol. 157, 106944, 2022.

W. Zhang, B. Gallagher, Q. Jin, and C.-H. Huang, **“**Mineralogy optimization for the immobilization of potentially toxic elements and halides in co-disposed flue gas desulfurization brines and bituminous coal fly ash,” *Journal of Hazardous Materials Advances*, vol. 8, 100154, 2022.

W. Zhang, X. Hu, Y. Zhou, Z. Luo, G. Nam, Y. Ding, T. Li, Z. Liu, Y. Ahn, N. Kane, W. Wang, J. Hou, D. Spardling, and M. Liu, “A Solid Oxide Fuel Cell Runs on Hydrocarbon Fuels with Exceptional Durability and Power Output,” *Advanced Energy Materials*, vol. 12, issue 47, 2202928, 2022.

W. Zhang, Z. Ji, Z. Zeng, A. Jayapalan, B. Bagra, A. Sheardy, P. He, D. R. LaJeunesse, and J. Wei, “Dark-Field Microscopic Study of Cellular Uptake of Carbon Nanodots: Nuclear Penetrability,” *Molecules*, vol. 27(8), p. 2437, 2022.

Y. Zhang, K. Ding, S. Stangebye, D. Chen, J. Kacher, O. Pierron, and T. Zhu, “Atomistic modeling of surface and grain boundary dislocation nucleation in FCC metals,” *Acta Materialia*, vol. 237, issue 15, 118155, 2022.

Y. Zhang, Y. Zhang, E. Aldama, H. Liu, Z. Sun, Y. Ma, N. Liu, and Z. John Zhang, “Rational design of walnut-like ZnO/Co3O4 porous nanospheres with substantially enhanced lithium storage performance,” *Nanoscale*, vol. 14, issue 1, pp. 166-174, 2022.

Y. Zhang, Z. Wang, P. Yu, X. Yang, Z. Sun, Y. Zhang, Y. Wu, and C. Jiang, C, “Ultrasensitive and wide-range reduced graphene oxide/natural rubber foam sensors for multifunctional self-powered wireless wearable applications,” *Composites Science and Technology*, vol. 226, 109560, 2022.

Yue Zhang, Yirong Mo, and Zexing Cao, “Rational Design of Main Group Metal Embedded Nitrogen-Doped Carbon Materials as Frustrated Lewis Pair Catalysts for the CO2 Hydrogenation to Formic Acid,” *ACS Applied Materials & Interfaces*, vol. 14(1), pp. 1002-1014, 2022.

T. Zheng and M. S. Bakir, "Benchmarking Frequency-Dependent Parasitics of Fine-Pitch Off-Chip I/Os for 2.5D and 3D Heterogeneous Integration," *IEEE Transactions on Components, Packaging and Manufacturing Technology*, vol. 12, pp. 2002-2012, 2022.

S. Zhou, C. Wang, Y. Xia, “Polyol synthesis of Pd icosahedral nanocrystals: Insights into the growth mechanism and size control,” *Chemistry of Materials*, vol. 34, issue 11, pp. 5065-5073, 2022.

M. Zhu, S. Abdollahramezani, C. Li, T. Fan, H. Harutyunyan, and A. Adibi, “Broadband-Tunable Third-Harmonic Generation Using Phase-Change Chalcogenides”, *Advanced Photonics Research*, vol. 3, p. 2200064, 2022.

M. Zhu, S. Abdollahramezani, C. Li, T. Fan, H. Harutyunyan, and A. Adibi "Dynamically tunable second-harmonic generation using hybrid nanostructures incorporating phase-change chalcogenides" *Nanophotonics*, vol. 11, pp. 2727-2735, 2022.

External Journal Publications

M. Fereydouni, E. Ahani, P. Desai, M. Motaghed, A. Dellinger, D.D. Metcalfe, Y. Yin, S. H. Lee, T. Kafri, A.P. Bhatt, K. Dellinger, and C.L. Kepley, "Human tumor targeted cytotoxic mast cells for cancer immunotherapy," *Frontiers in Oncology*, vol. 12, p. 871390, 2022.

M. N. Gikunda, F. Harerimana, J. M. Mangum, S. Rahman, J. P. Thompson, C. T. Harris, H. O. H. Churchill, and P. M. Thibado, "Array of Graphene Variable Capacitors on 100 mm Silicon Wafers for Vibration-Based Applications," *Membranes*, vol. 12, issue 5, 2022.

J. A. Jiménez, "Unraveling the role of Au clusters *vs.* plasmonic particles on the defects-induced Mn^{2+}luminescence promoted by Si in phosphate glass," *Materials Research Bulletin*, vol. 148, 2022.

S. A. Krovi, M. M. Moreno Caffaro,…L. M. Johnson, "Fabrication of Nylon-6 and Nylon-11 Nanoplastics and Evaluation in Mammalian Cells," *Nanomaterials*. vol. 12(15), pp. 2699, 2022.

H-H. Li, M. Tsui, P. Ku, H. Chen, Z. Yin, R. Dahlgren, S. Parikh, J. Wei, T. Hoang, A. Chow, Z. Cheng, and X-M. Zhu, "Impacts of Forest Fire Ash on Aquatic Mercury Cycling," *Environ. Sci. Technol.* vol. 56 (16), pp. 11835-11844, 2022.

Z. R. Lindsey, M. West, P. Jacobson, and J. R. Ray, "Benchtop Electrochemical Growth and Controlled Alloying of Polycrystalline $In_xGa_{1-x}As$ Thin Films," *Cryst. Growth Des.*, vol. 22, issue 7, pp. 4228-4235, 2022.

Y. Ma, Y. Wang, C. Dong, G. X. Gonzalez, Y. Song, W. Zhum J. Kim, L. Wei, and B.-Z. Wang, "Influenza NP core and HA or M2e shell double-layered protein nanoparticles induce broad protection against divergent influenza A viruses," *Nanomedicine: Nanotechnology, Biology and Medicine*, vol. 40, 2022.

N. P. Mortensen, W. Pathmasiri, R. W. Snyder… T. R. Fennell, "Oral administration of TiO2 nanoparticles during early life impacts cardiac and neurobehavioral performance and metabolite profile in an age-and sex-related manner." *Particle and Fibre Toxicology*. vol. 19(1), pp. 1-8, 2022.

N. P. Mortensen, M. M. Caffaro, K. Davis,…. T. R. Fennell, "Investigation of eight cellulose nanomaterials' impact on Differentiated Caco-2 monolayer integrity and cytotoxicity," *Food and Chemical Toxicology*. vol. 166, pp.113204, 2022.

T. Rosenmayer and H. Colvin, "NR-silica Nanocomposites via Liquid-liquid Blending for Improved *Bonding in Truck and Bus Radial Tread, part 1: Materials and Characterization," Rubber* World, pp 40-44, September 2022.

Andrew F. Uehlin, Jeremy B. Vines, Dale S. Feldman, Derrick R. Dean, and Vinoy Thomas, "Inkjet Printing of Nanohydroxyapatite Gradients on Fibrous Scaffold for Bone–Ligament Enthesis," JOM, vol. 74, pp. 3336–3348, 2022.

Y. Yang, J. Lee, R. Dorakhan, H. Nie, G. Fu, A. Quarantotto, J. Y. Howe, and Y.-H. Chin, "," *Applied Catalysis A: General*, vol. 629, 118290, 2022.

Siwei Zeng, Xiaolei Zhao, Yeyu Zhu, Lance Sweatt, and Lin Zhu, "Watt-level beam combined diode laser systems in a chip-scale hybrid photonic platform," *Opt. Express*, vol. 30, pp. 23815-23827, 2022.

W. Zhu, L. Wei, C. Dong, Y. Wang, J. Kim, Y. Ma, G. X. Gonzalez, and B.-Z. Wang, "cGAMP-adjuvanted multivalent influenza mRNA vaccines induce broadly protective immunity through cutaneous vaccination in mice," *Molecular Therapy Nucleic Acids*, vol. 30, pp. 421-437, 2022.

Internal Conference Presentations

S. Abdollahramezani and A. Adibi, "Dynamic beam steering using tunable hybrid metasurfaces," CLEO, San Jose, CA, 2022.

S. Abdollahramezani and A. Adibi, "Dynamically reconfigurable metasurfaces enabled by phase-change materials," Photonics West Meeting, San Francisco, CA, 2022.

S. Abdollahramezani and A. Adibi, "Electrically-driven dual-view phase-change meta-displays," SPIE Photonics West Meeting, San Francisco, CA, 2022.

S. Abdollahramezani and A. Adibi, "Electrically driven reprogrammable phase-change metaoptics," CLEO, San Jose, CA, 2022.

S. Abdollahramezani and A. Adibi, "Electrically reconfigurable hybrid phase-change metasurfaces," SPIE Photonics West Meeting, San Francisco, CA, 2022.

S. Abdollahramezani and A. Adibi, "Hybrid plasmonic-dielectric material and device platforms for dynamically reconfigurable metaphotonic devices," IEEE RAPID, Miramar Beach, FL, 2022.

S. Abdollahramezani and A. Adibi, "New platforms for reconfigurable nanophotonics enabled by nonvolatile phase-change materials," MRS Fall Meeting, Boston, MA, 2022.

S. Abdollahramezani and A. Adibi, "Nonvolatile phase-change materials for reconfigurable nanophotonic devices," META Conference, Malaga, Spain, 2022.

S. Abdollahramezani and A. Adibi, "Reconfigurable meta-pixels using low-loss optical phase-change materials," CLEO, San Jose, CA, 2022.

S. Abdollahramezani, H. Taghinejad, and A. Adibi "Phase-change materials for reconfigurable nanophotonic structures", Proc. SPIE PC12196, Active Photonic Platforms 2022.

S. Abdollahramezani, H. Taghinejad, and A. Adibi, "Phase-change materials for reconfigurable nanophotonic structures," SPIE Optics and Photonics, San Diego, CA, 2022.

A. Adibi, "New paradigms for design and implementation of dynamically reconfigurable metaphotonic devices," Metamaterials and Plasmonics World Forum, London, UK, 2022.

A. Adibi, "Dynamically reconfigurable nanophotonic devices enabled by phase-Change materials," Global Experts Meet on Laser, Optics, and Photonics (GEMLOP), 2022.

A. Ahmed, E. Boyle, P. A Kottke, and A.G. Fedorov, "Solvent Dependent Metal Nanostructure Synthesis Using Focused Electron Beam," NNCI (National Nanotechnology Coordinated Infrastructure) Nano+Additive Manufacturing Summit, Louisville, KY, August 2022.

F. Almatouq, A. Vira, P. Connolly, Z. Jiang, P. N. First, and T. M. Orlando, "Hexagonal Boron Nitride and Graphene Field Effect Transistor-based Neutron Detectors," 2022 March Meeting of the APS, Chicago, IL, March 2022.

F. Almatouq, A. Vira, P. Connolly, Z. Jiang, P. N. First, and T. M. Orlando, "Optimization of a hBN-based Neutron Radiation Detector Architecture for Space Applications," 2022 MARC XII Conference, Kailua-Kona, HI, April 2022.

F. F. Athena, M. P. West, Q. Jiang, W. Buchmaier, J. Hah, R. Montgomery, R. Hanus, S. Graham, and E. M. Vogel, E.M. "Controlling the Oxygen Ion Motion Using a Diffusion Barrier Layer in HfO_x Based Analog Memory," MRS Spring Meeting and Exhibit, 2022.

J. Averitt, S. Pourianejad, O. Ayodele, and T. Ignatova, "DFT simulation of polymer (s) on graphene: Polymer conformation and adhesion energy considerations," APS Meeting, Chicago, Illinois, March 14–18, 2022.

M. Azami and J. Wei, "Effect of doping with different heteroatoms on the optical behaviors and radical scavenging properties of CNDs", ACS Fall 2022, Chicago, IL, August 18, 2022.

S. Balogun, A. Steiner and M. D. Losego, "Kinetics of TiCl4 Vapor Phase Infiltration (VPI) into PMMA and the Resulting Thermophysical and Optical Properties of the TiOx -PMMA Hybrids," 242nd ECS Meeting, Atlanta, GA, October 2022.

S. Balogun, A. Steiner and M. D. Losego, "Kinetics of TiCl4 Vapor Phase Infiltration (VPI) into PMMA and the Resulting Thermophysical and Optical Properties of the TiOx -PMMA Hybrids," 242nd AVS 68, Pittsburgh, PA, November 2022.

M. Banerjee and B. Brettmann, "Surface modified cellulose nanocrystal gels for pharmaceutical crystallization," Association for Crystallization Technology Larson Workshop, Invited Plenary Presentation, Halifax, Nova Scotia, October 2022.

Erik Barbosa and Akanksha Menon, "Salt Hydrate Composites for Thermochemical Energy Storage in Buildings," International Mechanical Engineering Congress & Exposition, Columbus, OH, 2022.

Barrios, Y. Zhang, X. Maeder, G. Castelluccio, T. Zhu, O. Pierron, "Abnormal Grain Growth in Ultrafine Grained Ni Under High-Cycle Loading," 48th International Conference on Metallurgical Coatings and Thin Films (ICMCTF), San Diego, CA, May 2022.

P. Bhaskar, C. Blancher, M. Kathaperumal, M. Swaminathan, M. D. Losego, "Reliability Assessment of Ultra-low-K dielectric material and demonstration in advanced interposers," 72nd IEEE Electronic Components and Technology Conference, San Diego, CA, 2022.

L. W. Bradley, Y. S. Yaras, and F. L. Degertekin, "Acousto-Optic Electric Field Sensor Based on Thick-Film Piezoelectric Transducer Coated Fiber Bragg Grating," 27th International Conference on Optical Fiber Sensors, Technical Digest Series (Optica Publishing Group, 2022), paper F1.2, 2022.

L. Bradley, B. Karahasanoglu, Y.S. Yaras, and F.L. Degertekin, "Low Temperature Flexible Thick-Film Piezoelectric Transducer for Catheter Applications," IEEE Ultrasonics Symposium, Venice, Italy, 2022.

L. W. Bradley, Y. S. Yaras, D. K. Yildirim, D. Uzun, R. J. Lederman, O. Kocaturk, and F. L. Degertekin, "Thick-Film PiezoPaintTM Based MRI Compatible Electric Field Sensor" ISAF-PFM-ECAPD Joint Conference, Tours, France, 2022.

J. R. Brescia, J. L. Gonzalez, T. Zheng, and M. S. Bakir, "Replaceable Integrated Chiplet (PINCH) Assembly for Heterogeneous Integration," Government Microcircuit Applications & Critical Technology Conf., Miami, FL, March 2022.

B. Brettmann, "Coupling Formulation and Processability for the Design and Manufacture of Biobased Polymeric Materials," ACS Green Chemistry and Engineering Conference, Invited Oral Presentation, June 2022.

B. Brettmann, "Quality-by-design for Additive Manufacturing of Energetic Materials," Energetic Materials Gordon Research Conference, Invited Oral Presentation, July 2022.

T. A. Brumfiel, A. Sarma and J. P. Desai, "Towards FBG-based End-Effector Force Estimation for a Steerable Continuum Robot," 2022 International Symposium on Medical Robotics (ISMR), pp. 1-7, Atlanta, GA, April 13-15, 2022.

T. A. Brumfiel, K. K. Yamamoto, A. Rashid, A. Shigematsu, C. H. Chapman, S. Melkote, J. J. Chern, and J. P. Desai, "Design of a Meso-Scale Grasper for Robotic Pediatric Neuroendoscope Tool," The 14th Hamlyn Symposium on Medical Robotics, London, United Kingdom, June 2022.

Amy Brummer, Daniel Aziz, Michael A. Filler, and Eric M. Vogel, "Improving Self-Aligned ALD Gate Stacks for Electronic Applications," ALD/ALE Conference, Ghent, Belgium, June 2022.

W. Cai, "Inverse Meta-Design: Constructing Metasurfaces and Metasystems via Machine Learning," Materials Research Society (MRS) Spring Meeting, EQ10.19.01, Honolulu, HI, May 2022.

W. Cai, "Inversely Designed Meta-Systems: Beyond the Linear Optical Regime," Advanced Photonics Congress, IM3C.1, Maastricht, Netherlands, July 2022.

W. Cai, "Elucidating and Exploiting Hot-Carrier Dynamics in Active and Nonlinear Plasmonic Metamaterials," Materials Research Society (MRS) Fall Meeting, Boston, MA, November - December 2022.

I. Campbell, A. Marnot, and B. Brettmann, "Interplay of formulation and processing in 3D printing high solids suspensions," American Chemical Society Meeting, Invited Oral Presentation, March 2022.

O. Canbek, F. Lolli, C. M. Childs, N. R. Washburn, and K. E. Kurtis, "Multi-Objective Design of LC^3: Sustainability and Strength," In Recent Advances in Concrete Technology and Sustainability Issues, Proceedings Fifteenth International Conference, pp. 293-306, Milan, Italy, July 2022.

A.-F. Castro-Mendez, C. A. R. Perini, J. Vagott, J. Hidalgo, and J. P.Correa-Baena, "Formation of a secondary phase in thermally evaporated $MAPbI_3$ and its effects on solar cell performance," 14th International Conference on Hybrid and Organic Photovoltaics (Oral Presentation), Valencia, Spain, May 2022.

A.-F. Castro Mendez, C. A. R. Perini, J. Hidalgo, and J. P. Correa-Baena, "Surface functionalization enables growth of cubic perovskites by thermal evaporation," Fall Materials Research Society 2022 (Oral Presentation), Boston, MA, November 2022.

K. A. Cavallaro, S. E. Sandoval, A. Thenuwara, and M. T. McDowell, "Low-Temperature Behavior of Alloy Anodes for Lithium-Ion Batteries," 242nd Electrochemical Society Meeting, Atlanta, GA, October 2022.

K. A. Cavallaro, S. E. Sandoval, A. Thenuwara, and M. T. McDowell, "Investigating Low-Temperature Behavior of Alloy Anodes for Lithium-Ion Batteries," Materials Research Society Spring Meeting, Symposium EN05, Honolulu, HI, May 2022.

J. Champion, "Protein Vesicles: Tuning Self-Assembly by Sequence Modifications," American Institute of Chemical Engineers Annual Meeting, Phoenix, AZ, 2022.

J. Champion, "Self-assembled protein nanocarriers for intracellular delivery," Gordon Research Conference on Drug Carriers in Medicine and Biology, Mount Snow, VT, 2022.

J. Champion, "Self-Assembled Protein Vesicles for Drug Delivery and Biocatalysis," 27th American Peptide Symposium, Whistler, BC, 2022.

A. Chavez, B. Rummel, A. Jeffries, S. M. Han, N. Bosco, B. Rounsaville, and A. Rohatgi, "Translating Material-Level Characterization of Carbon-Nanotube-Reinforced Composite Gridlines To Module-Level Degradation," 2022 IEEE 49th Photovoltaics Specialists Conference (PVSC), pp. 0783-0785, Philadelphia, PA, June 2022.

R. Chen, J. Chow, and S. K. Sitaraman, “Damage Evolution of Double-Sided Copper Conductor on Multi-layer Flexible Substrate Under Bending,” IEEE 72nd Electronic Components and Technology Conference, May-June 2022.

R. Chen, N. J. Ginga, and S. K. Sitaraman, “Magnetically Actuated Test Method for Interfacial Fracture Reliability Assessment,” IEEE 72nd Electronic Components and Technology Conference, May-June 2022.

R. Chen, N. J. Ginga, E. Lin, and S. K. Sitaraman, "Magnetic Actuation Metrology for Interfacial Adhesion Measurement with Environmental Conditions," TECHCON, 2022.

T. Chen, A. Thenuwara, W. Yao, S. E. Sandoval, and M. T. McDowell, “Benchmarking the Electrochemical Degradation Behavior of Aluminum Foil Anodes for Lithium-Ion Batteries,” 242nd Electrochemical Society Meeting, Atlanta, GA, October 2022.

Wensi Chen, “Enhanced porous superabsorbent polymer (PSAP) beads for encapsulation and stabilization of enveloped viruses in municipal wastewater,” The 263rd American Chemical Society National Meeting, San Diego, CA, March 2022.

Wensi Chen, “Enhanced porous superabsorbent polymer (PSAP) beads for encapsulation and stabilization of viruses in municipal wastewater,” Association of Environmental Engineering and Science Professors (AEESP) Research and Education Conference, St. Louis, MO, June 2022.

Wensi Chen, “Rationally designed porous superabsorbent polymer (PSAP) beads for fast and efficient microalgal harvesting,” The 263rd American Chemical Society National Meeting, San Diego, CA, March 2022.

W. J. Choi, Y. W. Ok, K. Madani, S. Duttagupta, and A. Rohatgi, “Development of a co-anneal process for double-side TOPCon precursor fabricated by ex-situ POCI3 and APCVD boron diffusion,” 2022 IEEE 49th Photovoltaics Specialists Conference (PVSC), pp. 1068-1068, Philadelphia, PA, June 2022.

J. P. Correa-Baena, “Interfacial dynamics in metal halide perovskites,” American Physical Society March Meeting: Fundamental Properties of Metal Halide Perovskites, Chicago, IL, March 2022.

J. P. Correa-Baena, “Interfacial dynamics in metal halide perovskites,” Spring NanoGE, Valencia, Spain, March 2022.

J. P. Correa-Baena, “Interfacial dynamics in metal halide perovskites,” American Chemical Society Fall Meeting: Fundamental Properties of Metal Halide Perovskites, Chicago, IL, August 2022.

J. P. Correa-Baena, “Research links at Georgia Tech,” NSF Center for Integration of Modern Optoelectronic Materials on Demand Annual Meeting, Seattle, WA, September 2022.

J. P. Correa-Baena, “Tailored interfaces in metal halide perovskites for efficient charrier transfer,” Gordon Research Conference: From Bioelectronics and Optoelectronics to Emerging Light-Induced Quantum Phenomena, Barga, Italy, June 2022.

M. Croatt, “Discovery of Medicinal Leads by Synergistic Collaboration of Synthetic and Natural Product Chemists,” Southwest Regional Meeting of the ACS, Batton Rouge, LA, November 8, 2022.

A. Culberson, M. Chilmonczyk, P. A. Kottke, and A.G. Fedorov, “Sample-to-Analysis Platform for Rapid Intracellular ESI-MS Analysis from Small Numbers of Cells,” 70th ASMS Conference on Mass Spectrometry & Allied Topics, Minneapolis, MN, June 2022.

M. Daniel-Aguebor, M. U. Rehman, S. Erdogan, K.-S. J. Moon, N. Ambasana, S. Mukhopadhya, L. Y Dai, K. Bergman, D. Jang, and M. Seok, “Package Design and Measurements for Radar Emulator using Accelerators and Photonics,” IEEE 72nd Electronics Components and Technology Conference (ECTC), San Diego, 2022.

S. Dasgupta, Y. W. Ok, V. D. Upadhyaya, W. J. Choi, Y. Y. Huang, S. Duttagupta, and A. Rohatgi, “Novel Laser Oxidation for Screen-Printed Selective Area Front Poly-Silicon Contacts for TOPCon Cells,” 2022 IEEE 49th Photovoltaics Specialists Conference (PVSC), pp. 0366-0366, Philadelphia, PA, June 2022.

K. Dellinger, “Doped zinc oxide for surface-enhanced Raman scattering applications in biosensing,” 7th International Conference on Bio-Sensing Technology, Sitges, Spain, May 2022.

K. Dellinger, “Optical, Electrical and Magnetic Materials,” 4th International Conference on Materials: Advanced and Emerging Materials, Next generation substrates for surface-enhanced Raman Spectroscopy, Barcelona, Spain, October 2022.

L. Dien, Y. Tang, L. Hu, G. Liu, Y. Zhang, and B. Whitfield, “Functionalized Mesoporous Carbon Fiber Traps for Effective Recovery of Rare Earth Elements from the Acidic Extract of End-of-Life Magnet Scrape,” SERDP & ESTCP and OE-Innovation Symposium, Arlington, VA, November 2022.

Zeou Dou, “Engineered biopolymer nanocomposite for phosphate reclamation and controlled release,” The 263rd American Chemical Society National Meeting, San Diego, CA, March 2022.

K. J. Dorsey, C. C. Evans, S. Subotic, M. Cwik, B. D. Young, A. Adibi, and J. M. Hensley, "A Dual-Stage Photonic Integrated Circuit Spectrometer," Optica Advanced Photonics Congress, 2022.

Q. Dzurny, G.P. Peterson, and T.M.J. Richardson, “Working Fluid and Material Selection for Heat pipes and Vapor Chambers for use in Air-Cooled Temperature Swing Adsorption Compression Systems,” ICES 2022 51st Int’l Conf. on Environmental Systems, St. Paul, MN, July 2022.

C. C. Evans, K. J. Dorsey, S. Subotic, M. Cwik, B. D. Young, A. A. Eftekhar, A. H. Hosseinnia, A. Adibi, and J. M. Hensley, "A Dual-Stage Photonic Integrated Circuit Spectrometer," CLEO, San Jose, CA, 2022.

E. Ewaldz, H. Carroll, and B. Brettmann, “Design for manufacturability: Linking formulation to processability in electrospinning,” AIChE Annual Meeting, Area 08A Polymers, Invited Plenary Presentation, November 2022.

E Ewaldz, B Brettmann, “Tying formulation and extensional rheology to processability in the manufacturing of ultrafine fibers,” Fundamental Polymer Rheology Enabling Next Generation Technologies Workshop, Invited Oral Presentation, April 2022.

S. Fairach, S. Willis and M. D. Losego, “Chemical Stability of Atomic Layer Deposited (ALD) Alumina Thin Films in Aqueous Solutions,” 242nd ECS Meeting, Atlanta, GA, October 2022.

T. Fan, X. Wu, and A. Adibi, “A High-quality 3C-SiC-on insulator platform for integrated photonics,” AFRL Silicon Carbide Workshop, Cleveland, OH, 2022

A. G. Fedorov, A. Culberson, M. Chilmonczyk, P.A. Kottke, “Enabling Technologies for Biochemical State Monitoring in Therapeutic Cell Manufacturing,” 6th International Conference on Bioinspired and Bio-based Chemistry and Materials - NICE 2022, Nice, France, June 2022.

E. Garcia, P. Liu, and Y. Tang, “Comprehensive Investigation of As and Se speciation in coal fly ash,” Southeast Biogeochemistry Symposium, Atlanta, GA, April 2022.

E. Garcia, P. Liu, and Y. Tang, “Comprehensive Investigation of As and Se speciation in coal fly ash,” American Chemical Society Fall Meeting, Chicago, IL, August 2022.

B. Geoly, F. Yu, D. Phelps, J. Stover, M. Melia, P. Noell, and J. Kacher, “Relating localized corrosion to microstructure in pure Al in salt water environments,” TMS Conference, Anaheim, CA, 2022.

Y. Gomaa, T. C. Nguyen, J. Tang, S. P. Schwendeman, and M. R. Prausnitz, “Melting microneedle patches,” Controlled Release Society Annual Meeting, 2022.

Gonzalez, E. McGuinness and M. D. Losego, “Investigating the Thermo-Oxidative Degradation and Operational Limits fo Hybrid AlOX–PET Fabrics Created Via Vapor Phase Infiltration (VPI).” 242nd ECS Meeting, Atlanta, GA, October 2022.

M. J. Han, M. Kim, and V. Tsukruk, “Multi-Valued Logic Structures for Optical Biocomputing—Photonically Triggered Bio-Organic Field-Effect Transistors,” MRS Fall Meeting, Boston, MA, 2022.

M. J. Han, M. Kim, and V. Tsukruk, “Tuning Chiro-Optoelectrical Signals Enabled Precise Patterning for Encryption Application,” MRS Fall Meeting, Boston, MA, 2022.

S. Hematian, “Indirect Substituent Effects through an Oxide Moiety in Oxo-Bridged Heme/Copper Assemblies,” in *Solving Chemical Problems with Crystallography: XRD in the Southeast,* The Southeastern Regional Meeting of the American Chemical Society, San Juan, Puerto Rico. October 19-22, 2022.

S. Hematian, “Photochemistry of Oxo-bridged Heterobimetallic Systems," 9th Annual North Carolina Photochemistry Symposium (NC PhotoChem), University of South Carolina, Columbia, SC, October 8, 2022.

P. J. Hesketh, D. Struk, Seung-Joon Paik, J. R. Stetter, M. W. Findlay, and V. Patel, “Femtosecond Laser Ablation for Chemical Sensors and Other Devices,” LOPS On-Conference, June 2022.

J. Hidalgo, Y. An, J. Breternitz, S. Schorr, and J. P. Correa-Baena, “Beyond humidity: the underlying phase transitions in cesium-formamidinium lead halide perovskites,” 30th Annual Meeting of the German Crystallographic Society (Oral Presentation, Virtual), March 2022.

J. Hidalgo, D. Többens, J. Breternitz, J. P. Correa-Baena, and S. Schorr, “xfling low-temperature dependent phase transitions in methylammonium-free lead halide perovskites by in-situ X-ray diffraction,” German conference for Research with Synchrotron Radiation, Neutrons, and Ion Beams at Large Facilities 2022 (Oral Presentation), Berlin, Germany, September 2022.

J. Hidalgo, Y. An, J. Breternitz, S. Schorr, and J. P. Correa-Baena, “Water and oxygen induce undesired phase transitions in CsFA lead halide perovskites,” 14th International Conference on Hybrid and Organic Photovoltaics (Oral Presentation), Valencia, Spain, May 2022.

J. Hidalgo, Y. An, J. Breternitz, S. Schorr, and J. P. Correa-Baena, “Water and oxygen induce undesired phase transitions in CsFA lead halide perovskites,” Fall Materials Research Society 2022 (Oral Presentation), Boston, MA, November 2022.

M. F. Hossen, S. Shendokar, and S. Aravamudhan, "Qualitative Defect Measurement of CVD Grown Monolayer MoS2 Using in-plane E12g Raman Vibration," Carolina Science Symposium, Oct 2022.

K. Hu, Y. Zhou, S. K. Sitaraman, and M. M. Tentzeris, “Fully Additively Manufactured Flexible Dual-Band Slotted Path Antenna for 5G/mmWave Wearable Applications,” IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, Denver, CO, July 2022.

L. Hu and Y. Tang, “Characterization and extraction of rare earth elements from municipal solid waste incineration ashes,” American Chemical Society Fall Meeting, Chicago, IL, August 2022.

A. Hua, N. Jiang, A. Upadhyaya, I. Lam, T. K. Mouri, D. Hauschild, A. Rohatgi, and C. Heske, “Chemical surface and interface structure of sulfur-passivated silicon with a SiNx capping layer,” 2022 IEEE 49th Photovoltaics Specialists Conference (PVSC), pp. 0076-0076, Philadelphia, PA, June 2022.

T. Ignatova, “Optical nonuniformities in Vertical 2DM-Heterostructures: Multidimensional Imaging,” 9th Annual Graphene and Beyond Workshop, Penn State University, University Park, PA, May 19, 2022.

A. Ildefonso, J.M. Hales, A. Khachatrian, P.D. Cunningham, D. Nergui, G.N. Tzintzarov, A.P. Omprakash, J.D. Cressler, and D. McMorrow, “Leveraging the Wavelength Dependence of Optical Charge Generation to Correlate Ion- and Laser-Induced Transients in Modern SiGe HBTs,” IEEE Nuclear and Space Radiation Effects Conference, 2022.

A. Ildefonso, J.M. Hales, A. Khachatrian, J.W. Teng, G.N. Tzintzarov, D. Nergui, U. Raghunathan, V. Jain, J.D. Cressler, and D. McMorrow, "The Effects of Carbon Doping on the Single-Event Transient Response of SiGe HBTs," Proceedings of the 2022 Conference on Radiation and Its Effects on Components and Systems (RADECS), 2022.

R. Ilhamsyah, P J. Hesketh, J. Xu, N. Guise, H. T. Hayden, K. T. Young, K. Ledford, and W. Robertson, "Well array microelectrode electrochemical sensor for high sensitivity cytokine detection," 242snd Meeting of the ECS, Atlanta, GA, October 2022.

Shanthi Iyer, "MBE grown GaAsSb(N) nanowires for near -infrared photodetectors", 2nd International Conference on Hierarchically Structured Materials (ICHSM), Virtual, March 25, 2022.

V. Jadhav and A. D. Kelkar, "Effect of Interleaved MWCNTs Buckypaper on the Mechanical Properties of Non-Crimp Carbon Fiber Composites," ASME International Mechanical Engineering Congress and Exposition (Vol. 86656, p. V003T03A048), 2022.

B. Jean, Y. Ren, R. Lively, E. McGuinness, and M. D. Losego, "Effects of Trimethylaluminum Vapor Pressure and Exposure Time on Inorganic Loading in Vapor Phase Infiltrated PIM-1 Polymer Membranes," AVS 68, Pittsburgh, PA, November 2022.

B. Jean, Y. Liu, E. McGuinness, and M. D. Losego, "The Physicochemical Structure of Inorganics in PIM-1/AlO_x Hybrid Membranes Synthesized via Vapor Phase Infiltration," 242nd ECS Meeting, Atlanta, GA, October 2022.

Y. Ji, A.W. Lang, E. Lim, S.L. Waters, E.K. Young, P.N. Ciesielski, J.R. Reynolds, M.L. Shofner, and J.C. Meredith, "Minimizing Oxygen Permeability of Cellulose/Chitin Nanomaterials as Multilayer Coatings by Tuning Chitin Deacetylation," International Conference on Nanotechnology for Renewable Materials, Helsiniki, Finland, June 2022.

X. Jia, X. Li, K. Moon, J. W. Kim, K.-Q. Huang, M. B. Jordan, and M. Swaminathan, "Antenna-Integrated, Die-Embedded Glass Package for 6G Wireless Applications", IEEE 72nd Electronics Components and Technology Conference (ECTC), San Diego, 2022.

Z. Jiang, "Giant g-factors and fully spin-polarized states in metamorphic short-period InAsSb/InSb," The 24th International Conference on High Magnetic Fields in Semiconductor Physics, Hong Kong (Virtual), July 2022.

S. Jin, O. Allam, S. S. Jang, and S. W. Lee, "Carbon Quantum Dot Modified Reduced Graphene Oxide Framework for Improved Alkali Metal Ion Storage Performance," The 242nd Electrochemical Society Meeting, Atlanta, GA, October 2022.

H. Ju, J. Park, S. W. Lee, "Nanoscale Design of Electrocatalysts for Sustainable Hydrogen Production," The 11th Asia-Pacific Forum of Renewable Energy (Virtual Presentation), Jeju, South Korea, September 2022.

H. Ju, J. Park, I. Stern, and S. W. Lee, "Pyrochlore Oxide Decorated with Exsolved Metal Nanoparticles for Enhanced Water Splitting Reaction," The 242nd Electrochemical Society Meeting, Atlanta, GA, October 2022.

J. Kacher, S. Das, and Y. S. J. Yoo, "Does grain boundary character matter? Intergranular failure in Al alloys under bending," TMS Conference, Anaheim, CA, 2022.

J. Kacher, "Relating microstructure to environmental degradation in Al-Mg," MS&T, Pittsburgh, PA, 2022.

J. Kacher, "Tutorial: High (angular) resolution EBSD." Electron Backscatter Diffraction Conference (Virtual), 2022.

J. Kacher, K. Koube, K. Lamb, T. Sloop, and N. Thadhani, “Understanding the influence of microstructure and voids during shock induced spall failure of additive manufactured stainless steel,” TMS Conference, Anaheim, CA, 2022.

Kasturi, Abishek et al, "Sorbent Regeneration Energy Analysis of Phase-Changing Guanidine-based Ligands Used for CO2 Direct-Air Capture," 2022 Annual AIChE Meeting, Phoenix, AZ, November 2022.

A. S. Kim, M. Taghinejad, K.-T. Lee, and W. Cai, “Transient spectroscopic studies on the co-dependence of hot-carrier dynamics and active optical response of a 1D plasmonic crystal,” American Physical Society (APS) March Meeting, N26.00012, Chicago, IL, March 2022.

A. S. Kim, M. Taghinejad, K.-T. Lee, and W. Cai, “Interdependent hot-carrier transient dynamics and active linear/non-linear optical response in a 1D plasmonic crystal,” Materials Research Society (MRS) Spring Meeting, EQ10.20.06, Honolulu, HI, May 2022.

H. Kim, H. J. Choo, and W.-H. Yeo, “Wireless Nanomembrane Electronics and Soft Packaging Technologies for Noninvasive, Real-time Monitoring of Muscle Activities,” IEEE 72nd Electronics Components and Technology Conference (ECTC), San Diego, 2022.

H. Kim and S.K. Saha, “Minimizing Shrinkage in Microstructures Printed With Projection Two-Photon Lithography,” ASME 2022 17th International Manufacturing Science and Engineering Conference, West Lafayette, Indiana, June 27–July 1, 2022.

M. Kim, D. Bukharina, D. Nepal, T. Bunning, and V. Tsukruk, “Switchable Soft Photonic Bio-Adhesives,” APS March Meeting, 2022.

M. Kim, K. Pierce, D, Bukharina, D. Nepal, T. Bunning, and V. Tsukruk, “Biosynthetic Chiral Nematic Soft Materials with Enhanced Adhesion: Luminescent Adhesives with Universal Adhesions on Hydrophobic and Hydrophilic Surfaces,” APS March Meeting, 2022.

S. Kim, S. Sabury, A. L. Jones, J. R. Reynolds, and J. P. Correa-Baena, “Scalable charge transport layers based on electrically conductive polymers to achieve high efficiency and long-term durability in perovskite solar cells,” 8th Annual Student Polymer Network (Poster), Atlanta, Georgia, March 2022.

S. Kim, S. Sabury, A. L. Jones, J. R. Reynolds, and J. P. Correa-Baena, “Scalable charge transport layers based on electrically conductive polymers to achieve high efficiency and long-term durability in perovskite solar cells,” Fall Materials Research Society 2022 (Poster), Boston, MA, November 2022.

Y. Kim, J. H. Jung, A Tadros, and MR Prausnitz, “Dermal application of STAR particles on human subjects for topical delivery,” Controlled Release Society Annual Meeting, 2022.

K. Koube, K. Lamb, T. Sloop, J. Kacher, S. Babu, J. Kacher, and N. Thadhani, “Analysis of spall damage mechanisms in LPBF SS316L with manufactured porosity,” American Physical Society Conference, Chicago, IL, 2022.

H. Kuchoor, S. Nalamati, J. Li, and S. Iyer, “Improved density of GaAsSb Nanowires on Monolayer Graphene/SiO2/Si for Near-Infrared Photodetector Application”, 64th Electronic Materials Conference, Ohio, June 29 - July 1, 2022.

L. N. V. Kumar, K.-S. Moon, M. Swaminathan, K. Kanno, H. Ito, T. Ogawa, and K. Hasegawa, “Demonstration and Comparison of Vertical Via-less Interconnects in Laminated Glass Panels from 40-170 GHz,” IEEE 72nd Electronics Components and Technology Conference (ECTC), San Diego, 2022.

D. K. LaFollette, Y. An, and J. P. Correa-Baena, “Illuminating Structure-Property Relationships of Methylammonium-Free Lead Halide Perovskites Through Advanced Characterization Studies of Halide-

and Phase- Segregation," Materials Research Society Spring Meeting 2022 (Poster), Honolulu, Hawaii, May 2022.

D. K. LaFollette, Y. An, and J. P. Correa-Baena, "Illuminating Structure-Property Relationships of Methylammonium-Free Lead Halide Perovskites Through Advanced Characterization Studies of Halide- and Phase- Segregation," Fall Materials Research Society 2022 (Poster), Boston, MA, November 2022.

K. Lamb, K. Koube, S. Babu, J. Kacher, and N. Thadhandi, "High strain rate fracture properties of additively manufactured stainless steel," TMS Conference, Anaheim, CA, 2022.

K. Lee, Y. J. Lee, B. J. Kim, and S. W. Lee, "3D-Structured Porous Carbon Host with Iron Nanoparticles for High Performance Sodium-Metal Batteries," The 242nd Electrochemical Society Meeting, Atlanta, GA, October 2022.

M. J. Lee, J. Han, B. J. Kim, and S. W. Lee, "Bicontinuous-Structured Elastomeric Electrolytes for High-Energy Solid-State Lithium-Metal Batteries," The 242nd Electrochemical Society Meeting, Atlanta, GA, October 2022.

S. W. Lee, "Designing Elastomeric Electrolytes for Sustainable Batteries," The 6th International Conference on Active Materials and Soft Mechatronics, Atlanta, GA, October 2022.

J. Lee, J. Sentmanat, P. A. Kottke, and A.G. Fedorov, "Electron Beam Microscopy Combined with Focused Electrospray Beam for Biochemical imaging with Subcellular Resolutions," 70th ASMS Conference on Mass Spectrometry & Allied Topics, Minneapolis, MN, June 2022.

H. Lee, K. Lee, and S. W. Lee, "High-Quality Electrochemically Exfoliated Graphene Protective Layer for Metal Batteries," The 242nd Electrochemical Society Meeting, Atlanta, GA, October 2022.

K. Lee, and S. W. Lee, "Structure Controlled and Metal-Embedded Carbon Anodes for Energy Storage Applications," The 6th International Conference on Active Materials and Soft Mechatronics, Atlanta, GA, October 2022.

H. Lee, J. Chung, T. Yu, and S. W. Lee, "Synergistic Effect of Interfacial Engineered Fe Doped NiS for Seawater Splitting," The 242nd Electrochemical Society Meeting, Atlanta, GA, October 2022.

J. A. Lewis and M. T. McDowell "Probing Interfaces in Solid-State Batteries Using Operando X-Ray Tomography," Materials Research Society Spring Meeting, Symposium EN06, Honolulu, HI, May 2022.

C. Li, G. D. Martinez, W. R. McGehee, J. E. Kitching and C. Raman, "A Microfabricated Chip-scale Atomic Beam System with Self-sustained Vacuum," 53rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, Orlando, FL, May – June 2022.

D. Li, L. Hu, and Y. Tang, "Phosphonate-functionalized magnetic mesoporous silica for rare earth element separation from citric acid extraction media," TechConnect World Innovation Conference and Expo, Washington D.C., June 2022.

J. Li, J. Wilson, D. Cheung, Z. Sun, K.-S. Moon, M. Swaminathan, and C.-P. Wong, "Epoxy Resin with Metal Complex Additives for Improved Reliability of Epoxy-Copper Joint," IEEE 72nd Electronics Components and Technology Conference (ECTC), San Diego, 2022.

Q. Li, O. Pierron, A. Antoniou, "Effect of Film Thickness and Trace Width on Electrical Conductivity of Stretchable Composite Inks Under Monotonic and Cyclic Tensile Loading," 48th International Conference on Metallurgical Coatings and Thin Films (ICMCTF), San Diego, CA, May 2022.

B. D. Lindsey, "Design and development of ultrasound systems for guiding cardiovascular intervention," In Vivo Ultrasound Imaging Gordon Research Conference, Ventura, CA, August 2022.

B. D. Lindsey, “Development of a Forward-Viewing 3D Intravascular Ultrasound Imaging System for Functional Coronary Imaging-Guided Intervention,” 2022 NIH Image-guided Therapy Workshop (Virtual), Bethesda, MD, May 2022.

B. D. Lindsey, “Forward-viewing Robotically-Steerable Ultrasound Guidewire for Peripheral Revascularization: Toward the Development of an Ultrasound-Guided Steerable Guidewire,” American Institute of Ultrasound in Medicine (AIUM) Annual Meeting, San Diego, CA, March 2022.

B. D. Lindsey, “Systems and devices for functional, minimally-invasive ultrasound imaging,” Artimino Conference on Medical Ultrasound Technology, Boulder, CO, June 2022.

P. Lis, A. Sarma, G. Trimpe, T. A. Brumfiel, R. Qi and J. P. Desai, "Design and Modeling of a Compact Advancement Mechanism for a Modified COAST Guidewire Robot," 2022 International Conference on Robotics and Automation (ICRA), pp. 1176-1182, Philadelphia, PA, May 23-27, 2022.

A. Liu, E.M. Dogan-Guner, M. McBride, E. Reichmanis, J. C. Meredith, and M. A. Grover, “Flow-assisted Solution Coating of Thin-film Libraries for High-Throughput Discovery of Polymer Blends,” 2022 ACS Spring Meeting (Oral Presentation), San Diego, CA, March 2022.

A. Liu, E.M. Dogan-Guner, M. McBride, E. Reichmanis, J. C. Meredith, and M. A. Grover, “Elevated Temperature Mixing and Gradient Film Preparation for High-Throughput Experimentation of Polymer Blends,” 11th International Workshop on Combinatorial Materials Science and Technology (COMBI) (Oral Presentation), Golden, CO, September 2022.

A. Liu, E.M. Dogan-Guner, M. McBride, R. Venkatesh, E. Reichmanis, M. A. Grover, and J. C. Meredith, “Solution Coating of Polymer Libraries for High-Throughput Experimentation via Passive Mixing,” 2022 AIChE Annual Meeting (Oral Presentation), Phoenix, AZ, November 2022.

Z. Liu, A. Lotfi, M. Hodjat-Shamami, P. Hesketh, and F. Ayazi, “A Corrosion-Resistant High-Order Membrane Resonator Array for Gravimetric Ammonia Sensing with Sub-PPM limit of detection," IEEE International Micro Electro Mechanical Systems Conference (MEMS 2022), pp. 728-731, Tokyo, Japan, January 2022.

Z. Liu, A. Lotfi, M.P. Hardin, and F. Ayazi, “A High-Q Solid Disk BAW Gyroscope in Monocrystalline 4H-SiC with Sub-ppm As-Born Frequency Split," 2022 Solid-State Sensors, Actuators and Microsystems Workshop, Hilton Head Island, SC, June 2022.

P. Liu, L. Hu, and Y. Tang, “Characterization and recovery of rare earth elements from coal fly ash. Goldschmidt Conference,” Honolulu, HI, July 2022.

Isha Lodhi, Durga Gajula, Devin K. Brown, Wilbur A. Lam, David R. Myers, and Oliver Brand, “Piezoresistive Micro-Pillar Sensor for In-Plane Force Sensing in Biological Applications,” Solid-State Sensors, Actuators, and Microsystems Workshop, Hilton Head Island, South Carolina, June 5-9, 2022.

M. D. Losego, “Crystallization Kinetics in Atomic Layer Deposited Thin Films: Opportunities of Time and Chemical Environment,” 242nd ECS Meeting, Atlanta, GA, October 2022.

M. D. Losego, J. Bamford, S. Balogun, and Vivek Brahmatewari, “Thermophysical Properties of Organic-Inorganic Hybrid Thin Films Created via Vapor Phase Infiltration (VPI),” AVS 68, Pittsburgh, PA, November 2022.

M. D. Losego, “Vapor Phase Infiltration of Polymers for Synthesis of Organic-Inorganic Hybrid Materials: Process Kinetics and Chemical Mechanisms.” AVS 22nd International Conference on Atomic Layer Deposition, Ghent, Belgium, June 2022.

A. Lotfi, M.P. Hardin, Z. Liu, A. Wood, C. Bolton, K. Riddell, H. Ashraf, J. Carpenter, and F. Ayazi, “Wafer Level High Aspect Ratio Deep Reaction Ion Etching of 4H-SiC on Insulator Substrate," 2022 Solid-State Sensors, Actuators and Microsystems Workshop, Hilton Head Island, SC, June 2022.

J. Lu, M. Zia, M. J. Williams, A. L. Jacob, B. Chung, S. J. Sober and M. S. Bakir, "High-performance Flexible Microelectrode Array with PEDOT:PSS Coated 3D Micro-cones for Electromyographic Recording," 44th International Engineering in Medicine and Biology Conference, Glasgow, United Kingdom, July 2022.

M. Manley, A. Kaul, M.-J. Li, and M. S. Bakir, "Ultra-Dense 3D Polylithic Integration Technology," Government Microcircuit Applications & Critical Technology Conference**,** Miami, FL, March 2022.

A. Marnot, A. Dobbs, I. Campbell, and B. Brettmann, "Rheology and formulation in material extrusion additive manufacturing of dense pastes for energetic materials applications", International Materials Research Congress, Invited Oral Presentation, August 2022.

A. Marnot, I. Campbell, and B. Brettmann, "Rheology and formulation in material extrusion additive manufacturing of high solids suspensions," American Chemical Society National Meeting, Invited Oral Presentation, August 2022.

N. McClelland, E. McGuinness, H. Manno, and M. D. Losego, "Optimizing Aluminum Oxyhydroxide Vapor Phase Infiltration for the Vapor Phase Mordanting of Natural Dyes to Polyester Fabrics," 242nd ECS Meeting, Atlanta, GA, October 2022.

M. T. McDowell, "Behavior of High-Capacity Anodes at Low Temperatures for Li-Ion Batteries." American Chemical Society Fall Meeting (In Person), Chicago, IL, August 2022.

M. T. McDowell, "Behavior of High-Capacity Anodes at Low Temperature for Li-ion Batteries," 242nd Electrochemical Society Meeting (In Person), Atlanta, GA, October 2022.

M. T. McDowell, "In Situ Investigation of the Evolution of Materials and Interfaces in Solid-State Batteries," Materials Research Society Spring Meeting (In Person), symposium CH01, Honolulu, HI, May 2022.

M. T. McDowell, "Interfaces and Chemo-Mechanics in Solid-State Batteries," 2022 NSF/TSRC Workshop: Materials Chemistry in Electrochemical Energy Storage (In Person), Telluride, CO, September 2022.

M. T. McDowell, "Operando Experiments for Understanding the Chemo-Mechanics of Solid-State Batteries." European Mechanics Society Colloquium 617: Multiscale mechanics, multiphysics modeling and simulations for energy storage (In Person), Lake of Garda, Italy, August 2022.

M. T. McDowell, "Understanding Materials Dynamics in Solid-State Batteries," Materials Research Society Fall Meeting, Boston, MA, November 2022.

M. T. McDowell, "Understanding Materials Dynamics in Solid-State Batteries with Lithium and Alloy Anodes," International Meeting on Solid-State Ionics (SSI-23, In Person), Boston, MA, July 2022.

M. T. McDowell, "Understanding the Evolution of Materials and Interfaces in Solid-State Batteries," American Chemical Society Fall Meeting (In Person), Chicago, IL, August 2022.

M. T. McDowell, "Understanding the Evolution of Materials and Interfaces in Solid-State Batteries," 242nd Electrochemical Society Meeting (In Person), Atlanta, GA, October 2022.

T. K. Mouri, A. Upadhyaya, A. Rohatgi, W. N. Shafarman, and U. K. Das, "Bulk lifetime study of p-type Czochralski silicon with different processing history using quinhydrone-methanol surface passivation," 2022 IEEE 49th Photovoltaics Specialists Conference (PVSC), pp. 1-4, Philadelphia, PA, June 2022.

H. Murali, Z. Enderson, R. Dasari, T. Parker, S. Marder, H. Li, Q. Dai, J.-L. Brédas, and P. First, "Heterotriangulene-based covalent networks on noble metal surfaces studied through STM and TOF-SIMS," 2022 March Meeting of the APS, Chicago, IL, March 2022.

P. Murali, V. Avula, M. Ahmed, M. D. Losego, M. Swaminathan, C. Alvarez, Y. Oishi, T. Uemura, R. Nagatsuka, N. Watanabe, "Fabrication and characterization of package embedded inductors for integrated voltage regulators." 72nd IEEE Electronic Components and Technology Conference, San Diego, CA, 2022.

M. Nnaji, D. Hitchcock, and E. M. Vogel, "Plasma Enhanced Atomic Layer Deposition of TiAlN Thin Films: A Novel Approach for MAX Phase Synthesis," 68th Meeting of the American Vacuum Society, Pittsburgh, PA, November 2022.

Y. W. Ok, V. D. Upadhyaya, B. Rounsaville, A. D. Upadhyaya, W. J. Choi, A. Rohatgi, and S. Duttagupta, "Rear Junction Bifacial Screen-Printed Double Side Passivated Contact Si Solar Cells," 2022 IEEE 49th Photovoltaics Specialists Conference (PVSC), pp. 0251-0253, Philadelphia, PA, June 2022.

Walter Parker and Akanksha Menon, "A Thermal Brine Concentrator Using Polymer Surfaces with Tunable Wettability for Zero Liquid Discharge Desalination," International Mechanical Engineering Congress & Exposition, Columbus, OH, 2022.

M. Passlack, N. Tasneem, Z. Wang, K. A. Aabrar, J. Hur, H. Chen, V. D.-H. Hou, C.-S. Chang, M.-F. Chang, S. Yu, W. Chern, S. Datta, and A. Khan, "Direct Quantitative Extraction of Internal Variables from Measured PUND Characteristics Providing New Key Insights into Physics and Performance of Silicon and Oxide Channel Ferroelectric FETs," International Electron Devices Meeting (IEDM), San Francisco, CA, 2022.

Gayani Pathiraja and Sherine Obare, "Efficient removal of organophosphorus compounds by adsorption on metal hydroxides/oxides nanostructures," Sustainable Phosphorus Summit, North Carolina, 2022.

Gayani Pathiraja, Hemali Rathnayake, and Sherine Obare, "Selective organophosphate removal by adsorption on metal hydroxides/oxides nanowires," ACS Northeast Regional Meeting, New York, 2022.

C. A. R. Perini and J. P. Correa-Baena, "Halide perovskite photovoltaics: tailoring interfaces to maximize the energy yield," 7th Annual Georgia Tech Postdoctoral Research Symposium (Oral Presentation), Atlanta, GA, March 2022.

C. A. R. Perini, M. Ravello, A.-F. Castro-Mendez, J. Hidalgo, and J. P. Correa-Baena, "Understanding the formation and transformation of low dimensional capping layers in lead halide perovskites by thermal evaporation," International Conference on Hybrid and Organic Photovoltaics (Oral Presentation), Valencia, Spain, May 2022.

C. A. R. Perini, M. Ravello, A.-F. Castro-Mendez, J. Hidalgo, and J. P. Correa-Baena, "Understanding the formation and transformation of low dimensional capping layers in lead halide perovskites by thermal evaporation," Gordon Research Conference (Poster), Ventura, CA, June 2022.

C. A. R. Perini, M. Ravello, and A.-F. Castro-Mendez, J. Hidalgo, and J. P. Correa-Baena, "Understanding the formation and transformation of low dimensional capping layers in lead halide perovskites by thermal evaporation," Fall Materials Research Society 2022 (Oral Presentation), Boston, MA, November 2022.

S. Phuyal, S. S. Suarez, and C-K. Tung, "Biological benefits of collective swimming of sperm in a viscoelastic fluid," Society for the Study of Reproduction (SSR) 56th Annual Meeting. Spokane, WA, July 26-29, 2022.

R. Pokharel, M. Parakh, K. Dawkins, J. Li, and S. Iyer, "Epitaxial GaAs/GaAsSb separate absorption multiplication (SAM) nanowire photodetector," 64th Electronic Materials Conference, Ohio, June 29-July 1, 2022.

M. R. Prausnitz, "Advanced microneedle patches for drug delivery," Transdermal and Microneedle Drug Delivery Conference, Virtual Conference, January 2022.

M. R. Prausnitz, **"**Translation of microneedle technology for vaccination, contraception and dermatology," Biomaterials Forum, Virtual Conference, June 2022.

M. R. Prausnitz, “Microneedle technology: From bench to clinic,” Controlled Release Society Annual Meeting, Montreal, Canada, July 2022.

M. R. Prausnitz, “Microneedle technology for drugs, devices and diagnostics,” PHARNEX, Virtual Conference, July 2022.

M. Rafay, D. Jin, E. Vogel, and B. Brown, “Wireless Electrochemical Sensor Capsule,” ARMI BioFabUSA Spring Meeting in the Millyard Member Day (Technology Demo), Manchester, NH, June 2022.

A. Rajapakse, Y. Tao, and A. Erickson, “The Device Response of Carbon Nanotube-based Radiation Detectors to MeV Photons and Electrons,” IEEE NSS/MIC, Milano, Italy, November 5-12, 2022.

A. Rajapakse, J. Arrue, Y. Tao, and A. Erickson, “Design and fabrication of a carbon nanotube based radiation detector array,” NNSA University Program Review (UPR) 2022 Meeting, Ann Arbor, MI, June 7-9, 2022.

A. Rajapakse and A. Erickson, “Investigating the Response of Carbon Nanotube Radiation Detectors to MeV X-rays and Electrons,” 2022 ETI Workshop, Atlanta, GA, March 29-30, 2022.

L. Raju, K.-T. Lee, Z. Liu, D. Zhu, M. Zhu, E. Poutrina, A. Urbas, and W. Cai, “Second harmonic generation enhanced with inversely designed plasmonics for nonlinear metamaterials,” SPIE Photonics West, 11985-22, San Francisco, CA, January - February 2022.

Priyanka Ramaswamy, Mehul Parakh, Shisir Devkota, Hirandeep Kuchoor, Kendall Dawkins, and Shanthi Iyer, "Study of Al2O3 dielectric on Ga-assisted MBE grown GaAs1-xSbx nanowires", 64th Electronic Materials Conference, Ohio, June 29-July 1, 2022.

H. Rathnayake and P. Butreddy, “Bio-Based Lithium Nano-Frameworks for Solid-State Battery Technology,” 2022 TechConnect World Innovation Conference and Expo, Washington, DC., June 13, 2022.

H. Rathnayake and P. Butreddy, “Bio-Based Lithium-ion Battery Technology,” 2022 TechConnect World Innovation Conference and Expo, Pitch and Showcase, Washington, DC., June 13, 2022.

H. Rathnayake, S. Dawood, S., and K. Adrah, “Nano Mosaic Sorbent Technology for Lithium Recovery,” 2022 TechConnect World Innovation Conference and Expo, Washington, DC., June 13, 2022.

H. Rathnayake, S. Dawood, S. Liurukara, and N. Andrew, “Isoreticular MOFs for Molecular-Based Magnetic Conductors,” 2022 TechConnect World Innovation Conference and Expo, Washington, DC., June 13, 2022.

M. H. Raza, R. Zadegan, S. Aravamudhan, “3D Printing of Parametrically Designed Microfluidic Molds,” Nano and Additive Manufacturing Summit, Louisville, KY, August 2022.

B.L. Ringel, J.W. Teng, D. Nergui, M. Hosseinzadeh, K. Li, E.X. Zhang, D.M. Fleetwood, and J.D. Cressler, “RF Performance and TID Hardness Trade-offs in Annular 45-nm RF SOI CMOS,” IEEE Nuclear and Space Radiation Effects Conference, 2022.

A. V. Romanyuk, A Marin, EI Felner, A. K. Andrianov, and M.R. Prausnitz “Ebola vaccination by microneedle patch with polyphosphazene adjuvant,” American Chemical Society Virtual Meeting, 2022.

F. Rubaiya, M.L. Shofner, and L.M. Garten, "Understanding Piezoelectric and Auxetic Response of Cellulose Nanocrystals", 2022 U.S.-Japan Seminar on Dielectric and Piezoelectric Ceramics (Poster), Charleston, SC, November 2022.

J. Rudge and A. Sarkar, “In-Flow Single Cell Impedance Spectroscopy and Electroporation Using a Microscale Aperture,” 2022 Annual Meeting of the Biomedical Engineering Society (BMES2022), San Antonio, 2022.

E.A. Ryan, M.S. Schaibile, Z.D. Seibers, K.G. Sjolund, J.S. Linsey, J.R. Reynolds, M.L. Shofner, and T.M. Orlando, "Processing and Performance of Graphene-Laminated Thermoplastics for Electrically Conductive Applications in Space," NASA Exploration Science Forum, Boulder, CO, July 2022.

K. Ryu, K. Lee, H. Ju, J. Park, I. Stern, and S. W. Lee, "Ceramic/Polymer Hybrid Electrolyte with Enhanced Interfacial Contact for All-Solid-State Lithium Batteries," The 242nd Electrochemical Society Meeting, Atlanta, GA, October 2022.

S. E. Sandoval, F. Q. Cortes, E. Klein, J. A. Lewis, P. Shetty, D. Yeh, and M. T. McDowell, "Investigating the Effects of Alloy Interfacial Layers on the Electrochemical Behavior of Lithium Metal Anodes with Operando Optical Microscopy," Materials Research Society Spring Meeting, Symposium EN05, Honolulu, HI, May 2022.

S. E. Sandoval, J. Lewis, and M. T. McDowell, "Uncovering the Effects of Alloy Interfacial Layers in Anode Free Solid-State Batteries through Cryogenic Focused Ion Beam Characterization," Fall 2022 Materials Research Society Meeting, Boston, MA, November 2022

B. Sang, H. Wen, P. Gupta, A. Shokouhmand, S. Khan, J. A. Puma, A. Patel, P. Green, N. Tavassolian, and F. Ayazi, "Detection of Normal and Paradoxical Splitting in Second Heart Sound (S2) using a Wearable Accelerometer Contact Microphone," *2022 IEEE Sensors*, Dallas, TX, pp. 1–4, 2022.

R. Sareal and P. Bhatti, "Development of Cochlear Implant Alternative Magnetic Stimulation Design," Cochlear Implant Alliance 2022, Washington, DC, May 2022.

J. Sentmanat, J. Lee, P.A. Kottke, and A. G. Fedorov, "Gas-assisted transport of electrospray droplets in high-resolution vacuum IMS," 70th ASMS Conference on Mass Spectrometry & Allied Topics, Minneapolis, MN, June 2022.

Z. Shen, A. Wiechert, S. Choi, A. Ladshaw, L. Tavlarides, C. Tsouris, and S. Yiacoumi, "Iodine Capture Using Silver-functionalized Silica Aerogel: How Aging Affects the Adsorption Performance?" ACS Spring 2022 (Virtual), March 2022.

S. M. Shendokar, M. F. Hossen, O. Ayanbajo and S. Aravamudhan, "Application of Parametric Modeling in Atomic Layer Deposition", The Electrochemical Society, 242 Meetings Proceedings, Atlanta, Georgia, 2022.

S. Shin, T. Chauhan, J. Matthews, H. Wen, and F. Ayazi, "An Out-of-Plane Wide Bandwidth Micro-G FM Accelerometer with Differential Output," 2022 Solid-State Sensors, Actuators and Microsystems Workshop, Hilton Head Island, SC, June 2022.

A. Shokouhmand, H. Wen, S. Khan, J.A. Puma, A. Patel, P. Green, F. Ayazi, and N. Tavassolian, "Detection of Left Ventricular Ejection Fraction Abnormality Using Fusion of Acoustic and Biopotential Characteristics of Precordium," *2022 IEEE Sensors*, pp. 1-4, Dallas, TX, 2022.

A. Sinha, S. Dasgupta, A. Rohatgi, and M. Gupta, "Rapid Thermal Annealing (RTA) of Hydrogenated Poly-Si under Air and Nitrogen and Blister Formation," 2022 IEEE 49th Photovoltaics Specialists Conference (PVSC), pp. 1168-1168, Philadelphia, PA, June 2022.

T. Sloop, K. Koube, K. Lamb, S. Babu, J. Kacher, and N. Thadhani, "Effects of porosity on spall failure of additively manufactured 316L stainless steel," American Physical Society Conference, Chicago, IL, 2022.

N. Somers, A. Monton and M. D. Losego, "Fabrication of doped β-tricalcium phosphate bioceramics by robocasting and photonic sintering," ECERS 2022, Krakow, Poland, July 2022.

R. Sosa and V. Smet, "Quality and Reliability Assessment of Sintered Nanoporous-Copper Interconnects on Substrates," IEEE Symposium on Reliability for Electronics and Photonics Packaging, 2022.

Sandra Stangebye, Kunqing Ding, Yin Zhang, Ting Zhu, Olivier Pierron, and Josh Kacher, "Characterizing deformation mechanisms in irradiated metal thin films using in situ TEM straining," 10th International Conference on Multiscale Materials Modeling.\, Baltimore, MD, October 2022.

Sandra Stangebye, Yin Zhang, Kunqing Ding, Ting Zhu, Josh Kacher, and Olivier Pierron, "Investigating factors that influence stress-induced grain boundary migration in ultrafine-grained metal thin films," TMS Annual Meeting. Anaheim, CA, 2022.

Sandra Stangebye, Yin Zhang, Kunqing Ding, Ting Zhu, Josh Kacher, Olivier Pierron, "Investigating the plastic deformation kinetics in ultrafine grained and nanocrystalline metal thin films using in situ TEM nanomechanical testing," MRS Spring 2022, Honolulu, HI, May 2022.

D. Struk, S.-J. Paik, R. H. Shafer, P. J. Hesketh, V. Patel, D. Peaslee, M. Findlay, and J. R. Stetter, "Amperometric Gas Sensor with Porous Electrodes Manufactured Via Laser Ablation," Electrochemical Society Meeting Abstracts 241. No. 52. The Electrochemical Society, Inc., Vancouver, CA, 2022.

D. Struk, C. Heist, P. J. Hesketh and M. Navaei, "Comparison of Tenax and OV-1 thin-films for Microfabricated Preconcentrators," 241st Meeting of the ECS (Virtual Presentation), Vancouver, CA, May 2022.

D. Struk, P. J. Hesketh, and Hoseon Lee, "Design and Simulation of a Microsolenoid for Detection of Magnetic Beads," ECS Fall Meeting, Atlanta, GA, October, 2022.

Z. Sun, M. Yu, J. Li, M. Moran, M. Kathaperumal, K.-S. Moon, M. Swaminathan, and C.-P. Wong, "Large-scale production of boron nitride nanosheets-based epoxy nanocomposites with ultrahigh through-plane thermal conductivity for electronic encapsulation," IEEE 72nd Electronics Components and Technology Conference (ECTC), San Diego, 2022.

S. Surappa, M. Tao, and F.L. Degertekin, "Phononic Frequency Comb Generation in a CMUT Operating in Air and Liquid Environments," IEEE Ultrasonics Symposium, Venice, Italy, 2022.

M. Taghinejad, M. L. Brongersma, and W. Cai, "Hot carriers: Extra energy for extra bandwidth in photonics and electronics," SPIE Photonics West, PC120100R, San Francisco, CA, January - February 2022.

H. Taghinejad, M. Taghinejad, Q. Li, A. Eftekhar, P. Ajayan, M. Brongersma, W. Cai, J. Analytis, A. Adibi," Ultra-Confined Lateral Heterostructures in 2D Semiconductors," Bulletin of the American Physical Society, 2022.

Y. Tang, L. Hu, Y. Wen, and D. Li, "Characterization and recovery of rare earth elements from municipal solid waste incineration ash," Earth Engineering Center of City College of New York Waste to Energy Research and Technology (EEC CCNY WtERT) Conference, New York, October 2022.

Y. Tang and B. Wan, "Mineral catalyzed polyphosphate hydrolysis and precipitation of calcium phosphate minerals," American Chemical Society (ACS) Fall Meeting, Session Mineral Crystallization, Aggregation, and Dissolution, Chicago, IL, August 2022.

Y. Tao, A. Rajapakse, and A. Erickson, "Development of Advanced Antireflection for Back-illuminated Silicon Photomultiplier," IEEE NSS/MIC, Milano, Italy, November 5-12, 2022.

Y. Tao, A. Rajapakse, and A. Erickson, "Enhanced antireflection for back-illuminated silicon photomultipliers," NNSA University Program Review (UPR) 2022 Meeting, Ann Arbor, MI, June 7-9, 2022.

Y. Tao, A. Rajapakse, and A. Erickson, "Excellent photon confinement for next-generation back-illuminated silicon photomultipliers," 2022 ETI Workshop, Atlanta, GA, March 29-30, 2022.

J.W. Teng, B.L. Ringel, J.P. Heimerl, G.N. Tzintzarov, A. Ildefonso, A. Khachatrian, D. McMorrow, P. Oldiges, and J.D. Cressler., "The Role of Bipolar Amplification in the SET Response of Tuned RF

Amplifiers Using SOI CMOS," Proceedings of the 2022 Conference on Radiation and Its Effects on Components and Systems (RADECS), 2022.

J.W. Teng, G.N. Tzintzarov, D. Nergui, J.P. Heimerl, Y. Mensah, J.P. Moody, D.O. Thorbourn, L. Del Castillo, L. Scheick, M.M. Mojarradi, B.J. Blalock, and J.D. Cressler, "Cryogenic Total-Ionizing-Dose Response of 4th-Generation SiGe HBTs using 1-MeV Electrons for Europa-Surface Applications," IEEE Nuclear and Space Radiation Effects Conference, 2022.

A. Trofe, K. Schmidt, S. Pourianejad, O. Ayodele, and T. Ignatova, "Raman Mapping Analysis of Graphene Transferred by Multiple Techniques," APS Meeting, Chicago, Illinois, March 14–18, 2022.

A. Trofe, K. Schmidt, S. Pourianejad, O. Ayodele, and T. Ignatova, "Strain and Doping Defects in Graphene from Polymer Assisted Transfer Techniques," 9th Annual Graphene and Beyond Workshop, University Park, PA, May 18-19, 2022.

G.N. Tzintzarov, J.W. Teng, D. Nergui, S.D. Lalumondiere, D.M. Monahan, and J.D. Cressler, "Direct Measurement of Total-Ionizing-Dose-Induced Phase Shift in Commercial, Integrated Silicon-Photonic Waveguides," IEEE Nuclear and Space Radiation Effects Conference, 2022.

D. Vaca, V. Smet, Y. Joshi, and S. Kumar, "CYTOP for bonding highly oriented pyrolytic graphite to be used as heat spreader in mobile devices," 2022 21st IEEE Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems (iTherm), pp. 1-6, IEEE, 2022.

R. Venkatesh, Y. Zheng, C. Viersen, A. Liu, C. Silva, M. Grover, and E. Reichmanis, "Data science guided experiments identify conjugated polymer solution concentration as a key parameter in device performance," 2022 ACS Spring Meeting, San Diego, CA, March 2022.

R. Venkatesh, Y. Zheng, C. Viersen, A. Liu, C. Silva, M. Grover, and E. Reichmanis, "Data science guided experiments identify conjugated polymer solution concentration as a key parameter in device performance," AICHE Fall 2022, Phoenix, AZ, November 2022.

R. Venkatesh, Y. Zheng, C. Viersen, A. Liu, C. Silva, M. Grover, and E. Reichmanis, "Data science guided experiments identify conjugated polymer solution concentration as a key parameter in device performance," Materials Research Society Fall 2022, Boston, MA, 2022.

P. Verma, A.C. Griffin, and M.L. Shofner, "Nonwoven Textile Structures: Commodity Pathways to Auxeticity", APS March Meeting, Chicago, IL, March 2022.

P. Verma, A.C. Griffin, and M.L. Shofner, "Pathways to Commodity Mechanical Metamaterials – Auxeticity in Nonwoven Fiber Networks", Society of Engineering Science Annual Technical Meeting, College Station, TX, October 2022.

A. Vira, T. Zhao, L. Zhang, P. N. First, W. Pan, M. Ermolaev, G. Kipshidze, S. Suchalkin, and Z. Jiang, "Effective g-factor and phase-coherent transport in InAsSb/InSb double quantum wells," 2022 March Meeting of the APS, Chicago, IL, March 2022.

A. Vira, F. Almatouq, E. Mone, P. Connolly, E. Ryan, G. Mayberry, M. Bertolini, K. Smith, C. Roecker, K. Mesick, S. Mukhopadhyay, T. Orlando, Z. Jiang, and P. N. First, "Radiation Shielding and Dosimetry: Simulations and Experiments," NASA Exploration Science Forum, Boulder, CO, July 2022.

A. D. Vira, E. Ryan, E. Mone, P. Connolly, K. Smith, C. Roecker, K. Mesick, T. M. Orlando, Z. Jiang, and P. N. First, "Radiation Protection: Polymer-Based Shielding Composites," 2022 Lunar Surface Innovation Consortium Fall Meeting (Virtual), November 2022.

Eric M. Vogel, "Fundamentals of and Challenges with Electronic Biosensors," Electrochemical Society Meeting, Atlanta, GA, October 2022.

Cooper Voigt, Athena Farlin, Ryan Peacock, Brent Wagner, and Eric Vogel, "Electrical Characterization of β & γ-In2Se3 Thin Films Synthesized via Molecular Beam Epitaxy," 68th Meeting of the American Vacuum Society, Pittsburgh, PA, November 2022.

Cooper Voigt, Brent K. Wagner, and Eric M. Vogel, "Molecular Beam Epitaxy of In_2Se_3 Thin Films," Electrochemical Society Meeting, Atlanta, GA, October 2022.

Cooper A. Voigt, Matthew Reingold, Lawrence Early, Alex Dube, Brent K. Wagner, and Eric M. Vogel "Molecular beam epitaxy synthesis of In2Se3 on graphite and characterization of the β→α phase transition in powders and films," 64th Electronic Materials Conference, Columbus, OH, June 2022.

T. Voisin, R. Shi, S. Sen-Britain, Z. Qi, Y. Zhang, S. Cho, Y. Zhu, J. Kacher, I. Matthews, Y. M. Wang, R. Qiu, and B. Wood, "AM stainless steel 316L in corrosion environment: Features controlling pitting and metal dissolution," TMS Conference, Anaheim, CA, 2022.

C. Wang and M. T. McDowell, "Understanding the Electrochemical Behavior of Multi-Component Aluminum-Based Foils as Anodes for Lithium-Ion Batteries," 242nd Electrochemical Society Meeting, Atlanta, GA, October 2022.

Ting Wang, "Operando investigation of locally enhanced electric field treatment (LEEFT) for rapid bacteria inactivation," Association of Environmental Engineering and Science Professors (AEESP) Research and Education Conference, St. Louis, MO, June 2022.

Ting Wang, "Operando investigation of locally enhanced electric field treatment (LEEFT) harnessing lightning-rod effect for rapid bacteria inactivation," Center of Global Health Innovation (CGHI) Innovation Summit, Atlanta, GA, October 2022.

Ting Wang, "Ultrafast bacteria inactivation achieved by locally enhanced electric field treatment (LEEFT) with nanosecond pulses," The 263rd American Chemical Society National Meeting, San Diego, CA, March 2022.

Ting Wang, "Ultrafast bacteria inactivation achieved by locally enhanced electric field treatment (LEEFT) with nanosecond pulses," *The 264th American Chemical Society National Meeting*, Chicago, IL, August 2022.

Z. Wang, N. Tasneem, H. Chen, S. Yu, W. Chern, and A. Khan, "Improved Endurance with Electron-Only Switching in Ferroelectric Devices," 2022 Device Research Conference, Columbus, OH, 2022.

Z. Wang, N. Tasneem, J. Hur, H. Chen, S. Yu, W. Chern, and A. Khan, "Standby Bias Improves the Endurance in Ferroelectric Field Effect Transistors due to Fast Neutralization of Interface Traps," 2022 International Symposium on VLSI Technology, Systems and Applications (VLSI-TSA*),* Hsinchu, Taiwan, April 2022.

M. P. West, G. Pavlidis, F. F. Athena, A. Centrone, and E. M. Vogel, "Path dependent effect of the reset condition on the analog pulsing of HfO_x neuromorphic device," MRS Spring Meeting and Exhibit, 2022.

X. Wirth, S. M. Tyndale, S. H. Shivaprakash, and S. E. Burns, "Water Retention and Hydraulic Conductivity Characteristics of Ponded Fly Ash," Geo-Congress 2022, Charlotte, North Carolina, March 20–23, 2022.

J. Wooding, K. Kalaitzidou, M. D. Losego, "Crystallization Kinetics for TiO_2 Thin Films Prepared by Atomic Layer Deposition," AVS 22nd International Conference on Atomic Layer Deposition, Ghent, Belgium, June 2022.

S. C. Wright, S. Saini, T. Raman, M. Tian, P. P. Shetty, and M. T. McDowell, "Remote Epitaxy of Electrodeposited Zn and Cu on Graphene," Fall 2022 Materials Research Society Meeting, Boston, MA, November 2022.

S. C. Wright, S. Saini, T. K. Raman, M. Tian, P. Shetty, and M. T. McDowell, "The Influence of Graphene on the Electrodeposition of Metals," 242nd Electrochemical Society Meeting, Atlanta, GA, October 2022.

Y. S. Yaras, L. W. Bradley, D. K. Yildirim, J. Oshinski, R. J. Lederman, O. Kocaturk, and F. L. Degertekin, "Acousto-optic based active MRI markers for real-time device tracking," 13th Interventional MRI Symposium, Leipzig, Germany, 2022.

Y. S. Yaras, L. W. Bradley, D. K. Yildirim, O. Kocaturk, J. Oshinski, and F. L. Degertekin, "Dual Mode Acousto-optic RF Safety Sensor for Electric Field and Temperature Measurement at 1.5T MRI," 31st Joint Annual Meeting ISMRM-ESMRMB, London, UK, 2022.

T. Yom, P. Ayare, S. Gregory, A. Vannucci, and M. D. Losego, "Using Atomic Layer Deposition (ALD) to Immobilize Molecular Catalysts on Solid Powder Supports," 242nd ECS Meeting, Atlanta, GA, October 2022.

S. G. Yoon and M. T. McDowell, "Designing Ether-Based Electrolytes for Stable Lithium Metal Cycling at Low Temperatures," 242nd Electrochemical Society Meeting, Atlanta, GA, October 2022.

Xing Xie, "Nanosecond bacteria inactivation realized by locally enhanced electric field treatment (LEEFT)," Tsinghua International Outstanding Youth Environmental Forum, Virtual, November 2022.

Xing Xie, "Nanosecond bacteria inactivation realized by locally enhanced electric field treatment (LEEFT)," The 11th Sustainable Nanotechnology Organization Conference, Austin, TX, November 2022.

F. Zablon, S. Shendokar, K. Dellinger, S. Aravamudhan, "MoS2/Au SERS biosensor for early detection of breast cancer-derived exosomal microRNAs," Southern Biomedical Engineering Conference, 38th Annual Meeting, Louisiana, Aug 25, 2022.

M. Zandehshahvar, Y. Kiarashinejad, M. Hadighehjavani, M. Zhu, T. Brown, D. Bao, and A. Adibi, "Efficient artificial intelligence techniques for inverse design and knowledge discovery in metamaterials," Acoustic Society of America Annual Meeting, Denver, CO, 2022.

H. Zhang, N. Rafat, J. Rudge, Y. Kim, and A. Sarkar, "High Throughput Electronic Detection of COVID-19 Biomarkers using Enzymatic Metallization," 2022 Annual Meeting of the Biomedical Engineering Society (BMES2022), San Antonio, 2022.

L. Zhang, S. Gregory, K. Malinowski, A. Savaresse, and M. D. Losego, "Vapor Phase Infiltration of Conjugated Polymers Using TiCl4 and VOCl3 and Their Resulting Optical and Electrical Properties," 242nd ECS Meeting, Atlanta, GA, October 2022.

X. Zhang, E. Arkan, C. Tekes, S. Li and F.L. Degertekin**,** "Integrated System on a Chip for Guidewire IVUS," 2022 IEEE International Ultrasonics Symposium (IUS), 2022.

Y. Zhang, K. Ding, S, Stangebye, O. Pierron, T. Zhu, and J. Kacher, "Grain boundaries govern plastic deformation kinetics in nanocrystalline FCC metals," TMS Conference, Anaheim, CA. 2022.

S. Zhao, W. Xu, P. Liu, B, Wan, Q. Wang, M. Taillefert, and Y. Tang, "Effects of Fe^{2+} and Al^{3+} Supply in Biogenic Silica Transformation and Authigenic Clay Formation in Reverse Weathering," Ocean Science Meeting, Honolulu, HI, February 2022.

S. Zhao, P. Liu, and Y. Tang, "The precipitation mechanism of authigenic clay in reverse weathering," American Chemical Society Spring Meeting, San Diego, CA, March 2022.

T. Zheng and M. S. Bakir, "Fused-Silica Stitch-Chips with Compressible Microinterconnects for Embedded RF/mm-wave Chiplets," 2022 IEEE/MTT-S International Microwave Symposium (IMS), Denver, CO, June 2022.

M. Zhu, S. Abdollahramezani, T. Fan, and A. Adibi, "Dynamically tunable all-dielectric nonlinear metasurfaces incorporating phase-change chalcogenides," SPIE Photonics West Meeting, San Francisco, CA, 2022.

M. Zhu, S. Abdollahramezani, C. Li, T. Fan, H. Harutyunyan, and A. Adibi, "Dynamically Tunable Harmonic Generation Using Hybrid Metasurfaces Incorporating Phase-Change Chalcogenides," CLEO, San Jose, CA, 2022.

M. Zhu, M. Zandehshahvar, and A. Adibi, "Understanding light-matter interaction in complex metaphotonic devices using manifold learning," SPIE Photonics West Meeting, San Francisco, CA, 2022.

L. Zhuo, B. Wei, C. Li, A. Crawford, A. E. Dorche, K. Masselink, A. Adibi, and C. Raman, "Progress towards the Strong Interaction between Thermal Atoms and Microring Resonator with High-Quality Factor," 53rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, Orlando, FL, May-June 2022.

Y. Zhou, K. Hu, M. M. Tentzeris, and S. K. Sitaraman, "Mechanical and Ka-Band Electrical Reliability Testing of Interconnects in 5G Wearable System-on-Package Designs Under Bending," IEEE 72nd Electronic Components and Technology Conference, May-June 2022.

External Conference Presentations

T. Rosenmayer and B. O'Connell, "NR-Silica Nanocomposites for Improved TBR Tread," American Chemical Society, Rubber Division, 198th Technical Meeting, Knoxville, TN, October 11, 2022.

A.B. Slutsky-Ganesh, K. Park, T. Anderson, C.E. Hugenschmidt, S.L. DuBois, J.C. Vance, A. Ueno, M.M. O'Brokta, S. Kibildis, H. Holder, J. D. Labban, L. Wideman, and J.L. Etnier, "The influence of Apolipoprotein E ε4 carrier status on posterior cingulate cortex thickness and learning, "Annual Alzheimer's Association International Conference, San Diego, CA, United States, July-August 2022.

L. Sweatt, S. Zeng, X. Zhao, C. J. Corcoran and L. Zhu, "Monolithically integrated Fourier Injected REsonator (FIRE) for coherent beam combining," CLEO: Science and Innovations 2022, paper SS2D.2, San Jose, May 15–20, 2022.

S. Zeng, X. Zhao, Y. Zhu, L. Sweatt, and L. Zhu, "Hybrid photonic integration for multifunctional laser systems on a chip-scale platform," CLEO: Science and Innovations 2022, paper STu5G.7, San Jose, May 15–20, 2022

Books and Book Chapters

B. Gazaille, M. A. Chilmonczyk, and A.G. Fedorov, Process analytics for modern biopharmaceutical workflows, BioProcess International, Informa Connect eBooks - Sensors, 2022.

Gayani Pathiraja, Sherine Obare and Hemali Rathnayake, "Oriented Attachment Crystal Growth Dynamics of Anisotropic One-dimensional Metal/Metal Oxide Nanostructures: Mechanism, Evidence, and Challenges," in Crystal Growth - Technologies and Applications, Edited by Riadh Marzouki and Takashiro Akitsu, IntechOpen, 2022.

S. Woosley, S. Aravamudhan, "Functionally Modified Composites for FDM 3D Printing," Advanced Additive Manufacturing, in Advanced Additive Manufacturing, Edited by Igor V. Shishkovsky, IntechOpen, 2022.

Patents/Applications/Invention Disclosures

A. Culberson, M. Chilmonczyk, A.G. Fedorov, P.A. Kottke, “Analysis Systems and Methods of Analysis”, U.S. Patent App. PCT/US22/77220, October 2022.

A.G. Fedorov, E. C. Boyle, A. Ahmed, P. A. Kottke, “Electron Beam Induced Deposition of Nanomaterials from Dispersed Liquid Precursors”, Invention Disclosure, January 2022.

A.G. Fedorov, A.G. and P.A. Kottke, “Specimen Imaging Systems and Methods”, U.S. Patent App. 17/763,294, March 2022.

A.G. Fedorov, M. Chilmonczyk, and A. Culberson, “Triple-shot Analysis System (TriAS)”, Provisional Patent App., February 2022.

D.J. Herr, T. Ignatova, and A. Adesina, “Nongenetic Cell Modification,” U.S. Provisional Application UNCG 22-0003, 2022.

W. Hughes, E. Graugnard, W. Kuang, T. Andersen, E. Hayden, R. Zadegan, G. Dickinson,… G. Mortuza, G., “Nucleic acid memory (nam)/digital nucleic acid memory (dnam),” U.S. Patent Application 17/443,312, 2022.

C.W. Irvin and M.L. Shofner, “Polymer Based Hydrogels, Aerogels, and Combinations Thereof”, U.S. Patent Application 17/686,928, March 4, 2022.

A. D. Kelkar, M. B. Uddin, S. Chakraborty, “Repair shape & technique for composite laminates,” U.S. Patent Application 17/751,351, 2022.

Mingu Kim, Oliver Brand, and Devin K. Brown, “Multiscale All-Soft Electronic Devices and Circuits Based on Liquid Metal,” Patent Application 17/845,393, Filed June 21, 2022.

M. Liu, and R. Murphy, “Proton-conduction electrolytes for reversible solid oxide cells,” US Patent Application 17/337,463, 2022.

Z. Luo, Y. Zhou, Y. Liu, and M. Liu, "Enhanced proton conduction and steam tolerance of a donor doped electrolyte for solid oxide electrolysis cells," US Patent Application No. 17/745,200 , 2022.

C. Raman, E. Donley, J. Kitching, C. Li, G. Martinez, and W. McGehee, “Chip-Scale Atomic Beam Generating Systems,” PCT patent application, PCT/US2023/061143, provisional date 1/24/2022, filing date for full patent 1/24/2023.

C. Raman, Y. Andeweg, A. Crawford, C. Li, and B. Wei, “Compact Atomic Beam Generator (Integrated Alkali Dispenser Collimator)”, US Patent Application 18/162,959, provisional date 2/1/2022, filing date for full patent 2/1/2023.

F. Rashidi, S. Nair, N. Kevlich, M. Shofner, S. Sinquefield, and Z. Wang, “Black Liquor Concentration by a Membrane Comprising Graphene Oxide on Porous Polymer”, U.S. patent number 11,484,838, issued November 1, 2022.

Ajeet Rohatgi et al. “Design and Development of Rear Junction Bifacial ~25% Efficient Double Side Screen Printed Selective Area Poly-Si/SiOx Passivated Contact Solar cells,” Patent application number 63347445, 2022.

Ajeet Rohatgi et al. “Design and development of Rear Junction Bifacial ~25% Efficient Double Side Screen Printed Poly-Si/SiOx Passivated Contact Solar cells”, Patent application number 63347446, 2022.

A. Sarkar, “Multiplexed electronic immunoassay using enzymatically amplified metallization on microparticles,” PCT Patent Application,PCT/US2022/076922, filed September 2022

A, Sarkar, “Multiplexed electronic immunoassay using enzymatically amplified metallization on nanostructured surfaces,” PCT Patent, PCT/US2022/076924, filed September 2022.

Yuguo Tao and Anna Erickson, “Multi-layer antireflection coatings on textured surface with upright random pyramids for back-illuminated silicon photomultiplier”, IP disclosure (GTRC ID 8965). U.S. Patent Application No. 63/479,248.

L. Zhang, E. H. Fini, S. R. Karnati, “Green epoxy resin with biobinder from manure,” U.S. Patent Application 17/521,504, 2022.

W. Zhang, M. Liu, Y. Liu, and Y. Zhou, “Air electrodes of solid oxide electrochemical cells,” US Patent Application 17/476,032, 2022.

Lin Zhu, Xiaolei Zhao, Yeyu Zhu, Siwei Zeng, "High-power single-mode triple-ridge waveguide semiconductor laser", US Patent Number US20220368109A1, issued November 2022