

## SHyNE Publications of Calendar Year 2022

### Internal User Papers (351)

1. Afraj, S.N., et al., *2, 3-diphenylthieno [3, 4-b] pyrazines as hole-transporting materials for stable, high-performance perovskite solar cells*. ACS Energy Letters, 2022. **7**(6): p. 2118-2127.
2. Aftab, S., et al., *Lateral PIN (p-MoTe<sub>2</sub>/Intrinsic-MoTe<sub>2</sub>/n-MoTe<sub>2</sub>) Homojunction Photodiodes*. ACS Applied Nano Materials, 2022. **5**(5): p. 6455-6462.
3. Aftab, S., et al., *Platinum Disulfide (PtS<sub>2</sub>) and Silicon Pyramids: Efficient 2D/3D Heterojunction Tunneling and Breakdown Diodes*. ACS Applied Electronic Materials, 2022. **4**(3): p. 917-924.
4. Agarwal, D.K., et al., *Rapid and Sensitive Detection of Antigen from SARS-CoV-2 Variants of Concern by a Multivalent Minibinder-Functionalized Nanomechanical Sensor*. Analytical Chemistry, 2022. **94**(23): p. 8105-8109.
5. Aggarwal, A., et al., *Controlling the shape morphology of origami-inspired photoresponsive hydrogels*. Soft Matter, 2022. **18**(11): p. 2193-2202.
6. Ahn, S., et al., *Stabilizing Supported Ni Catalysts for Dry Reforming of Methane by Combined La Doping and Al Overcoating Using Atomic Layer Deposition*. ACS Catalysis, 2022. **12**(17): p. 10522-10530.
7. Alderete, N.A., N. Pathak, and H.D. Espinosa, *Machine learning assisted design of shape-programmable 3D kirigami metamaterials*. npj Computational Materials, 2022. **8**(1): p. 1-12.
8. Arcudi, F., et al., *Selective visible-light photocatalysis of acetylene to ethylene using a cobalt molecular catalyst and water as a proton source*. Nature Chemistry, 2022. **14**(9).
9. Aygen, C., J. Williams, and M. Grayson, *Frequency Multiplexed simultaneous Hall effect and resistivity transient measurements for van der Pauw samples*. Bulletin of the American Physical Society, 2022.
10. Baik, S.-I., et al., *The effects of diffusional couplings on compositional trajectories and interfacial free energies during phase separation in a quaternary Ni-Al-Cr-Re model superalloy*. Acta Materialia, 2022: p. 118020.
11. Barsoum, D.N., et al., *Remote-controlled exchange rates by photoswitchable internal catalysis of dynamic covalent bonds*. Journal of the American Chemical Society, 2022. **144**(23): p. 10168-10173.
12. Battistelli, G., et al., *Local detection of pH-induced disaggregation of biocompatible micelles by fluorescence switch ON*. Chemical Science, 2022. **13**(17): p. 4884-4892.
13. Batzel, G.O., et al., *Proteomic and transcriptomic analyses in the slipper snail *Crepidula fornicata* uncover shell matrix genes expressed during adult and larval biomineralization*. Integrative Organismal Biology, 2022. **4**(1): p. obac023.
14. Berger, O., et al., *Mussel Adhesive-Inspired Proteomimetic Polymer*. Journal of the American Chemical Society, 2022. **144**(10): p. 4383-4392.
15. Bhagat, M.N., et al., *Improving and stabilizing fluorinated aryl borane catalysts for epoxide ring-opening*. Applied Catalysis A: General, 2022. **636**: p. 118601.
16. Borgsmiller, L. and G.J. Snyder, *Thermoelectric properties and low thermal conductivity of Zintl compound  $\text{Yb}_{10}\text{MnSb}_9$* . Journal of Materials Chemistry A, 2022. **10**(28): p. 15127-15135.
17. Brasiliense, V., et al., *Surface potential modulation as a tool for mitigating challenges in SERS-based microneedle sensors*. Scientific reports, 2022. **12**(1): p. 1-9.
18. Brue, C.R., et al., *Functional Disruption of Gli1-DNA Recognition via a Cobalt (III) Complex*. ChemMedChem, 2022. **17**(8): p. e202200025.
19. Bukowski, B.C., et al., *Insights into Mass Transfer Barriers in Metal–Organic Frameworks*.

- Chemistry of Materials, 2022.
20. Burke, J.A., et al., *Subcutaneous nanotherapy repurposes the immunosuppressive mechanism of rapamycin to enhance allogeneic islet graft viability*. Nature Nanotechnology, 2022. **17**(3): p. 319-+.
  21. Butcher, A. and A.A. High, *All-dielectric multi-resonant bullseye antennas*. Optics Express, 2022. **30**(7): p. 12092-12103.
  22. Butman, J.L., R.J. Thomson, and F.M. Geiger, *Unanticipated Hydrophobicity Increases of Squalene and Human Skin Oil Films Upon Ozone Exposure*. The Journal of Physical Chemistry B, 2022. **126**(45): p. 9417-9423.
  23. Celik, A., et al., *Removal of CrO<sub>4</sub><sup>2-</sup>, a Nonradioactive Surrogate of <sup>99</sup>TcO<sub>4</sub><sup>-</sup>, Using LDH–Mo<sub>3</sub>S<sub>13</sub> Nanosheets*. Environmental Science & Technology, 2022.
  24. Chakram, S., et al., *Multimode photon blockade*. Nature Physics, 2022. **18**(8): p. 879-+.
  25. Chan, J.M. and M. Wang, *Visualizing the Orientation of Single Polymers Induced by Spin-Coating*. Nano letters, 2022. **22**(14): p. 5891-5897.
  26. Chang, A.S., et al., *Unveiling the influence of selective-area-regrowth interfaces on local electronic properties of GaN pn junctions for efficient power devices*. Nano Energy, 2022. **102**: p. 107689.
  27. Chang, W.J., et al., *Enhancement of Emission from Lanthanide Dopants in Perovskite Nanocrystals through a Temperature-Dependent Phase Transformation of the Perovskite Lattice*. The Journal of Physical Chemistry C, 2022. **126**(36): p. 15247-15253.
  28. Chari, C.S., et al., *Nanoscale engineering of gold particles in 18th century Böttger lusters and glazes*. Proceedings of the National Academy of Sciences, 2022. **119**(18): p. e2120753119.
  29. Chen, H., et al., *2D Homologous Series SrFM n BiS n+ 2 (M= Pb, AgO. 5BiO. 5; n= 0, 1) and Commensurately Modulated Sr<sub>2</sub>F<sub>2</sub>Bi<sub>2</sub>/3S<sub>2</sub>*. Inorganic Chemistry, 2022.
  30. Chen, H., et al., *Temperature-Triggered Supramolecular Assembly of Organic Semiconductors*. Advanced Materials, 2022. **34**(22): p. 2101487.
  31. Chen, J.H., et al., *Highly stretchable organic electrochemical transistors with strain-resistant performance*. Nature Materials, 2022. **21**(5): p. 564-+.
  32. Chen, X., et al., *Direct Observation of Modulated Radical Spin States in Metal–Organic Frameworks by Controlled Flexibility*. Journal of the American Chemical Society, 2022. **144**(6): p. 2685-2693.
  33. Chen, Y., et al., *Modulating chemical environments of metal–organic framework-supported molybdenum (VI) catalysts for insights into the structure–activity relationship in cyclohexene epoxidation*. Journal of the American Chemical Society, 2022. **144**(8): p. 3554-3563.
  34. Chen, Y., et al., *Site-specific surface atom valence band of Pt monolayer on SrTiO<sub>3</sub> via X-ray standing wave excited photoelectron emission*. Bulletin of the American Physical Society, 2022.
  35. Chen, Y., et al., *Atomic-Site-Specific Surface Valence-Band Structure from X-Ray Standing-Wave Excited Photoemission*. Physical Review Letters, 2022. **128**(20): p. 206801.
  36. Chen, Y., et al., *Semiconducting Copolymers with Naphthalene Imide/Amide  $\pi$ -Conjugated Units: Synthesis, Crystallography, and Systematic Structure–Property–Mobility Correlations*. Angewandte Chemie International Edition, 2022. **61**(39): p. e202208201.
  37. Cheng, E. and J. Notestein, *Molybdenum oxide and sulfide active sites for isobutane dehydrogenation with methanol as a probe molecule*. Journal of Catalysis, 2022. **413**: p. 498-508.
  38. Cheng, M., et al., *Tuning the Structural and Magnetic Properties in Mixed Cation Mn<sub>x</sub>Co<sub>2-x</sub>P<sub>2</sub>S<sub>6</sub>*. Inorganic chemistry, 2022. **61**(35): p. 13719-13727.
  39. Cheung, Y.H., et al., *Environmentally benign biosynthesis of hierarchical MOF/bacterial cellulose composite sponge for nerve agent protection*. Angewandte Chemie International Edition, 2022. **61**(19): p. e202202207.

40. Choi, J., et al., *Artificial stretchable armor for skin-interfaced wearable devices and soft robotics*. Extreme Mechanics Letters, 2022. **50**: p. 101537.
41. Choi, Y.S., et al., *A transient, closed-loop network of wireless, body-integrated devices for autonomous electrotherapy*. Science, 2022. **376**(6596): p. 1006-1012.
42. Choo, P., et al., *Investigating Reaction Intermediates during the Seedless Growth of Gold Nanostars Using Electron Tomography*. ACS nano, 2022. **16**(3): p. 4408-4414.
43. Chou, L., et al., *Disrupting the Interplay between Programmed Cell Death Protein 1 and Programmed Death Ligand 1 with Spherical Nucleic Acids in Treating Cancer*. ACS Central Science, 2022. **8**(9): p. 1299-1305.
44. Chuang, A., et al., *A powder metallurgy approach to liquid metal dealloying with applications in additive manufacturing*. Acta Materialia, 2022. **238**: p. 118213.
45. Coleman, B.D., et al., *Structurally dynamic crystalline 1D coordination polymers enabled via the Weak-Link Approach*. Polyhedron, 2022. **227**: p. 116116.
46. Cuthriell, S.A., et al., *Nonequilibrium Lattice Dynamics in Photoexcited 2D Perovskites*. Advanced Materials, 2022. **34**(44): p. 2202709.
47. Das, A., et al., *Atomic-Scale View of Redox Induced Changes for Monolayer MoO<sub>x</sub> on  $\alpha$ -TiO<sub>2</sub> (110) with Chemical-State Sensitivity*. The Journal of Physical Chemistry Letters, 2022. **13**: p. 5304-5309.
48. De Koning, M.C., et al., *Development of a Metal–Organic Framework/Textile Composite for the Rapid Degradation and Sensitive Detection of the Nerve Agent VX*. Chemistry of Materials, 2022. **34**(3): p. 1269-1277.
49. Deng, S., et al., *Interfacial engineering of plasmonic nanoparticle metasurfaces*. Proceedings of the National Academy of Sciences, 2022. **119**(22): p. e2202621119.
50. DeWinter, M.A., et al., *Point-of-care peptide hormone production enabled by cell-free protein synthesis*. bioRxiv, 2022.
51. Dibert, K., et al., *Development of MKIDs for measurement of the cosmic microwave background with the south pole telescope*. Journal of Low Temperature Physics, 2022. **209**(3): p. 363-371.
52. Dohn, R., et al., *mDrop-Seq: Massively Parallel Single-Cell RNA-Seq of *Saccharomyces cerevisiae* and *Candida albicans**. Vaccines, 2022. **10**(1).
53. Dong, S., et al., *Facile fabrication of 2D material multilayers and vdW heterostructures with multimodal microscopy and AFM characterization*. Materials Today, 2022. **52**: p. 31-42.
54. Du, J.S., V.P. Dravid, and C.A. Mirkin, *Intermetallic Nanocrystal Discovery through Modulation of Atom Stacking Hierarchy*. ACS nano, 2022. **16**(12): p. 20796-20804.
55. Duan, J., S. Goswami, and J.T. Hupp, *Redox-Hopping-Based Charge Transport Mediated by Ru(II)-Polypyridyl Species Immobilized in a Mesoporous Metal–Organic Framework*. Frontiers in Chemical Engineering, 2022. **3**: p. 91.
56. Duan, J., et al., *Does the Mode of Metal–Organic Framework/Electrode Adhesion Determine Rates for Redox-Hopping-Based Charge Transport within Thin-Film Metal–Organic Frameworks?* The Journal of Physical Chemistry C, 2022. **126**(9): p. 4601-4611.
57. Duan, J., et al., *Synthetic access to a framework-stabilized and fully sulfided analogue of an Anderson polyoxometalate that is catalytically competent for reduction reactions*. Journal of the American Chemical Society, 2022.
58. Dukes, M.W., et al., *Delivery of Targeted Co(III)–DNA Inhibitors of Gli Proteins to Disrupt Hedgehog Signaling*. Bioconjugate Chemistry, 2022. **33**(4): p. 643-653.
59. Eckdahl, C.T., et al., *Back electron transfer rates determine the photoreactivity of donor–acceptor stilbene complexes in a macrocyclic host*. Organic & Biomolecular Chemistry, 2022.
60. Edgington, J., A. Deberghes, and L.C. Seitz, *Glassy Carbon Substrate Oxidation Effects on Electrode Stability for Oxygen Evolution Reaction Catalysis Stability Benchmarking*. ACS Applied

- Energy Materials, 2022. **5**(10): p. 12206-12218.
61. Ekaputra, C.N., et al., *Microstructure and mechanical properties of cast Al-Ce-Sc-Zr-(Er) alloys strengthened by Al<sub>11</sub>Ce<sub>3</sub> micro-platelets and L1<sub>2</sub> Al<sub>3</sub> (Sc, Zr, Er) nano-precipitates*. Acta Materialia, 2022. **240**: p. 118354.
  62. Evans, A.M., et al., *Controlled n-Doping of Naphthalene-Diimide-Based 2D Polymers*. Advanced Materials, 2022. **34**(22).
  63. Fahy, K.M., et al., *Exchange of coordinated carboxylates with azolates as a route to obtain a microporous zinc-azolate framework*. Chemical Communications, 2022. **58**(25): p. 4028-4031.
  64. Fang, L., et al., *Data-driven analysis of process, structure, and properties of additively manufactured Inconel 718 thin walls*. npj Computational Materials, 2022. **8**(1): p. 1-15.
  65. Farha, O.K., et al., *Mechanistic Investigation of Enhanced Catalytic Selectivity toward Alcohol Oxidation with Ce Oxysulfate Clusters*. Journal of the American Chemical Society, 2022. **144**(27): p. 12092-12101.
  66. Farkoosh, A.R., D.C. Dunand, and D.N. Seidman, *Enhanced age-hardening response and creep resistance of an Al-0.5 Mn-0.3 Si (at.%) alloy by Sn inoculation*. Acta Materialia, 2022. **240**: p. 118344.
  67. Feng, Y., et al., *Alkoxy-Substituted Quadrupolar Fluorescent Dyes*. Journal of the American Chemical Society, 2022. **144**(37): p. 16841-16854.
  68. Foley, J.P., et al., *Sex-based difference in response to recombinant human bone morphogenetic protein-2 in a rat posterolateral fusion model*. Spine, 2022. **47**(23): p. 1627-1636.
  69. Free, R., et al., *Mesoscale structural gradients in human tooth enamel*. Proceedings of the National Academy of Sciences, 2022. **119**(52): p. e2211285119.
  70. Friedrich, D., et al., *A InSn<sub>2</sub>S<sub>6</sub> (A= K, Rb, Cs)-Layered Semiconductors Based on the SnS<sub>2</sub> Structure*. Inorganic chemistry, 2022. **61**(34): p. 13525-13531.
  71. Friedrich, D., et al., *AlnSn(2)S(6) (A = K, Rb, Cs)-Layered Semiconductors Based on the SnS<sub>2</sub> Structure*. Inorganic Chemistry, 2022. **61**(34): p. 13525-13531.
  72. Fu, P., et al., *Short Aromatic Diammonium Ions Modulate Distortions in 2D Lead Bromide Perovskites for Tunable White-Light Emission*. Chemistry of Materials, 2022. **34**(21): p. 9685-9698.
  73. Fu, X., et al., *Scalable Chemical Interface Confinement Reduction BiOBr to Bismuth Porous Nanosheets for Electroreduction of Carbon Dioxide to Liquid Fuel*. Advanced Functional Materials, 2022. **32**(10): p. 2107182.
  74. Gaidimas, M.A., et al., *Influence of Pore Size on Hydrocarbon Transport in Isostructural Metal-Organic Framework Crystallites*. ACS Applied Materials & Interfaces, 2022. **14**(41): p. 47222-47229.
  75. Garci, A., et al., *Aggregation-Induced Emission and Circularly Polarized Luminescence Duality in Tetracationic Binaphthyl-Based Cyclophanes*. Angewandte Chemie International Edition, 2022. **61**(40): p. e202208679.
  76. Glerum, J.A., et al., *Effect of Oxide Dispersoids on Precipitation-Strengthened Al-1.7 Zr (wt.%) Alloys Produced by Laser Powder-bed Fusion*. Additive Manufacturing, 2022. **56**: p. 102933.
  77. Glerum, J.A., et al., *Operando X-ray diffraction study of thermal and phase evolution during laser powder bed fusion of Al-Sc-Zr elemental powder blends*. Additive Manufacturing, 2022. **55**: p. 102806.
  78. Glerum, J.A., J.-E. Mogonye, and D.C. Dunand, *Creep properties and microstructure evolution at 260–300° C of AlSi10Mg manufactured via laser powder-bed fusion*. Materials Science and Engineering: A, 2022. **843**: p. 143075.
  79. Gnanasekaran, K., R. dos Reis, and N. Gianneschi, *Electron Beam Damage Mechanisms in Solution Phase Electron Microscopy of Metal-Organic Frameworks*. Microscopy and

- Microanalysis, 2022. **28**(S1): p. 2170-2172.
80. Goetjen, T.A., et al., *Active-Site Determination and Mechanistic Insights in a MOF-Supported Polymerization Catalyst*. The Journal of Physical Chemistry C, 2022.
  81. Goetjen, T.A., et al., *Ethylene polymerization with a crystallographically well-defined metal-organic framework supported catalyst*. Catalysis Science & Technology, 2022. **12**(5): p. 1619-1627.
  82. Goetjen, T.A., et al., *Tuning the Product Distribution of Acetylene Dimerization through Bimetallic Metal-Organic Framework-Supported Nanoporous Systems*. ACS Applied Nano Materials, 2022. **5**(10): p. 14961-14969.
  83. Goswami, S., et al., *Understanding Diffusional Charge Transport within a Pyrene-Based Hydrogen-Bonded Organic Framework*. Langmuir, 2022. **38**(4): p. 1533-1539.
  84. Goswami, S., et al., *Toward Ideal Metal-Organic Framework Thin-Film Growth via Automated Layer-by-Layer Deposition: Examples Based on Perylene Diimide Linkers*. Chemistry of Materials, 2022. **34**(21): p. 9446-9454.
  85. Greer, J., et al., *Nanoscale Analyses of Space Weathered Mature Lunar Soil 79221*. LPI Contributions, 2022. **2695**: p. 6303.
  86. Griggs, S., et al., *The effect of residual palladium on the performance of organic electrochemical transistors*. Nature Communications, 2022. **13**(1): p. 1-11.
  87. Grimes, J., J. Hong, and S.A. Barnett, *Effect of Gd-doped ceria infiltration into Ni-YSZ on reversible solid oxide cell operation*. Journal of Power Sources, 2022. **551**: p. 232189.
  88. Grocke, G.L., et al., *Structure-Transport Properties Governing the Interplay in Humidity-Dependent Mixed Ionic and Electronic Conduction of Conjugated Polyelectrolytes*. ACS Polymers Au, 2022.
  89. Gunnels, T.F., et al., *Elucidating Design Principles for Engineering Cell-Derived Vesicles to Inhibit SARS-CoV-2 Infection*. Small, 2022. **18**(19): p. 2200125.
  90. Hanna, S.L., et al., *Discovery of spontaneous de-interpenetration through charged point-point repulsions*. Chem, 2022. **8**(1): p. 225-242.
  91. Hanna, S.L., et al., *Identification of a metastable uranium metal-organic framework isomer through non-equilibrium synthesis*. Chemical Science, 2022. **13**(44): p. 13032-13039.
  92. Hao, K., et al., *Optically controllable magnetism in atomically thin semiconductors*. Science Advances, 2022. **8**(39): p. eabq7650.
  93. He, D.S., et al., *Single-element amorphous palladium nanoparticles formed via phase separation*. Nano Research, 2022. **15**(6): p. 5575-5580.
  94. Hegarty, J., et al., *Characterization of Laundry Microplastics Through Automated Image Analysis*. Microscopy and Microanalysis, 2022. **28**(S1): p. 1054-1056.
  95. Helweh, W., et al., *Layered structures of assembled imine-linked macrocycles and two-dimensional covalent organic frameworks give rise to prolonged exciton lifetimes*. Journal of Materials Chemistry C, 2022. **10**(8): p. 3015-3026.
  96. Hicks, K.E., et al., *The Dependence of Olefin Hydrogenation and Isomerization Rates on Zirconium Metal-Organic Framework Structure*. ACS Catalysis, 2022. **12**(21): p. 13671-13680.
  97. Hill, M.O., et al., *3D Bragg Coherent Diffraction Imaging of Extended Nanowires: Defect Formation in Highly Strained InGaAs Quantum Wells*. ACS nano, 2022. **16**(12): p. 20281-20293.
  98. Hinamoto, T., et al., *Resonance Couplings in Si@ MoS<sub>2</sub> Core-Shell Architectures*. Small, 2022. **18**(17): p. 2200413.
  99. Hoffman, J.M., et al., *Film formation mechanisms in mixed-dimensional 2D/3D halide perovskite films revealed by in situ grazing-incidence wide-angle X-ray scattering*. Chem, 2022. **8**(4): p. 1067-1082.
  100. Hong, H., et al., *Dynamic ligand screening by magnetic nanoassembly modulates stem cell*

- differentiation*. *Advanced Materials*, 2022. **34**(2): p. 2105460.
101. Howard, J.D., et al., *Understanding the Solid-State Electrode–Electrolyte Interface of a Model System Using First-Principles Statistical Mechanics and Thin-Film X-ray Characterization*. *ACS Applied Materials & Interfaces*, 2022. **14**(5): p. 7428-7439.
  102. Hu, J., et al., *Towards understanding microbial degradation of chloroquine in large saltwater systems*. *Science of The Total Environment*, 2022. **807**: p. 150532.
  103. Hu, S., et al., *Very low levels of n-butyl acrylate comonomer strongly affect residual stress relaxation in styrene/acrylic random copolymer films*. *Polymer*, 2022. **260**: p. 125379.
  104. Hu, X., et al., *In-situ Observation of the Degeneration Dynamics of Cu Nanowires under Carbon Dioxide Environment*. *Microscopy and Microanalysis*, 2022. **28**(S1): p. 184-185.
  105. Huang, C., et al., *CRISPR Spherical Nucleic Acids*. *Journal of the American Chemical Society*, 2022. **144**(41): p. 18756-18760.
  106. Huang, H., et al., *Rub-Resistant Antibacterial Surface Conversion Layer on Stainless Steel*. *Advanced Materials Interfaces*, 2022. **9**(11): p. 2200251.
  107. Huang, H., H. Park, and J. Huang, *Self-crosslinking of graphene oxide sheets by dehydration*. *Chem*, 2022. **8**(9): p. 2432-2441.
  108. Huang, I., et al., *High performance dual-electrolyte magnesium–iodine batteries that can harmlessly resorb in the environment or in the body*. *Energy & Environmental Science*, 2022. **15**(10): p. 4095-4108.
  109. Huang, R., et al., *Broad Applicability of Electrochemical Impedance Spectroscopy to the Measurement of Oxygen Nonstoichiometry in Mixed Ion and Electron Conductors*. *ACS Applied Materials & Interfaces*, 2022. **14**(17): p. 19629-19643.
  110. Hyun, W.J., et al., *Screen-Printable Hexagonal Boron Nitride Ionogel Electrolytes for Mechanically Deformable Solid-State Lithium-Ion Batteries*. *Nano letters*, 2022. **22**(13): p. 5372-5378.
  111. Idrees, K.B., et al., *Separation of aromatic hydrocarbons in porous materials*. *Journal of the American Chemical Society*, 2022. **144**(27): p. 12212-12218.
  112. Islamoglu, T., et al., *Are you using the right probe molecules for assessing the textural properties of metal–organic frameworks?* *Journal of Materials Chemistry A*, 2022. **10**(1): p. 157-173.
  113. Ives, A.N., et al., *Middle-Down Mass Spectrometry Reveals Activity-Modifying Phosphorylation Barcode in a Class CG Protein-Coupled Receptor*. *Journal of the American Chemical Society*, 2022.
  114. Iyer, A.K., et al., *Ba<sub>2</sub>MAsQ<sub>5</sub> (Q= S and Se) Family of Polar Structures with Large Second Harmonic Generation and Phase Matchability*. *Chemistry of Materials*, 2022.
  115. Iyer, A.K., et al., *Stabilization of the Polar Structure and Giant Second-Order Nonlinear Response of Single Crystal  $\gamma$ -NaAsO<sub>3</sub>·9.5Sb<sub>2</sub>O<sub>7</sub>·0.5Se<sub>2</sub>*. *Advanced Functional Materials*, 2022: p. 2211969.
  116. Jacobberger, R.M., et al., *Using Molecular Design to Enhance the Coherence Time of Quintet Multiexcitons Generated by Singlet Fission in Single Crystals*. *Journal of the American Chemical Society*, 2022. **144**(5): p. 2276-2283.
  117. Jang, H., et al., *Suppressing Charged Cation Antisites via Se Vapor Annealing Enables p-Type Dopability in AgBiSe<sub>2</sub>–SnSe Thermoelectrics*. *Advanced Materials*, 2022. **34**(38): p. 2204132.
  118. Jeong, Y., et al., *Theoretical Investigation of Resonance Energy Transfer Using Discrete and Continuous Donor and Acceptor Models*. *Bulletin of the American Physical Society*, 2022.
  119. Ji, X., X. Lin, and J. Rivnay, *Organic electrochemical transistor as an on-site signal amplifier for electrochemical aptamer-based sensing*. *bioRxiv*, 2022.
  120. Jiang, Y., R. López-Arteaga, and E.A. Weiss, *Quantum Dots Photocatalyze Intermolecular [2+ 2] Cycloadditions of Aromatic Alkenes Adsorbed to their Surfaces via van der Waals Interactions*. *Journal of the American Chemical Society*, 2022. **144**(9): p. 3782-3786.

121. Jibril, L., et al., *Polymer-Mediated Particle Coarsening within Hollow Silica Shell Nanoreactors*. Chemistry of Materials, 2022. **34**(11): p. 5094-5102.
122. Jinkins, K.R., et al., *Thermally switchable, crystallizable oil and silicone composite adhesives for skin-interfaced wearable devices*. Science Advances, 2022. **8**(23): p. eabo0537.
123. Juarez, X.G., et al., *M-Point Lasing in Hexagonal and Honeycomb Plasmonic Lattices*. ACS Photonics, 2022. **9**(1): p. 52-58.
124. Jung, D., et al., *A Catalytically Accessible Polyoxometalate in a Porous Fiber for Degradation of a Mustard Gas Simulant*. ACS Applied Materials & Interfaces, 2022. **14**(14): p. 16687-16693.
125. Kamseu, E., et al., *Valorization of marble powder wastes using rice husk ash to yield enhanced-performance inorganic polymer cements: Phase evolution, microstructure, and micromechanics analyses*. Cleaner Engineering and Technology, 2022. **8**: p. 100461.
126. Kang, B. and J.A. Kalow, *Internal and external catalysis in boronic ester networks*. ACS macro letters, 2022. **11**(3): p. 394-401.
127. Kazem-Rostami, M., *A nitrogen-based chiral catenane for enantioenriching photocatalytic aerobic oxidation*. New Journal of Chemistry, 2022. **46**(45): p. 21898-21905.
128. Kazem-Rostami, M., et al., *Helically Chiral Hybrid Cyclodextrin Metal–Organic Framework Exhibiting Circularly Polarized Luminescence*. Journal of the American Chemical Society, 2022.
129. Keate, R.L., et al., *3D-Printed Electroactive Hydrogel Architectures with Sub-100  $\mu\text{m}$  Resolution Promote Myoblast Viability*. Macromolecular Bioscience, 2022. **22**(8): p. 2200103.
130. Kenel, C., et al., *High-Temperature Creep Properties of an Additively Manufactured Y2O3 Oxide Dispersion-Strengthened Ni–Cr–Al–Ti  $\gamma/\gamma'$  Superalloy*. Advanced Engineering Materials, 2022: p. 2200753.
131. Kim, J., et al., *Readily Accessible Metallic Micro-Island Arrays for High-Performance Metal Oxide Thin-Film Transistors*. Advanced Materials, 2022. **34**(45): p. 2205871.
132. Kim, T., et al.,  *$\pi$ -Stacking-Dependent Vibronic Couplings Drive Excited-State Dynamics in Perylenediimide Assemblies*. Journal of the American Chemical Society, 2022. **144**(25): p. 11386-11396.
133. Kim, T., et al.,  *$\pi$ -Stacking-Dependent Vibronic Couplings Drive Excited-State in Assemblies*. Journal of the American Chemical Society, 2022. **144**(25): p. 11386-11396.
134. Kim, Y., et al., *Manipulating Nanoparticle Aggregates Regulates Receptor–Ligand Binding in Macrophages*. Journal of the American Chemical Society, 2022. **144**(13): p. 5769-5783.
135. Kim, Y., et al., *Submolecular Tuning of Ligand Size and Spacing for Dynamic Macrophage Modulation*. Advanced Materials, 2022: p. 2110340.
136. Kim, Y., et al., *Submolecular Ligand Size and Spacing for Cell Adhesion*. Advanced Materials, 2022. **34**(27): p. 2110340.
137. Kirlikovali, K.O., et al., *Investigating the Influence of Hexanuclear Clusters in Isostructural Metal–Organic Frameworks on Toxic Gas Adsorption*. ACS Applied Materials & Interfaces, 2022. **14**(2): p. 3048-3056.
138. Knapp, J.G., et al., *Electron transitions in a Ce (iii)-catecholate metal–organic framework*. Chemical Communications, 2022. **58**(4): p. 525-528.
139. Koo, K., et al., *Controlled Growth of High-Index Faceted Nanoparticles Using the Gas Phase Environmental Cell TEM*. Microscopy and Microanalysis, 2022. **28**(S1): p. 180-182.
140. Koo, K., et al., *Effects of the Encapsulation Membrane in Operando Scanning Transmission Electron Microscopy*. Nano letters, 2022. **22**(10): p. 4137-4144.
141. Korpany, J., et al., *Organic solution-phase transmission electron microscopy of copolymer nanoassembly morphology and dynamics*. Cell Reports Physical Science, 2022. **3**(3): p. 100772.
142. Kramar, B.V., et al., *Light Harvesting Antenna Properties of Framework Solids*. Accounts of Materials Research, 2022. **3**(11): p. 1149-1159.

143. Krantz, P., et al., *Emergent Magnetism and Intrinsic Anomalous Hall Effect in  $KTaO_3$  Two-Dimensional Electron Gases*. arXiv preprint arXiv:2209.10534, 2022.
144. Krantz, P.W. and V. Chandrasekhar, *Nonlocal Differential Resistance in  $AlO_x/KTaO_3$  Heterostructures*. arXiv preprint arXiv:2210.12146, 2022.
145. Kuo, L., et al., *Sterilizable and Reusable UV-Resistant Graphene–Polyurethane Elastomer Composites*. ACS Applied Materials & Interfaces, 2022.
146. Kuo, L., et al., *All-Printed Ultrahigh-Responsivity  $MoS_2$  Nanosheet Photodetectors Enabled by Megasonic Exfoliation*. Advanced Materials, 2022. **34**(34): p. 2203772.
147. Kusmierz, C.D., et al., *Transferrin Aptamers Increase the In Vivo Blood–Brain Barrier Targeting of Protein Spherical Nucleic Acids*. Bioconjugate Chemistry, 2022. **33**(10): p. 1803-1810.
148. Kwon, T.-w., et al., *Mechanochemical Enhancement of the Structural Stability of Pseudorotaxane Intermediates in the Synthesis of Rotaxanes*. Journal of the American Chemical Society, 2022. **144**(28): p. 12595-12601.
149. Lai, M., et al., *Combinatorial synthesis and screening of mixed halide perovskite megalibraries*. Journal of the American Chemical Society, 2022. **144**(30): p. 13823-13830.
150. Laing, C.C., et al., *Homologous Alkali Metal Copper Rare-Earth Chalcogenides  $A_2Cu_2Ln_4Q_{7+n}$  ( $n=1, 2, 3$ )*. Chemistry of Materials, 2022. **34**(7): p. 3409-3422.
151. Laing, C.C., et al.,  *$ACuZrQ_3$  ( $A= Rb, Cs; Q= S, Se, Te$ ): Direct Bandgap Semiconductors and Metals with Ultralow Thermal Conductivity*. Chemistry of Materials, 2022. **34**(18): p. 8389-8402.
152. Lam, D., et al., *Liquid-Phase Exfoliation of Magnetically and Optoelectronically Active Ruthenium Trichloride Nanosheets*. ACS nano, 2022. **16**(7): p. 11315-11324.
153. Landfield, H. and M. Wang, *Determination of Hydrophobic Polymer Clustering in Concentrated Aqueous Solutions through Single-Particle Tracking Diffusion Studies*. Macromolecules, 2022. **55**(17): p. 7425-7437.
154. Landy, K.M., et al., *Programming “Atomic Substitution” in Alloy Colloidal Crystals Using DNA*. Nano letters, 2022. **22**(1): p. 280-285.
155. Lee, S., et al., *Shape memory in self-adapting colloidal crystals*. Nature, 2022. **610**(7933): p. 674-679.
156. Lee, Y.-S., et al., *Probing the Optical Response and Local Dielectric Function of an Unconventional  $Si@ MoS_2$  Core–Shell Architecture*. Nano letters, 2022. **22**(12): p. 4848-4853.
157. Lee, Y.-S., et al., *Probing Optical Phenomena of  $Si@ MoS_2$  Core-Shell Architectures at Nanoscale by Valence EELS*. Microscopy and Microanalysis, 2022. **28**(S1): p. 2016-2018.
158. Lenferink, E.J., et al., *Tunable Emission from Localized Excitons Deterministically Positioned in Monolayer  $p-n$  Junctions*. ACS Photonics, 2022. **9**(9): p. 3067-3074.
159. Lescott, C., et al., *Multimodal STEM Investigation of Polymer Damage Processes Induced by Electron Beam Irradiation*. Microscopy and Microanalysis, 2022.
160. Li, G., et al., *Non-fullerene acceptors with direct and indirect hexa-fluorination afford > 17% efficiency in polymer solar cells*. Energy & Environmental Science, 2022. **15**(2): p. 645-659.
161. Li, J., et al., *Diverse Mechanistic Pathways in Single-Site Heterogeneous Catalysis: Alcohol Conversions Mediated by a High-Valent Carbon-Supported Molybdenum-Dioxo Catalyst*. ACS Catalysis, 2022. **12**(2): p. 1247-1257.
162. Li, J., M. Grayson, and M. Kanatzidis, *Full Experimental Seebeck Tensor Characterization for  $(p \times n)$ -Type Transverse Thermoelectrics*. Bulletin of the American Physical Society, 2022.
163. Li, Y., et al., *Author Correction: Analysis of three-dimensional chromatin packing domains by chromatin scanning transmission electron microscopy (ChromSTEM)*. Scientific reports, 2022. **12**(1): p. 1-2.
164. Li, Y., et al., *Analysis of three-dimensional chromatin packing domains by chromatin scanning transmission electron microscopy (ChromSTEM)*. Scientific reports, 2022. **12**(1): p. 1-15.



165. Li, Y., et al., *Monolayer Plasmonic Nanoframes as Large-Area, Broadband Metasurface Absorbers*. *Small*, 2022. **18**(33): p. 2201171.
166. Li, Y., et al., *Open-channel metal particle superlattices*. *Nature*, 2022. **611**(7937): p. 695-701.
167. Liang, Y., et al., *Inflammation-Responsive Micellar Nanoparticles from Degradable Polyphosphoramidates for Targeted Delivery to Myocardial Infarction*. *bioRxiv*, 2022.
168. Lin, C., et al., *Accelerating symmetry-breaking charge separation in a perylenediimide trimer through a vibronically coherent dimer intermediate*. *Nature chemistry*, 2022: p. 1-8.
169. Lin, M., et al., *Controlling intracellular machinery via polymer pen lithography molecular patterning*. *ACS Central Science*, 2022. **8**(9): p. 1282-1289.
170. Lindeman, C.W. and S.R. Nagel, *State-and-rate friction in contact-line dynamics*. *arXiv preprint arXiv:2212.11759*, 2022.
171. Liu, J., et al., *Insights into dual-functional modification for water stability enhancement of mesoporous zirconium metal–organic frameworks*. *Journal of Materials Chemistry A*, 2022. **10**(33): p. 17307-17316.
172. Liu, J., et al., *Carbon-Efficient Conversion of Natural Gas and Natural-Gas Condensates to Chemical Products and Intermediate Feedstocks via Catalytic Metal– Organic Framework (MOF) Chemistry*. *Energy & Environmental Science*, 2022.
173. Liu, Q., et al., *Presentation of gas-phase-reactant-accessible single-rhodium-atom catalysts for CO oxidation, via MOF confinement of an Anderson polyoxometalate*. *Journal of Materials Chemistry A*, 2022. **10**(35): p. 18226-18234.
174. Liu, Y., et al., *Towards Spatial Mapping of Atomic Vibration Amplitudes in Thermoelectric Materials: Quantitative Convergent Beam Electron Diffraction (QCBED) Study of BiCuOQ (Q= S, Se, Te)*. *Microscopy and Microanalysis*, 2022. **28**(S1): p. 446-448.
175. Lu, B., et al., *Iridium-Incorporated Strontium Tungsten Oxynitride Perovskite for Efficient Acidic Hydrogen Evolution*. *Journal of the American Chemical Society*, 2022. **144**(30): p. 13547-13555.
176. Lu, X., et al., *Stability, metallicity, and magnetism in niobium silicide nanofilms*. *Physical Review Materials*, 2022. **6**(6): p. 064402.
177. Lu, X.K., et al., *Stabilization of Undercoordinated Cu Sites in Strontium Copper Oxides for Enhanced Formation of C2+ Products in Electrochemical CO2 Reduction*. *ACS Catalysis*, 2022. **12**(11): p. 6663-6671.
178. Luo, Y., et al., *Thermoelectric Performance of the 2D Bi2Si2Te6 Semiconductor*. *Journal of the American Chemical Society*, 2022. **144**(3): p. 1445-1454.
179. Luo, Z.-Z., et al., *Extraordinary role of Zn in enhancing thermoelectric performance of Ga-doped n-type PbTe*. *Energy & Environmental Science*, 2022. **15**(1): p. 368-375.
180. Luo, Z.-Z., et al., *Valence Disproportionation of GeS in the PbS Matrix Forms Pb5Ge5S12 Inclusions with Conduction Band Alignment Leading to High n-Type Thermoelectric Performance*. *Journal of the American Chemical Society*, 2022. **144**(16): p. 7402-7413.
181. Mack, J.B., S.M. Pennell, and D.C. Dunand, *Microstructural evolution of lamellar Fe-25Ni foams during steam-hydrogen redox cycling*. *Acta Materialia*, 2022. **237**: p. 118148.
182. Mannix, A.J., et al., *Robotic four-dimensional pixel assembly of van der Waals solids*. *Nature nanotechnology*, 2022. **17**(4): p. 361-366.
183. Mao, H., et al., *Optical Initialization of Molecular Qubit Spin States Using Weak Exchange Coupling to Photogenerated Fullerene Triplet States*. *The Journal of Physical Chemistry B*, 2022.
184. Maria, I.P., et al., *Enhancing the backbone coplanarity of n-type copolymers for higher electron mobility and stability in organic electrochemical transistors*. *Chemistry of Materials*, 2022. **34**(19): p. 8593-8602.
185. Marks, A., et al., *Synthetic nuances to maximize n-type organic electrochemical transistor and thermoelectric performance in fused lactam polymers*. *Journal of the American Chemical Society*,

2022. **144**(10): p. 4642-4656.
186. Mason, A.H., et al., *Rapid atom-efficient polyolefin plastics hydrogenolysis mediated by a well-defined single-site electrophilic/cationic organo-zirconium catalyst*. Nature communications, 2022. **13**(1): p. 1-12.
187. McClain, R., et al., *Mixed Anion Semiconductor In<sub>8</sub>S<sub>2</sub>. 82Te<sub>6</sub>. 18 (Te<sub>2</sub>)<sub>3</sub>*. Inorganic Chemistry, 2022.
188. McCourt, J.M., et al., *Electrostatic Control of Shape Selection and Nanoscale Structure in Chiral Molecular Assemblies*. ACS Central Science, 2022. **8**(8): p. 1169-1181.
189. Mills, C.E., et al., *Vertex protein PduN tunes encapsulated pathway performance by dictating bacterial metabolosome morphology*. Nature communications, 2022. **13**(1): p. 1-13.
190. Moseley-Allredge, M., et al., *A role for the Erk MAPK pathway in modulating SAX-7/L1CAM-dependent locomotion in Caenorhabditis elegans*. Genetics, 2022. **220**(2): p. iyab215.
191. Moya, J.M., et al., *Field-induced quantum critical point in the itinerant antiferromagnet Ti<sub>3</sub>Cu<sub>4</sub>*. Communications Physics, 2022. **5**(1): p. 1-10.
192. Murthy, A., et al., *Identifying Sources of Decoherence at Defects and Interfaces in Superconducting Qubit Systems*. Bulletin of the American Physical Society, 2022.
193. Murthy, A.A., et al., *Probing Sources of Decoherence at Defects and Interfaces in Superconducting Quantum Materials and Devices*. Microscopy and Microanalysis, 2022. **28**(S1): p. 1756-1757.
194. Natraj, A., et al., *Single-Crystalline Imine-Linked Two-Dimensional Covalent Organic Frameworks Separate Benzene and Cyclohexane Efficiently*. Journal of the American Chemical Society, 2022. **144**(43): p. 19813-19824.
195. Nella, K.T., et al., *Bridging the electrode-neuron gap: finite element modeling of in vitro neurotrophin gradients to optimize neuroelectronic interfaces in the inner ear*. Acta Biomaterialia, 2022. **151**: p. 360-378.
196. Nelson, J., et al., *Layer-dependent optically-induced spin polarization in InSe*. arXiv preprint arXiv:2212.05423, 2022.
197. Nevirkovets, I., M. Belogolovskii, and J. Ketterson, *Josephson junctions based on amorphous MoGe: prospects for use in superconducting electronics*. Superconductor Science and Technology, 2022. **35**(3): p. 035008.
198. Ni, X., et al., *Soft shape-programmable surfaces by fast electromagnetic actuation of liquid metal networks*. Nature communications, 2022. **13**(1): p. 1-9.
199. Obrzut, N., et al., *Valorization of Lignin under Mild Conditions: Biorefining Flavonoids and Lignin Nanoparticles*. ACS Sustainable Chemistry & Engineering, 2022.
200. Oh, E., et al., *Controlled Glioma Cell Migration and Confinement Using Biomimetic-Patterned Hydrogels*. Advanced NanoBiomed Research, 2022. **2**(1): p. 2100131.
201. Ohl, B. and D.C. Dunand, *Effects of Ni and Cr additions on  $\gamma$ + $\gamma'$  microstructure and mechanical properties of W-free Co-Al-V-Nb-Ta-based superalloys*. Materials Science and Engineering: A, 2022: p. 143401.
202. Oxley, B.M., et al., *Heteroanionic Control of Exemplary Second-Harmonic Generation and Phase Matchability in 1D LiAsS<sub>2</sub>-x Se x*. Journal of the American Chemical Society, 2022. **144**(30): p. 13903-13912.
203. Pakzad, A. and R. dos Reis, *The Performance of Detectors for Diffraction-Based Studies in (S) TEM*. Microscopy and Microanalysis, 2022. **28**(S1): p. 3192-3193.
204. Pan, J.-A., et al., *Ligand-Free Direct Optical Lithography of Bare Colloidal Nanocrystals via Photo-Oxidation of Surface Ions with Porosity Control*. ACS nano, 2022. **16**(10): p. 16067-16076.
205. Pankow, R.M., et al., *All-Polymer Solar Cells Incorporating Readily Accessible Naphthalene Diimide and Isoindigo Acceptor Polymers for Improved Light Harvesting*. Chemistry of Materials,

2022. **34**(7): p. 3267-3279.
206. Panuganti, S., et al., *Transient X-ray Diffraction Reveals Nonequilibrium Phase Transition in Thin Films of CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> Perovskite*. ACS Energy Letters, 2022. **8**: p. 691-698.
207. Park, J.-E., et al., *Polariton Dynamics in Two-Dimensional Ruddlesden–Popper Perovskites Strongly Coupled with Plasmonic Lattices*. ACS nano, 2022. **16**(3): p. 3917-3925.
208. Park, K.Y., et al., *Mitigating Pt Loss in Polymer Electrolyte Membrane Fuel Cell Cathode Catalysts Using Graphene Nanoplatelet Pickering Emulsion Processing*. Advanced Functional Materials, 2022. **32**(43): p. 2205216.
209. Park, K.Y., et al., *Elucidating and mitigating high-voltage degradation cascades in cobalt-free LiNiO<sub>2</sub> lithium-ion battery cathodes*. Advanced Materials, 2022. **34**(3): p. 2106402.
210. Park, K.Y., et al., *Elucidating and Mitigating High-Voltage Degradation Cascades in Cobalt-Free LiNiO<sub>2</sub> Lithium-Ion Battery Cathodes*. Advanced Materials, 2022. **34**(3).
211. Parker, K., A. Singh, and V.P. Dravid, *Multi-Signal Characterization of Biological Structures at Low-Voltage Using STEM-in-SEM*. Microscopy and Microanalysis, 2022. **28**(S1): p. 1108-1110.
212. Parker, K.A., et al., *Scanning Transmission Electron Microscopy in a Scanning Electron Microscope for the High-Throughput Imaging of Biological Assemblies*. Biomacromolecules, 2022. **23**(8): p. 3235-3242.
213. Parr, Z.S., et al., *From p-to n-Type Mixed Conduction in Isoindigo-Based Polymers through Molecular Design*. Advanced Materials, 2022. **34**(14): p. 2107829.
214. Patel, U., et al., *High-resolution Compton spectroscopy using x-ray microcalorimeters*. Review of Scientific Instruments, 2022. **93**(11): p. 113105.
215. Patino, C.A., et al., *High-Throughput Microfluidics Platform for Intracellular Delivery and Sampling of Biomolecules from Live Cells*. Acs Nano, 2022. **16**(5): p. 7937-7946.
216. Pennell, S.M., J.B. Mack, and D.C. Dunand, *Evolution of lamellar architecture and microstructure during redox cycling of Fe-Co and Fe-Cu foams*. Journal of Alloys and Compounds, 2022: p. 165606.
217. Perera, R.M., et al., *Nanoscale Lipid/Polymer Hybrid Vesicles: Effects of Triblock Copolymer Composition and Hydrophilic Weight Fraction*. ACS Applied Polymer Materials, 2022. **4**(12): p. 8858-8868.
218. Peters, J.A., et al., *Photoluminescence spectroscopy of excitonic emission in CsPbCl<sub>3</sub> perovskite single crystals*. Journal of Luminescence, 2022. **243**: p. 118661.
219. Poddar, P.K., et al., *Resist-Free Lithography for Monolayer Transition Metal Dichalcogenides*. Nano Letters, 2022. **22**(2): p. 726-732.
220. Pola, C.C., et al., *Aerosol-jet-printed graphene electrochemical immunosensors for rapid and label-free detection of SARS-CoV-2 in saliva*. 2D Materials, 2022. **9**(3): p. 035016.
221. Prajapati, A., et al., *Chloride-Promoted High-Rate Ambient Electrooxidation of Methane to Methanol on Patterned Cu–Ti Bimetallic Oxides*. ACS Catalysis, 2022. **12**(22): p. 14321-14329.
222. Qian, X., et al., *Experimental protocols for the assessment of redox thermodynamics of nonstoichiometric oxides: A case study of YMnO<sub>3-δ</sub>*. Journal of the American Ceramic Society, 2022. **105**(6): p. 4375-4386.
223. Qiu, R., et al., *Supramolecular Copolymers of Peptides and Lipidated Peptides and Their Therapeutic Potential*. Journal of the American Chemical Society, 2022. **144**(12): p. 5562-5574.
224. Qiu, Y., et al., *Optical Spin Polarization of a Narrow Linewidth Electron Spin Qubit in a Chromophore/Stable-Radical System*. Angewandte Chemie International Edition, 2022.
225. Quaranta, O., et al., *Devices for Thermal Conductivity Measurements of Electroplated Bi for X-ray TES Absorbers*. Journal of Low Temperature Physics, 2022. **209**(5): p. 1165-1171.
226. Quintero, M.A., et al., *Cubic Stuffed-Diamond Semiconductors LiCu<sub>3</sub>TiQ<sub>4</sub> (Q= S, Se, and Te)*. Journal of the American Chemical Society, 2022. **144**(28): p. 12789-12799.

227. Raabe, D., et al., *Making sustainable aluminum by recycling scrap: The science of "dirty " alloys*. Progress in Materials Science, 2022. **128**.
228. Rakhmonov, J.U., et al., *Effect of Y2O3 dispersoids on microstructure and creep properties of Hastelloy X processed by laser powder-bed fusion*. Additive Manufacturing Letters, 2022. **3**: p. 100069.
229. Rakhmonov, J.U., et al., *Laser-melted Al-3.6 Mn-2.0 Fe-1.8 Si-0.9 Zr (wt%) alloy with outstanding creep resistance via formation of  $\alpha$ -Al (FeMn) Si precipitates*. Additive Manufacturing, 2022. **60**: p. 103285.
230. Rakhmonov, J.U., D. Weiss, and D.C. Dunand, *Comparing evolution of precipitates and strength upon aging of cast and laser-remelted Al-8Ce-0.2 Sc-0.1 Zr (wt.%)*. Materials Science and Engineering: A, 2022. **840**: p. 142990.
231. Ramirez, C.E., et al., *Photophysics of Zinc 2,11,20,29-Tetra-tert-butyl-2,3-Naphthalocyanine: Aggregation-Induced S-2 Emission and Rapid Intersystem Crossing in the Solid State*. Journal of Physical Chemistry C, 2022. **126**(28): p. 11680-11689.
232. Ramos, P.Z., et al., *Evaluating the Rheo-electric Performance of Aqueous Suspensions of Oxidized Carbon Black*. Journal of Colloid and Interface Science, 2022.
233. Ramos-Yataco, J. and J. Notestein, *Assessment of catalysts for oxidative coupling of methane and ethylene*. Catalysis Today, 2022.
234. Rashid, R.B., et al., *A Semiconducting Two-Dimensional Polymer as an Organic Electrochemical Transistor Active Layer*. Advanced Materials, 2022: p. 2110703.
235. Reeder, J.T., et al., *Soft, bioresorbable coolers for reversible conduction block of peripheral nerves*. Science, 2022. **377**(6601): p. 109-115.
236. Riazanski, V., et al., *Phagosomal chloride dynamics in the alveolar macrophage*. Iscience, 2022. **25**(1): p. 103636.
237. Ribet, S.M., et al., *Dose-Efficient Defect Contrast with 4D-STEM*. Microscopy and Microanalysis, 2022. **28**(S1): p. 346-348.
238. Ribet, S.M., et al., *Defect contrast with 4D-STEM: Applications of virtual detectors and beam modification*. arXiv preprint arXiv:2211.06511, 2022.
239. Ribet, S.M., et al., *Multimodal and Correlative Characterization of Hybrid Structures: Application to Materials for Environmental Remediation*. Microscopy and Microanalysis, 2022. **28**(S1): p. 1320-1321.
240. Roberts, G., et al., *Adiabatic Preparation of a Superfluid in a Bose-Hubbard Quantum Circuit*. Bulletin of the American Physical Society, 2022.
241. Roberts, G., et al., *Strongly interacting fluids in a Bose-Hubbard circuit: Adiabatic preparation*. Bulletin of the American Physical Society, 2022.
242. Roesner, E.K., et al., *Arene-perfluoroarene interactions confer enhanced mechanical properties to synthetic nanotubes*. Chemical Science, 2022. **13**(8): p. 2475-2480.
243. Rothbaum, J.O., et al., *Chemodivergent Organolanthanide-Catalyzed C-H  $\alpha$ -Mono-Borylation of Pyridines*. Journal of the American Chemical Society, 2022. **144**(37): p. 17086-17096.
244. Roy, T., et al., *Realization of two-qubit quantum algorithms on a programmable superconducting processor*. arXiv preprint arXiv:2211.06523, 2022.
245. Ryan, K.M., et al., *Characterization of Nb films for superconducting qubits using phase boundary measurements*. Applied Physics Letters, 2022. **121**(20): p. 202601.
246. Samanta, D., et al., *Enhancing CRISPR-Cas-mediated detection of nucleic acid and non-nucleic acid targets using enzyme-labeled reporters*. Journal of the American Chemical Society, 2022. **144**(36): p. 16310-16315.
247. Samer, S., et al., *Blockade of TGF- $\beta$  signaling reactivates HIV-1/SIV reservoirs and immune responses in vivo*. bioRxiv, 2022.

248. Sample, A.D., et al., *Polariton Formation from Soret Band Excitons in Metal–Organic Frameworks and Plasmonic Lattices*. The Journal of Physical Chemistry C, 2022. **126**(44): p. 18778-18783.
249. San, X., et al., *Uncovering the crystal defects within aragonite CaCO<sub>3</sub>*. Proceedings of the National Academy of Sciences, 2022. **119**(14): p. e2122218119.
250. Saxberg, B., et al., *Strongly interacting fluids in a Bose-Hubbard circuit*. Bulletin of the American Physical Society, 2022.
251. Saxberg, B., et al., *Disorder-assisted assembly of strongly correlated fluids of light*. Nature, 2022. **612**(7940): p. 435-441.
252. Schafer, E.A., et al., *Sources and Mechanism of Degradation in p-Type Thiophene-Based Organic Electrochemical Transistors*. ACS Applied Electronic Materials, 2022. **4**(4): p. 1391-1404.
253. Schmitt, T., et al., *New insights into the deterioration of TiO<sub>2</sub> based oil paints: the effects of illumination conditions and surface interactions*. Heritage Science, 2022. **10**(1): p. 1-16.
254. Schwinn, M.C., et al., *Charge transfer dynamics and interlayer exciton formation in MoS<sub>2</sub>/VOPc mixed dimensional heterojunction*. The Journal of Chemical Physics, 2022. **157**(18): p. 184701.
255. Seki, K., J.L. Galindo, and M.C. Jewett, *Orthogonal tRNA Expression using Endogenous Machinery in Cell-Free Systems*. bioRxiv, 2022.
256. Shah, P., S. Arora, and M.M. Driscoll, *Coexistence of solid and liquid phases in shear jammed colloidal drops*. Communications Physics, 2022. **5**(1).
257. Shao, Q., et al., *Multilayer phase-coherent tunneling through amorphous MoO<sub>3</sub> barriers in heteromorphic In<sub>2</sub>O<sub>3</sub>/MoO<sub>3</sub> superlattices*. Bulletin of the American Physical Society, 2022.
258. Shehzad, M.A., et al., *Synthesis of layered vs planar Mo<sub>2</sub>C: role of Mo diffusion*. 2D Materials, 2022. **9**(1): p. 015039.
259. Shehzad, M.A., et al., *Vapor–liquid assisted chemical vapor deposition of Cu<sub>2</sub>X materials*. 2D Materials, 2022. **9**(4): p. 045013.
260. Sheridan, T.R., et al., *Noncovalent Surface Modification of Metal–Organic Frameworks: Unscrambling Adsorption Properties via Isothermal Titration Calorimetry*. Langmuir, 2022. **38**(37): p. 11199-11209.
261. Shin, D., et al., *From Heterostructures to Solid-Solutions: Structural Tunability in Mixed Halide Perovskites*. Advanced Materials, 2022: p. 2205923.
262. Shin, W.-S., et al., *Analysis of antioxidation behavior of cryo-milled oxide-dispersion-strengthened ferritic steel incorporated with formation of Y–Ti–O (N) nano-precipitates*. Acta Materialia, 2022. **225**: p. 117589.
263. Shreiner, R., et al., *Electrically controllable chirality in a nanophotonic interface with a two-dimensional semiconductor*. Nature Photonics, 2022. **16**(4): p. 330-336.
264. Sil, A., et al., *Fluoride Doping in Crystalline and Amorphous Indium Oxide Semiconductors*. Chemistry of Materials, 2022. **34**(7): p. 3253-3266.
265. Sil, A., et al., *Role of Fluoride Doping in Low-Temperature Combustion-Synthesized ZrO<sub>x</sub> Dielectric Films*. ACS Applied Materials & Interfaces, 2022. **14**(10): p. 12340-12349.
266. Smyth, C.M., et al., *Resilience of monolayer MoS<sub>2</sub> memtransistor under heavy ion irradiation*. Journal of Materials Research, 2022. **37**(17): p. 2723-2737.
267. Spang, M.T., et al., *Intravascularly infused extracellular matrix as a biomaterial for targeting and treating inflamed tissues*. Nature Biomedical Engineering, 2022: p. 1-16.
268. Spillane, L., et al., *Electron Counted STEM-EELS Spectroscopy Optimized for low kV (< 80 kV) via Hybrid Pixel Detection*. Microscopy and Microanalysis, 2022. **28**(S1): p. 2226-2228.
269. Stallings, K., et al., *Systematic Analysis of Self-Assembled Nanodielectric Architecture and Organization Effects on Organic Transistor Switching*. ACS Applied Electronic Materials, 2022. **4**(4): p. 2015-2025.
270. Stanev, T.K., et al., *Direct Patterning of Optoelectronic Nanostructures Using Encapsulated*

- Layered Transition Metal Dichalcogenides*. ACS Applied Materials & Interfaces, 2022.
271. Stolar, T., et al., *Sustainable solid form screening: mechanochemical control over nucleobase hydrogen-bonded organic framework polymorphism*. CrystEngComm, 2022. **24**(37): p. 6505-6511.
  272. Stone, A.E., et al., *Encapsulating CdSe/CdS QDs in the MOF ZIF-8 Enhances Their Photoluminescence Quantum Yields in the Solid State*. Chemistry of Materials, 2022. **34**(4): p. 1921-1929.
  273. Stranford, D.M., et al., *Bioengineering multifunctional extracellular vesicles for targeted delivery of biologics to T cells*. bioRxiv, 2022.
  274. Strauss, M.J., et al., *Divergent Nanotube Synthesis through Reversible Macrocyclic Assembly*. Accounts of Materials Research, 2022. **3**(9): p. 935-947.
  275. Su, S., et al., *Aggregation-Suppressed Porous Processable Hexa-Zirconium/Polymer Composites for Detoxification of a Nerve Agent Simulant*. Chemistry of Materials, 2022.
  276. Suwanpreecha, C., et al., *Ambient-and elevated temperature properties of Sc-and Zr-modified Al-6Ni alloys strengthened by Al<sub>3</sub>Ni microfibers and Al<sub>3</sub> (Sc, Zr) nanoprecipitates*. Materials Science and Engineering: A, 2022. **841**: p. 142963.
  277. Swartz, J.L., et al., *Copolymers Prepared by Exchange Reactions Enhance the Properties of Miscible Polymer Blends*. Macromolecules, 2022. **55**(19): p. 8548-8555.
  278. Syed, Z.H., et al., *Sulfated Zirconium Metal-Organic Frameworks as Well-Defined Supports for Enhancing Organometallic Catalysis*. Journal of the American Chemical Society, 2022. **144**(37): p. 16883-16897.
  279. Tai, T.Y., et al., *Leveraging Isothermal Titration Calorimetry to Explore Structure-Property Relationships of Protein Immobilization in Metal-Organic Frameworks*. Angewandte Chemie, 2022. **134**(37): p. e202209110.
  280. Tamburini, D., et al., *Technical steps towards enhanced localization of proteins in cultural heritage samples by immunofluorescence microscopy and micro-reflectance imaging spectroscopy*. Microchemical Journal, 2022. **176**: p. 107243.
  281. Tamerius, A.D., et al., *Synthesis of the Candidate Topological Compound Ni<sub>3</sub>Pb<sub>2</sub>*. Journal of the American Chemical Society, 2022. **144**(27): p. 11943-11948.
  282. Tan, M.J., et al., *Lasing Action from Quasi-Propagating Modes*. Advanced Materials, 2022. **34**(34): p. 2203999.
  283. Teplensky, M.H., et al., *Spherical nucleic acids as an infectious disease vaccine platform*. Proceedings of the National Academy of Sciences, 2022. **119**(14): p. e2119093119.
  284. Thomas, C.M., et al., *Blade-Coatable Hexagonal Boron Nitride Ionogel Electrolytes for Scalable Production of Lithium Metal Batteries*. ACS Energy Letters, 2022. **7**(4): p. 1558-1565.
  285. Trang, B., et al., *Low-temperature mineralization of perfluorocarboxylic acids*. Science, 2022. **377**(6608): p. 839-845.
  286. Tropp, J., et al., *Versatile Poly (3, 4-ethylenedioxythiophene) Polyelectrolytes for Bioelectronics by Incorporation of an Activated Ester*. Chemistry of Materials, 2022.
  287. Turetsky, D., et al., *Hot Press Synthesis of MOF/Textile Composites for Nerve Agent Detoxification*. ACS Materials Letters, 2022. **4**(8): p. 1511-1515.
  288. Ugalde-Reygadas, M., et al., *Cu<sub>2</sub>O thin films deposited by spray pyrolysis using diethanolamine and L-ascorbic acid as reducing agents*. Materials Today Communications, 2022. **32**: p. 103999.
  289. Vahabikashi, A., et al., *Nuclear lamin isoforms differentially contribute to LINC complex-dependent nucleocytoskeletal coupling and whole-cell mechanics*. Proceedings of the National Academy of Sciences, 2022. **119**(17): p. e2121816119.
  290. Varelas, J.G., et al., *Synthesis Enabled Investigations into the Acidity and Stability of Atmospherically-relevant Isoprene-derived Organosulfates*. ACS Earth and Space Chemistry,

- 2022.
291. Vasher, M.K., G. Yamankurt, and C.A. Mirkin, *Hairpin-like siRNA-Based Spherical Nucleic Acids*. Journal of the American Chemical Society, 2022. **144**(7): p. 3174-3181.
  292. Vasileiadou, E.S., et al., *Thick-Layer Lead Iodide Perovskites with Bifunctional Organic Spacers Allylammonium and Iodopropylammonium Exhibiting Trap-State Emission*. Journal of the American Chemical Society, 2022. **144**(14): p. 6390-6409.
  293. Vasu, D., et al., *2-Aminopyridines with a shortened amino sidechain as potent, selective, and highly permeable human neuronal nitric oxide synthase inhibitors*. Bioorganic & Medicinal Chemistry, 2022. **69**: p. 116878.
  294. Vermeulen, M., et al., *A multi-analytical study of the palette of impressionist and post-impressionist Puerto Rican artists*. Heritage Science, 2022. **10**(1): p. 1-22.
  295. Vermeulen, M., et al., *Multiscale characterization of shellfish purple and other organic colorants in 20th-century traditional enredos from Oaxaca, Mexico*. Dyes and Pigments, 2022. **206**: p. 110663.
  296. Vrajitoarea, A., et al., *Strongly interacting fluids in a Bose-Hubbard circuit: Observables*. Bulletin of the American Physical Society, 2022.
  297. Vu, T.Q., et al., *Lipid phase separation in vesicles enhances TRAIL-mediated cytotoxicity*. Nano letters, 2022. **22**(7): p. 2627-2634.
  298. Vu, T.Q., L.E. Sant'Anna, and N. Kamat, *Enhancing functionalized liposome avidity to cells via lipid phase separation*. bioRxiv, 2022.
  299. Wallace, S.G., et al., *Combustion-Assisted Photonic Sintering of Printed Liquid Metal Nanoparticle Films*. Advanced Materials Technologies, 2022. **7**(6): p. 2101178.
  300. Wallace, S.G., et al., *Fully printed and flexible multi-material electrochemical aptasensor platform enabled by selective graphene biofunctionalization*. Engineering Research Express, 2022. **4**(1): p. 015037.
  301. Wang, C., et al., *Field-effect conductivity scaling for two-dimensional materials with tunable impurity density*. 2D Materials, 2022. **9**(3).
  302. Wang, D., et al., *Coking Can Enhance Product Yields in the Dry Reforming of Methane*. ACS Catalysis, 2022. **12**(14): p. 8352-8362.
  303. Wang, H., et al., *Experimental study of gas breakdown and electron emission in nanoscale gaps at atmospheric pressure*. Applied Physics Letters, 2022. **120**(12): p. 124103.
  304. Wang, H., et al., *Transitions between field emission and vacuum breakdown in nanoscale gaps*. Journal of Vacuum Science & Technology B, Nanotechnology and Microelectronics: Materials, Processing, Measurement, and Phenomena, 2022. **40**(6): p. 062805.
  305. Wang, J., et al., *Blazed grating enables highly decoupled optically variable devices fabricated by vibration-assisted diamond texturing*. Optics Express, 2022. **30**(6): p. 8829-8846.
  306. Wang, Q., et al., *Investigating the effect of metal nuclearity on activity for ethylene hydrogenation by metal-organic-framework-supported oxy-Ni (II) catalysts*. Journal of Catalysis, 2022. **407**: p. 162-173.
  307. Wang, S., et al., *The emergence of valency in colloidal crystals through electron equivalents*. Nature materials, 2022. **21**(5): p. 580-587.
  308. Wang, T., et al., *Eliminating the T<sub>g</sub>-Confinement Effect in Polystyrene Films: Extraordinary Impact of a 2 mol% 2-Ethylhexyl Acrylate Comonomer*. Macromolecules, 2022. **55**(21): p. 9601-9611.
  309. Wang, X., et al., *Enhanced Catalytic Performance of a Ce/V Oxo Cluster through Confinement in Mesoporous SBA-15*. ACS Applied Materials & Interfaces, 2022. **14**(47): p. 52886-52893.
  310. Wang, X.J., et al., *Photocatalytic Biocidal Coatings Featuring Zr<sub>6</sub>Ti<sub>4</sub>-Based Metal-Organic Frameworks*. Journal of the American Chemical Society, 2022. **144**(27): p. 12192-12201.

311. Wang, Y., et al., *Two distinct  $cu(ii)-v(iv)$  superexchange interactions with similar bond angles in a triangular “ $cuv_2$ ” fragment*. Inorganic chemistry, 2022. **61**(26): p. 10234-10241.
312. Wasson, M.C., et al., *Interfacial Unit-Dependent Catalytic Activity for CO Oxidation over Cerium Oxysulfate Cluster Assemblies*. ACS Applied Materials & Interfaces, 2022. **14**(29): p. 33515-33524.
313. Wasson, M.C., et al., *Structural transformation of metal oxo species within UiO-66 type metal-organic frameworks*. CrystEngComm, 2022. **24**(28): p. 5135-5140.
314. Weng, A., et al., *Lung injury induces alveolar type 2 cell hypertrophy and polyploidy with implications for repair and regeneration*. American journal of respiratory cell and molecular biology, 2022. **66**(5): p. 564-576.
315. Westmoreland, D.E., et al., *Dynamic Tuning of the Bandgap of CdSe Quantum Dots through Redox-Active Exciton-Delocalizing N-Heterocyclic Carbene Ligands*. Journal of the American Chemical Society, 2022. **144**(10): p. 4300-4304.
316. Wicker, C., et al., *Engineering spin-photon quantum interfaces from erbium-oxygen complexes in silicon*. Bulletin of the American Physical Society, 2022.
317. Williams, M.L., et al., *Effect of Crystallinity on Endoergic Singlet Fission in Perylenediimide Single Crystals and Polycrystalline Films*. The Journal of Physical Chemistry C, 2022. **126**(25): p. 10287-10297.
318. Winegar, P.H., et al., *Modular nucleic acid scaffolds for synthesizing monodisperse and sequence-encoded antibody oligomers*. Chem, 2022. **8**(11): p. 3018-3030.
319. Wong, A.M., et al., *Arrays of Colloidal Single Crystals Engineered with DNA in Lithographically Defined Microwells*. Nano Letters, 2022.
320. Wong, A.R., et al., *Improved Characterization of Polyoxazolidinones by Incorporating Solubilizing Side Chains*. Macromolecules, 2022.
321. Wu, H., et al., *Direct Heat-Induced Patterning of Inorganic Nanomaterials*. Journal of the American Chemical Society, 2022.
322. Wu, M., et al., *Weak Electron-Phonon Coupling and Enhanced Thermoelectric Performance in n-type PbTe-Cu<sub>2</sub>Se via Dynamic Phase Conversion*. Advanced Energy Materials, 2022: p. 2203325.
323. Wu, R., et al., *Mass and Charge Transport Kinetics in an Organic Mixed Ionic-Electronic Conductor*. Chemistry of Materials, 2022. **34**(21): p. 9699-9710.
324. Wu, T. and D.C. Dunand, *Microstructure and thermomechanical properties of Al<sub>11</sub>Ce<sub>3</sub>*. Intermetallics, 2022. **148**: p. 107636.
325. Wu, Y., et al., *Syntheses of three-dimensional catenanes under kinetic control*. Proceedings of the National Academy of Sciences, 2022. **119**(12): p. e2118573119.
326. Wu, Y., et al., *Catalytic Degradation of Polyethylene Terephthalate Using a Phase-Transitional Zirconium-Based Metal-Organic Framework*. Angewandte Chemie, 2022. **134**(24): p. e202117528.
327. Wu, Y., et al., *Wireless multi-lateral optofluidic microsystems for real-time programmable optogenetics and photopharmacology*. Nature communications, 2022. **13**(1): p. 1-15.
328. Xie, H., et al., *High Thermoelectric Performance in Chalcopyrite Cu<sub>1-x</sub>Ag<sub>x</sub>GaTe<sub>2</sub>-ZnTe: Nontrivial Band Structure and Dynamic Doping Effect*. Journal of the American Chemical Society, 2022.
329. Xiu, P., et al., *Microchemical evolution of irradiated additive-manufactured HT9*. Journal of Nuclear Materials, 2022. **559**: p. 153410.
330. Xu, D.D., et al., *Conversion of Classical Light Emission from a Nanoparticle-Strained WSe<sub>2</sub> Monolayer into Quantum Light Emission via Electron Beam Irradiation*. Advanced Materials, 2022: p. 2208066.



331. Xu, Y., P. Guo, and A.-T. Akono, *Novel wet electrospinning inside a reactive pre-ceramic gel to yield advanced nanofiber-reinforced geopolymer composites*. *Polymers*, 2022. **14**(19): p. 3943.
332. Yan, H., et al., *Entanglement purification and protection in a superconducting quantum network*. *Physical Review Letters*, 2022. **128**(8): p. 080504.
333. Yang, Q., et al., *High-speed, scanned laser structuring of multi-layered eco/bioresorbable materials for advanced electronic systems*. *Nature communications*, 2022. **13**(1): p. 1-19.
334. Yang, Q., et al., *Ecoresorbable and bioresorbable microelectromechanical systems*. *Nature Electronics*, 2022. **5**(8): p. 526-538.
335. Yang, Y., et al., *Preparation and use of wireless reprogrammable multilateral optogenetic devices for behavioral neuroscience*. *Nature Protocols*, 2022. **17**(4): p. 1073-1096.
336. Ye, A., et al., *Robotically Manufactured Complex van der Waals Heterostructures for Interlayer-Angle-Controlled Combinatorial Solids*. *Bulletin of the American Physical Society*, 2022.
337. Yi, S.J., et al., *Dendritic peptide-conjugated polymeric nanovectors for non-toxic delivery of plasmid DNA and enhanced non-viral transfection of immune cells*. *Iscience*, 2022. **25**(7).
338. Yoon, H.-J., et al., *Biodegradable, three-dimensional colorimetric fliers for environmental monitoring*. *Science Advances*, 2022. **8**(51): p. eade3201.
339. Yu, J., et al., *Two-Dimensional Mechanics of Atomically Thin Solids on Water*. *Nano Letters*, 2022. **22**(17): p. 7180-7186.
340. Yuan, S.C., et al., *Peptide Sequence Determines Structural Sensitivity to Supramolecular Polymerization Pathways and Bioactivity*. *Journal of the American Chemical Society*, 2022. **144**(36): p. 16512-16523.
341. Zhang, C., et al., *Low Thermal Conductivity in Heteroanionic Materials with Layers of Homoleptic Polyhedra*. *Journal of the American Chemical Society*, 2022. **144**(6): p. 2569-2579.
342. Zhang, D., C. Kenel, and D.C. Dunand, *Microstructure and mechanical properties of 3D ink-extruded CoCrCuFeNi microlattices*. *Acta Materialia*, 2022. **238**: p. 118187.
343. Zhang, H., et al., *Fast control of low-frequency fluxonium qubits*. *Bulletin of the American Physical Society*, 2022.
344. Zhang, K., et al., *An iron-porphyrin grafted metal-organic framework as a heterogeneous catalyst for the photochemical reduction of CO<sub>2</sub>*. *Journal of Photochemistry and Photobiology*, 2022. **10**: p. 100111.
345. Zhang, W., et al., *Tumor-Associated Enzyme-Activatable Spherical Nucleic Acids*. *ACS nano*, 2022. **16**(7): p. 10931-10942.
346. Zhao, G., et al., *Ovarian cancer cell fate regulation by the dynamics between saturated and unsaturated fatty acids*. *Proceedings of the National Academy of Sciences*, 2022. **119**(41): p. e2203480119.
347. Zhao, H., et al., *Mechanically Guided Hierarchical Assembly of 3D Mesostuctures*. *Advanced Materials*, 2022. **34**(12): p. 2109416.
348. Zheng, C.Y., et al., *Confined Growth of DNA-Assembled Superlattice Films*. *ACS nano*, 2022. **16**(3): p. 4813-4822.
349. Zhou, X., et al., *Hydrophobic Melanin via Post-Synthetic Modification for Controlled Self-Assembly*. *ACS nano*, 2022. **16**(11): p. 19087-19095.
350. Zhu, W., et al., *Rational Design, Synthesis, and Mechanism of (3S,4R)-3-Amino-4-(difluoromethyl)cyclopent-1-ene-1-carboxylic Acid: Employing a Second-Deprotonation Strategy for Selectivity of Human Ornithine Aminotransferase over GABA Aminotransferase*. *Journal of the American Chemical Society*, 2022. **144**(12): p. 5629-5642.
351. Zhu, Z., et al., *Edge and Interface Resistances Create Distinct Trade-Offs When Optimizing the Microstructure of Printed van der Waals Thin-Film Transistors*. *ACS nano*, 2022.

## External User Papers (53)

1. Ahlschwede, K.M., et al., *Formulation, Characterization, and the Diuretic Effects of a New Intravenous Metolazone Emulsion*. Drug Research, 2022.
2. Amdur, M.J., et al., *Chemical control of spin–lattice relaxation to discover a room temperature molecular qubit*. Chemical Science, 2022. **13**(23): p. 7034-7045.
3. Anderson, C.P., et al., *Five-second coherence of a single spin with single-shot readout in silicon carbide*. Science advances, 2022. **8**(5): p. eabm5912.
4. Badawy, G., et al., *Electronic Structure and Epitaxy of CdTe Shells on InSb Nanowires*. Advanced Science, 2022. **9**(12): p. 2105722.
5. Billa, S., et al., *Brain-Implantable Multifunctional Probe for Simultaneous Detection of Glutamate and GABA Neurotransmitters: Optimization and In Vivo Studies*. Micromachines, 2022. **13**(7): p. 1008.
6. Bruckner, E.P., et al., *Hybrid Nanocrystals of Small Molecules and Chemically Disordered Polymers*. ACS nano, 2022.
7. Carr, A.J., et al., *Effects of ion adsorption on graphene oxide films and interfacial water structure: A molecular-scale description*. Carbon, 2022. **195**: p. 131-140.
8. Cybele Tom, C.G., and Ken Sutherland *Seeking Balance: Material and Meaning in a Polychrome Guanyin*. Perspectives on In/stability, 2022.
9. Dannenhoffer, A., et al., *Metallurgical alloy approach to two-dimensional supramolecular materials*. Chem, 2022.
10. De Mel, J., et al., *Dual-Responsive Glycopolymers for Intracellular Codelivery of Antigen and Lipophilic Adjuvants*. Molecular Pharmaceutics, 2022. **19**(12): p. 4705-4716.
11. Duncan, T.V., et al., *Sulfides mediate the migration of nanoparticle mass out of nanocomposite plastics and into aqueous environments*. NanoImpact, 2022. **28**: p. 100426.
12. Emeršič, T., et al., *A Generalizable Approach to Direct the Self-Assembly of Functional Blue-Phase Liquid Crystals*. Advanced Functional Materials, 2022. **32**(32): p. 2202721.
13. Feng, H., et al., *Synthesis and Characterization of Block Copolymers for Nanolithography Based on Thiol-Ene “Click” Functionalized Polystyrene-Block-Polybutadiene*. Advanced Functional Materials, 2022. **32**(46): p. 2206836.
14. Feng, H., et al., *Optimized design of block copolymers with covarying properties for nanolithography*. Nature Materials, 2022. **21**(12): p. 1426-1433.
15. Goldfine, E.A., et al., *Molybdenum Oxide Precursors that Promote the Low-Temperature Formation of High-Surface-Area Cubic Molybdenum (Oxy) nitride*. Inorganic chemistry, 2022. **61**(42): p. 16760-16769.
16. Grace, B.E., et al., *Identification of highly cross-reactive mimotopes for a public T cell response in murine melanoma*. bioRxiv, 2022.
17. Guo, H., et al., *Wireless implantable optical probe for continuous monitoring of oxygen saturation in flaps and organ grafts*. Nature Communications, 2022. **13**(1): p. 1-12.
18. Guo, Q., et al., *Phase transformation dynamics guided alloy development for additive manufacturing*. Additive Manufacturing, 2022. **59**: p. 103068.
19. Haque, M.I., et al., *Reducing carbonation degradation and enhancing elastic properties of calcium silicate hydrates using biomimetic molecules*. Cement and Concrete Composites, 2022: p. 104888.
20. Hemmat, Z., et al., *Unprecedented Multifunctionality in 1D Nb<sub>1-x</sub>Ta<sub>x</sub>S<sub>3</sub> Transition Metal Trichalcogenide Alloy*. Advanced Functional Materials, 2022. **32**(34): p. 2205214.
21. Hu, S., X. Chen, and J.M. Torkelson, *Isocyanate-free, thermoplastic polyhydroxyurethane*

- elastomers designed for cold temperatures: Influence of PDMS soft-segment chain length and hard-segment content.* Polymer, 2022. **256**: p. 125251.
22. Kc, B., et al., *Molecular Beam Epitaxy (MBE) Growth of Model Cathodes to Study Interfacial Ion Diffusion.* Advanced Materials Interfaces, 2022. **9**(30): p. 2201187.
  23. Khan, R.I., S. Siddique, and W. Ashraf, *Effects of magnesia in semi-hydraulic and non-hydraulic calcium silicate binders during carbonation curing.* Construction and Building Materials, 2022. **338**: p. 127628.
  24. Knipfer, B., et al., *Analysis of interface roughness in strained InGaAs/AlInAs quantum cascade laser structures ( $\lambda \sim 4.6 \mu\text{m}$ ) by atom probe tomography.* Journal of Crystal Growth, 2022. **583**: p. 126531.
  25. Langer, N. and O. Kedem, *Effect of Ligands and Their Removal on the Au Nanoparticle-Catalyzed Reduction of 4-Nitrophenol.* The Journal of Physical Chemistry C, 2022. **126**(32): p. 13705-13713.
  26. Ledford, B.T., et al., *Peptide Amphiphile Supramolecular Nanofibers Designed to Target Abdominal Aortic Aneurysms.* ACS nano, 2022.
  27. Lee, J., et al., *Stress-induced omega phase transition in Nb thin films for superconducting qubits.* arXiv preprint arXiv:2207.12495, 2022.
  28. Li, X., et al., *Expanding the Cage of 2D Bromide Perovskites by Large A-Site Cations.* Chemistry of Materials, 2022. **34**(3): p. 1132-1142.
  29. Li, X., et al., *Ordered Mixed-Spacer 2D Bromide Perovskites and the Dual Role of 1, 2, 4-Triazolium Cation.* Chemistry of Materials, 2022. **34**(14): p. 6541-6552.
  30. Lin, Y., et al., *A soil-inspired dynamically responsive chemical system for microbial modulation.* Nature chemistry, 2022: p. 1-10.
  31. Lu, D., et al., *Implantable, wireless, self-fixing thermal sensors for continuous measurements of microvascular blood flow in flaps and organ grafts.* Biosensors and Bioelectronics, 2022. **206**: p. 114145.
  32. Murthy, A.A., et al., *Potential nanoscale sources of decoherence in niobium based transmon qubit architectures.* arXiv preprint arXiv:2203.08710, 2022.
  33. Murthy, A.A., et al., *Developing a Chemical and Structural Understanding of the Surface Oxide in a Niobium Superconducting Qubit.* ACS nano, 2022. **16**(10): p. 17257-17262.
  34. Plantz, M., et al., *Preclinical Safety of a 3D-Printed Hydroxyapatite-Demineralized Bone Matrix Scaffold for Spinal Fusion.* Spine, 2022. **47**(1): p. 82-89.
  35. Prominski, A., et al., *Porosity-based heterojunctions enable leadless optoelectronic modulation of tissues.* Nature Materials, 2022. **21**(6): p. 647-655.
  36. R. L. Keate, J.T., A. J. Petty, S. Minardi, E. Hsu, G. Ameer, J. Rivnay. *Conductive Polymer-Collagen Composites Influence Cellular Processes Depending on PEDOT Form.* in *BMES Annual Meeting.* 2022. San Antonio.
  37. Shahmohammadi, M., et al., *Atomic layer deposition of TiO<sub>2</sub>, ZrO<sub>2</sub> and TiO<sub>2</sub>/ZrO<sub>2</sub> mixed oxide nanofilms on PMMA for enhanced biomaterial functionalization.* Applied Surface Science, 2022. **578**: p. 151891.
  38. Shahmohammadi, M., et al., *In vitro corrosion behavior of coated Ti6Al4V with TiO<sub>2</sub>, ZrO<sub>2</sub>, and TiO<sub>2</sub>/ZrO<sub>2</sub> mixed nanofilms using atomic layer deposition for dental implants.* Surface and Coatings Technology, 2022. **444**: p. 128686.
  39. Shang, M., X. Chen, and J. Niu, *Nickel-rich layered LiNi<sub>0.8</sub>Mn<sub>0.1</sub>Co<sub>0.1</sub>O<sub>2</sub> with dual gradients on both primary and secondary particles in lithium-ion batteries.* Cell Reports Physical Science, 2022. **3**(2): p. 100767.
  40. Shang, M., et al., *One-Pot Regeneration and Remanufacturing of Spent LiNi<sub>1-x-y</sub>Mn<sub>x</sub>Co<sub>y</sub>O<sub>2</sub> Materials with Organic Acid.* Energy & Fuels, 2022. **36**(17): p. 10364-10371.
  41. Shang, M., et al., *A BF<sub>3</sub>-Doped MXene Dual-Layer Interphase for a Reliable Lithium-Metal Anode.*

- Advanced Materials, 2023. **35**(8): p. 2210111.
42. Sharma, T.T., et al., *Evolving Experimental Platforms to Evaluate Ulcerative Colitis*. Advanced Biology, 2022. **6**(10): p. 2200018.
  43. Sharon, D., et al., *Critical Percolation Threshold for Solvation-Site Connectivity in Polymer Electrolyte Mixtures*. Macromolecules, 2022. **55**(16): p. 7212-7221.
  44. Shaw, T.E., et al., *Synthesis, characterization, X-ray and electronic structures of diethyl ether and 1, 2-dimethoxyethane adducts of molybdenum (iv) chloride and tungsten (iv) chloride*. Dalton Transactions, 2022. **51**(20): p. 7856-7863.
  45. Shofolawe-Bakare, O.T., et al., *ROS-Responsive Glycopolymeric Nanoparticles for Enhanced Drug Delivery to Macrophages*. Macromolecular Bioscience, 2022: p. 2200281.
  46. Suresh, A., S.J. Rowan, and C. Liu, *Macroscale Fabrication of Lightweight and Strong Porous Carbon Foams Through Template-Coating pair Design*. Advanced Materials, 2022: p. 2206416.
  47. Waltmann, C., et al., *Functional enzyme-polymer complexes*. Proceedings of the National Academy of Sciences, 2022. **119**(13): p. e2119509119.
  48. Wang, Z., et al., *Ion Transport in 2D Nanostructured  $\pi$ -Conjugated Thieno [3, 2-b] thiophene-Based Liquid Crystal*. ACS nano, 2022.
  49. Wilke, S.K., et al., *Octahedral oxide glass network in ambient pressure neodymium titanate*. Scientific Reports, 2022. **12**(1): p. 1-17.
  50. Wilke, S.K., et al., *Phase separation in mullite-composition glass*. Scientific Reports, 2022. **12**(1): p. 1-7.
  51. Wilke, S.K., et al., *Revisiting metastable immiscibility in SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>: structure and phase separation of supercooled liquids and glasses*. Journal of the American Ceramic Society, 2022.
  52. Xie, M., et al., *Biocompatible surface functionalization architecture for a diamond quantum sensor*. Proceedings of the National Academy of Sciences, 2022. **119**(8): p. e2114186119.
  53. Zhu, S., et al., *High quality superconducting Nb co-planar resonators on sapphire substrate*. arXiv preprint arXiv:2207.13024, 2022.