

## CINT 2022 Publications (362)

1. Wilson, M. A.; Frischknecht, A. L. "High-pressure hydrogen decompression in sulfur cross-linked elastomers." *International Journal of Hydrogen Energy* (2022). DOI: 10.1016/j.ijhydene.2022.03.015.
2. Abram, M.; Burghardt, K.; Ver Steeg, G.; Galstyan, A.; Dingreville, R. "Inferring topological transitions in pattern-forming processes with self-supervised learning." *Npj Computational Materials* (2022). DOI: 10.1038/s41524-022-00889-2. DOI: 10.1038/s41524-022-00889-2.
3. Adak, M. K.; Rajput, A.; Ghosh, D.; Chakraborty, B. "Role of Fe-O-M bond in controlling the electroactive species generation from the FeMo<sub>4</sub> (M: Mo and W) electro (pre)catalyst during OER." *ACS Applied Energy Materials* (2022). DOI: 10.1021/acsaem.2c02326.
4. Agarwal, S.; Butterling, M.; Liedke, M. O.; Yano, K. H.; Schreiber, D. K.; Jones, A. C. L.; Uberuaga, B. P.; Wang, Y. Q.; Chancey, M.; Kim, H.; Derby, B. K.; Li, N.; Edwards, D. J.; Hosemann, P.; Kaoumi, D.; Hirschmann, E.; Wagner, A.; Selim, F. A. "The mechanism behind the high radiation tolerance of Fe-Cr alloys." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0085086.
5. Ajeesh, M. O.; Thomas, S. M.; Kushwaha, S. K.; Bauer, E. D.; Ronning, F.; Thompson, J. D.; Harrison, N.; Rosa, P. F. S. "Ground state of Ce<sub>3</sub>Bi<sub>4</sub>Pd<sub>3</sub> unraveled by hydrostatic pressure." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.106.L161105.
6. Allen, C. D.; Rempe, S. L. B.; Zwier, T. S.; Ren, P. "Trapping Ca<sup>+</sup> inside a molecular cavity: Computational study of the potential energy surfaces for Ca<sup>+</sup>-[n]cycloparaphenylene, n=5-12." *Physical Chemistry Chemical Physics* (2022). DOI: 10.1039/d2cp00717g.
7. Aslam, T. D.; McBride, M. A.; Rai, N.; Hooks, D. E.; Stull, J. A.; Jensen, B. J. "Modeling atomically mixed graded density impactors." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0085223.
8. Babuska, T. F.; Curry, J. F.; Dugger, M. T.; Jones, M. R.; DelRio, F. W.; Lu, P.; Xin, Y.; Grejtak, T.; Chrostowski, R.; Mangolini, F.; Strandwitz, N. C.; Chowdhury, M. I.; Doll, G. L.; Krick, B. A. "Quality control metrics to assess mos<sub>2</sub> sputtered films for tribological applications." *Tribology Letters* (2022). DOI: 10.1007/s11249-022-01642-y.
9. Balzer, C.; Frischknecht, A. L. "Explicit polarization in coarse-grained simulations of ionomer melts." *Macromolecules* (2022). DOI: 10.1021/acsmacromol.2c01608.
10. Barr, C. M.; Chen, E. Y.; Nathaniel, J. E.; Lu, P.; Adams, D. P.; Dingreville, R.; Boyce, B. L.; Hattar, K.; Medlin, D. L. "Irradiation-induced grain boundary facet motion: In-situ observations and atomic-scale mechanisms." *Science Advances* (2022). DOI: 10.1126/sciadv.abn09.
11. Basso, L.; Kehayias, P.; Henshaw, J.; Saleh Ziabari, M.; Byeon, H.; Lilly, M. P.; Busmann, E.; Campbell, D. M.; Misra, S.; Mounce, A. M. "Electric current paths in a Si:P delta-doped device imaged by nitrogen-vacancy diamond magnetic microscopy." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/ac95a0.
12. Beechem, T. E.; Smith, S. W.; Copeland, R. G.; Liu, F.; Ohta, T. "Spectral and polarization based imaging in deep-ultraviolet excited photoelectron microscopy." *Review of Scientific Instruments* (2022). DOI: 10.1063/5.0077867.

13. Belcher, C. H.; Zheng, B.; Dickens, S. M.; Domrzalski, J.; Langlois, E. D.; Lehman, B.; Pearce, C.; Delaney, R.; MacDonald, B. E.; Apelian, D.; Lavernia, E. J.; Monson, T. C. "Phase stability and magnetic and electronic properties of a spark plasma sintered CoFe-P soft magnetic alloy." *Journal of Alloys and Compounds* (2022). DOI: 10.1016/j.jallcom.2022.166756.
14. Berg, M.; Smith, S. W.; Scrymgeour, D. A.; Brumbach, M. T.; Lu, P.; Dickens, S. M.; Michael, J. R.; Ohta, T.; Bussmann, E.; Hjalmarsen, H. P.; Schultz, P. A.; Clem, P. G.; Hopkins, M. M.; Moore, C. H. "Atomic step disorder on polycrystalline surfaces leads to spatially inhomogeneous work functions." *Journal of Vacuum Science & Technology A* (2022). DOI: 10.1116/6.0001729.
15. Bland, J.; Astuto-Gribble, L.; Hamel, M. C.; Wright, J. B.; Moorman, G.; Bachand, M.; G., W.; Bachand, G. D. "Evaluating changes in growth and pigmentation of *cladosporium cladosporioides* and *paecilomyces variotii* in response to gamma and ultraviolet irradiation." *Scientific Reports* (2022). DOI: 10.1038/s41598-022-16063-z.
16. Bohon, J.; Gonzalez, E.; Grace, C.; Harris, C. T.; Jacobsen, B.; Kachiguine, S.; Kim, D.; MacArthur, J.; Martinez-McKinney, F.; Mazza, S.; Nizam, M.; Norvell, N.; Padilla, R.; Potter, E.; Prakash, T.; Prebys, E.; Ryan, E.; Schumm, B. A.; Smedley, J.; Stuart, D.; Tarka, M.; torrecilla, I. S.; Wilder, M.; Zhu, D. "Use of diamond sensors for a high-flux, high-rate x-ray pass-through diagnostic." *Journal of Synchrotron Radiation* (2022). DOI: 10.1107/S1600577522003022.
17. Bonca, J.; Mierzejewski, M. "Relaxation mechanisms in a disordered system with poisson-level statistics." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.105.155146.
18. Bonechi, M.; Giurlani, W.; Innocenti, M.; Pasini, D.; Mishra, S.; Giovanardi, R.; Fontanesi, C. "On the dynamics of the carbon–bromine bond dissociation in the 1-bromo-2-methylnaphthalene radical anion." *Molecules* (2022). DOI: 10.3390/molecules27144539.
19. Bordelon, M. M.; Girod, C.; Ronning, F.; Rubi, K.; Harrison, N.; Thompson, J. D.; dela Cruz, C.; Thomas, S. M.; Bauer, E. D.; Rosa, P. F. P. R. B., 106 (21). "Interwoven atypical quantum states in celibi2." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.106.214433.
20. Brady, E. A. D.; Taleff, E. M. "The effects of impurity content on plastic deformation and microstructure evolution in niobium at temperatures from 1473 k to 1773 k." *Metallurgical and Materials Transactions a-Physical Metallurgy and Materials Science* (2022). DOI: 10.1007/s11661-022-06726-x.
21. Brahlek, M.; Gazda, M.; Keppens, V.; Mazza, A. R.; McCormack, S. J.; Mielewczyk-Gryń, A.; Musico, B.; Page, K.; Rost, C. M.; Sinnott, S. B.; Toher, C.; Ward, T. Z.; Yamamoto, A. "What is in a name: Defining high entropy oxides." *APL Materials* (2022). DOI: 10.1063/5.0122727.
22. Braun, G.; Borges, I.; Aquino, A. J.; Lischka, H.; Plasser, F.; do Monte, S. A.; Ventura, E.; Mukherjee, S.; Barbatti, M. "Non-kasha fluorescence of pyrene emerges from a dynamic equilibrium between excited states." *Journal of Chemical Physics* (2022). DOI: 10.1063/5.0113908.
23. Bretz-Sullivan, T. M.; Lewis, R. M.; Lima-Sharma, A. L.; Lidsky, D.; Smyth, C. M.; Harris, C. T.; Venuti, M.; Eley, S.; Lu, T.-M. "High kinetic inductance NbTiN superconducting transmission line resonators in the very thin film limit." *Applied Physics Letters* (2022). DOI: 10.1063/5.0100961.

24. Brownell, M.; Frischknecht, A. L.; Wilson, M. A. "Subdiffusive high-pressure hydrogen gas dynamics in elastomers." *Macromolecules* (2022). DOI: 10.1021/acs.macromol.2c00204.
25. Burch, A. C.; Herman, M. J.; Woznick, C. S.; Nguyen, T-A. D.; Scott, B. L.; Yeager, J. D. "High-fidelity mock development for the insensitive high explosive TATB." *Crystals* (2022). DOI: 10.3390/cryst12020192.
26. Burns, K.; Bischoff, B.; Barr, C. M.; Hattar, K.; Aitkaliyeva, A. "Microstructural effects of high dose helium implantation in ERD2." *Materialia* (2022). DOI: 10.1016/j.mtla.2021.101280.
27. Burns, K.; Bischoff, B.; Barr, C. M.; Hattar, K.; Aitkaliyeva, A. "Photo-exfoliation of MoS<sub>2</sub> quantum dots from nanosheets: An in-situ transmission electron microscopy study." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/ac357c.
28. Carrasco, R. A.; Morath, C. P.; Logan, J. V.; Woller, K. B.; Grant, P. C.; Orozco, H.; Milosavljevic, M. S.; Johnson, S. R.; Balakrishnan, G.; Webster, P. T. "Photoluminescence and minority carrier lifetime of quinary GaInAsSbBi grown on GaSb by molecular beam epitaxy." *Applied Physics Letters* (2022). DOI: 10.1063/5.0078809.
29. Cerjan, A.; Loring, T. A. "An operator-based approach to topological photonics." *Nanophotonics* (2022). DOI: 10.1515/nanoph-2022-0547.
30. CerJan, A.; Loring, T. A. "Local invariants identify topology in metals and gapless systems." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.106.064109.
31. Benalcazar, W. A.; CerJan, A. "Chiral-symmetric higher-order topological phases of matter." *Physical Review Letters* (2022). DOI: 10.1103/PhysRevLett.128.127601.
32. Chang, Q.; Bao, D.; Chen, B.; Hu, H.; Chen, X.; Sun, H.; Lam, Y. M.; Zhu, J.-X.; Zhao, D.; Chia, E. E. M. "Tracking carrier and exciton dynamics in mixed cation lead mixed-halide perovskite thin films." *Communications Physics* (2022). DOI: 10.1038/s42005-022-00966-4.
33. Chen, E. Y.; Hamilton, P.; Boyce, B. L.; Dingreville, R. "The heterogeneous nature of mechanically accelerated grain growth." *Journal of Materials Science* (2022). DOI: 10.1007/s10853-022-07974-3.
34. Chen, X.; Dingreville, R.; Richeton, T.; Berbenni, S. "Invariant surface elastic properties in FCC metals and their correlation to bulk properties revealed by machine learning methods." *Journal of the Mechanics and Physics of Solids* (2022). DOI: 10.1016/j.jmps.2022.104852.
35. Chen, Y.; Chen, D.; Weaver, J.; Gigax, J.; Wang, Y.; Mara, N. A.; Fensin, S.; Maloy, S. A.; Misra, A.; Li, N. "Heavy ion irradiation effects on CrFeMnNi and AlCrFeMnNi high entropy alloys." *Journal of Nuclear Materials* (2022). DOI: 10.1016/j.jnucmat.2022.154163.
36. Cheng, J. Y.; Xu, S.; Chen, Y.; Li, Z.; Baldwin, J. K.; Beyerlein, I. J.; Mara, N. A. "Simultaneous high-strength and deformable nanolaminates with thick biphasic interfaces." *Nano Letters* (2022). DOI: 10.1021/acs.nanolett.1c04144.
37. Chin, C. D.-W.; Ringgold, M. A.; Redline, E. M.; Bregman, A. G.; Hattar, K.; Peretti, A. S.; Treadwell, L. J. "Fabrication, thermal analysis, and heavy ion irradiation resistance of epoxy matrix nanocomposites loaded with silane-functionalized ceria nanoparticles." *Physical Chemistry Chemical Physics* (2022). DOI: 10.1039/d1cp05033h.

38. Choi, H. C.; Bauer, E. D.; Ronning, F.; Zhu, J.-X. "DFT plus DMFT study of dopant effects in the heavy-fermion compound CeCoIn<sub>5</sub>." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.105.115121.
39. Choi, J.; Lane, C.; Zhu, J.-X.; Crooker, S. A. "Asymmetric magnetic proximity interactions in mose2/crbr3 Van der Waals heterostructures." *Nature Materials* (2022). DOI: 0.1038/s41563-022-01424-w.
40. Chow, W. W.; Wan, Y.; Bowers, J. E.; Grillot, F. "Analysis of the spontaneous emission limited linewidth of an integrated III–V/SiN laser." *Laser & Photonics Reviews* (2022). DOI: 10.1002/lpor.202100620.
41. Coffman, D. K.; Ma, Y.; Barr, C.; Ouyang, J.-H.; Hattar, K.; Dillon, S. J. "Evidence for interface-rate limited densification kinetics at Al<sub>2</sub>O<sub>3</sub>-GdAlO<sub>3</sub> interfaces characterized by in-situ ultrahigh temperature transmission electron microscopy." *Journal of the European Ceramic Society* (2022). DOI: 10.1016/j.jeurceramsoc.2022.06.001.
42. Coffman, D. K.; Ma, Y.; Barr, C. M.; Ouyang, J.; Hattar, K.; Dillon, S. J. "Interphase boundary, grain boundary, and surface diffusion in Al<sub>2</sub>O<sub>3</sub>-GdAlO<sub>3</sub> composites determined from bicrystal coble creep experiments." *Journal of the European Ceramic Society* (2022). DOI: 10.1016/j.jeurceramsoc.2022.02.052.
43. Cooper, E.; De Anda, E.; Flitz, E.; Kim, H.; Casañas, N.; Johnson, L.; Kedzierski, Z.; Domrzalski, J.; Dato, A.; Monson, T. "Investigating the dielectric constant of barium titanate in a polymer-matrix nanocomposite." *MRS Advances* (2022). DOI: 10.1557/s43580-022-00319-x.
44. Copp, S. M.; Hamblin, R. L.; Swingle, K.; Rai, D.; Urban, V. S.; Ivanov, S. A.; Montano, G. A. "Complex Ph-dependent interactions between weak polyelectrolyte block copolymer micelles and molecular fluorophores." *Langmuir* (2022). DOI: 10.1021/acs.langmuir.1c02889.
45. Corey, Z.; Han, H. H.; Kang, K. T.; Wang, X.; Lalk, R. A.; Paudel, B.; Roy, P.; Sharma, Y.; Yoo, J.; Jia, Q.; Chen, A. "The role of oxygen transfer in oxide heterostructures on functional properties." *Advanced Materials Interfaces* (2022). DOI: 10.1002/admi.202101867.
46. Corey, Z. J.; Lu, P.; Zhang, G.; Sharma, Y.; Rutherford, B. X.; Dhole, S.; Roy, P.; Wang, Z.; Wu, Y.; Wang, H.; Chen, A.; Jia, Q. "Structural and optical properties of high entropy (La, Lu, Y, Gd, Ce) AlO<sub>3</sub> perovskite thin films." *Advanced Science* (2022). DOI: 10.1002/advs.202202671.
47. Coughlin, A. L.; Pan, Z.; Hong, J.; Zhang, T.; Zhan, X.; Wu, W.; Xie, D.; tong, T.; Ruch, T.; Heremans, J. J.; Bao, J.; Fertig, H. A.; Wang, J.; Kim, J.; Zhu, H.; Li, D.; Zhang, S. "Enhanced electron correlation and significantly suppressed thermal conductivity in Dirac nodal-line metal nanowires by chemical doping." *Advanced Science* (2022). DOI: 10.1002/advs.202204424.
48. Cunningham, W. S.; Mascarenhas, S. T. J.; Riano, J. S.; Wang, W.; Hwang, S.; Hattar, K.; Hodge, A. M.; Trelewicz, J. R. "Unraveling thermodynamic and kinetic contributions to the stability of doped nanocrystalline alloys using nanometallic multilayers." *Advanced Materials* (2022). DOI: 10.1002/adma.202200354.
49. Curwen, C. A.; Shahili, M.; Addamane, S. J.; Reno, J. L.; Karasik, B. S.; Williams, B. S.; Kawamura, J. H. "Measurement of amplification and absorption of a ThM quantum-cascade metasurface free-space amplifier." *AIP Advances* (2022). DOI: 10.1063/5.0122154.

50. Day, M. W.; Bates, K. M.; Smallwood, C. L.; Owen, R. C.; Schröder, T.; Bielejec, E.; Ulbricht, R.; Cundiff, S. T. "Coherent interactions between silicon-vacancy centers in diamond." *Physical Review Letters* (2022). DOI: 10.1103/PhysRevLett.128.203603.
51. DelRio, F. W.; Grutzik, S. J.; Mook, W. M.; Dickens, S. M.; Kotula, P. G.; Hintsala, E. D.; Stauffer, D. D.; Boyce, B. L. "Eliciting stable nanoscale fracture in single-crystal silicon." *Materials Research Letters* (2022). DOI: 10.1080/21663831.2022.2088251.
52. Deneff, J. I.; Rohwer, L. E. S.; Butler, K. S.; Valdez, N. R.; Rodriguez, M. A.; Luk, T. S.; Gallis, D. F. S. "Covert MOF-based photoluminescent tags via tunable linker energetics." *ACS Applied Materials & Interfaces* (2022). DOI: 10.1021/acsami.1c20432.
53. Deneff, J. I.; Butler, K. S.; Reyes, R. A.; Sava Gallis, D. F. "Harnessing particle size-control and DNA-oligo functionalization in ZIF-76 for biological applications." *Advanced Material Interfaces* (2022). DOI: 10.1002/admi.202201532.
54. Dennett, C. A.; Hua, Z.; Lang, E.; Wang, F.; Cui, B. "Thermal conductivity reduction in  $(\text{Zr}_{0.25}\text{Ta}_{0.25}\text{Nb}_{0.25}\text{Ti}_{0.25})\text{C}$  high entropy carbide from extrinsic lattice defects." *Materials Research Letters* (2022). DOI: 10.1080/21663831.2022.2078678.
55. Derby, B. K.; Mills, S.; Agarwal, S.; Valdez, J. A.; Baldwin, J. K.; Schneider, M. M.; Minor, A. M.; Uberuaga, B. P.; Selim, F.; Li, N. "Microstructural dependence of defect formation in iron-oxide thin films." *Applied Surface Science* (2022). DOI: 10.1016/j.apsusc.2022.152844.
56. Derby, B. K.; Sharma, Y.; Valdez, J. A.; Chancey, M.; Wang, Y. Q.; Brosha, E. L.; Williams, D. J.; Schneider, M. M.; Chen, A.; Uberuaga, B. P.; Kreller, C. R.; Janish, M. T. "Interfacial cation mixing and microstructural changes in bilayer GtO/GzT thin films after irradiation." *JOM* (2022). DOI: 10.1007/s11837-022-05402-0.
57. Derimow, N.; Benzing, J. T.; Kafka, O. L.; Moser, N.; Pathare, P.; Walker, M.; DelRio, F. W.; Hrabec, N. "Assessment of intra-build variations in tensile strength in electron beam powder-bed fusion Ti–6Al–4V part 2: Effects of powder mixing." *Materials Science and Engineering a-Structural Materials Properties Microstructure and Processing* (2022). DOI: 10.1016/j.msea.2022.143353.
58. Dervishi, E.; McBride, M.; Randall Edwards, R.; Moraya Gutierrez, M.; Li, N.; Buntyn, B.; Hooks, D. E. "Mechanical and tribological properties of anodic Al coatings as a function of anodizing conditions." *Surface and Coatings Technology* (2022). DOI: 10.1016/j.surfcoat.2022.128652.
59. Desai, S.; Dingreville, R. "Learning time-dependent deposition protocols to design thin films via genetic algorithms in materials & design." *Materials & Design* (2022). DOI: 10.1016/j.matdes.2022.110815.
60. Descamps, A.; Ofori-Okai, B. K.; Baldwin, J. K.; Chen, Z.; Fletcher, L. B.; Glenzer, S. H.; Hartley, N. J.; Hasting, J. B.; Khaghani, D.; Mo, M.; Nagler, B.; Recoules, V.; Redmer, R.; Schörner, M.; Sun, P.; Wang, Y. Q.; White, T. G.; McBride, E. E. "Towards performing high-resolution inelastic x-ray scattering measurements at hard x-ray free-electron lasers coupled with energetic laser drivers." *Journal of Synchrotron Interfaces* (2022). DOI: 10.1107/S1600577522004453.

61. Dhole, S.; Chen, A.; Nie, W.; Park, B.; Jia, Q. "Strain engineering: A pathway for tunable functionalities of perovskite metal oxide films." *Nanomaterials* (2022). DOI: 10.3390/nano12050835.
62. Dillon, S.; Lang, E.; Hattar, K. "Ultra-high temperature in-situ TEM based small-scale mechanical characterization." *Microscopy and Microanalysis* (2022). DOI: 10.1017/S1431927622001350.
63. Do, C.; Evans, G. J.; DeAgüero, J.; Escobar, G. P.; Lin, H. C.; Wagner, B. F. "Dysnatremia in gastrointestinal disorders." *Frontiers in Medicine* (2022). DOI: 10.3389/fmed.2022.892265.
64. Doiron, C. F.; Brener, I.; Cerjan, A. "Realizing symmetry-guaranteed pairs of bound states in the continuum in metasurfaces." *Nature* (2022). DOI: 10.1038/s41467-022-35246-w.
65. Dolgoplova, E. A.; Li, D.; Hartman, S. T.; Watt, J.; Ríos, C.; Hu, J.; Kukkadapu, R.; Casson, J.; Bose, R.; Malko, A. V.; Blake, A. V.; Ivanov, S.; Roslyaki, O.; Piryatinski, A.; Htoon, H.; Chen, H.-T.; Piliñia, G.; Hollingsworth, J. A. "Strong Purcell enhancement at telecom wavelengths afforded by spinel Fe<sub>3</sub>O<sub>4</sub> nanocrystals with size-tunable plasmonic properties." *Nanoscale Horizons* (2022). DOI: 10.1039/d1nh00497b.
66. Domrzalski, J. N.; Stevens, T. E.; Van Ginhoven, R. M.; Fritzsche, K. J.; Walder, B. J.; Johnson, E. M.; Lewis, R. E.; Vreeland, E. C.; Pearce, C. J.; Vargas, D. A.; Coker, E. N.; Martinez, E. J.; Grey, J. K.; Monson, T. C. "Surface functionalized barium titanate nanoparticles: A combined experimental and computational study." *ECS Journal of Solid State Science and Technology* (2022). DOI: 10.1149/2162-8777/ac6f7d.
67. Dong, M.; Heim, D.; Witte, A.; Clark, G.; Leenheer, A. J.; Domingue, D.; Zimmermann, M.; Wen, Y. H.; Gilbert, G.; Englund, D.; Eichenfield, M. "Piezo-optomechanical cantilever modulators for VLSI visible photonics." *APL Photonics* (2022). DOI: 10.1063/5.0088424.
68. Duan, J.; Dong, B.; Chow, W. W.; Huang, H.; Ding, S.; Liu, S.; Norman, J. C.; Bowers, J. E.; Grillot, F. "Four-wave mixing in 1.3 μm epitaxial quantum dot lasers directly grown on silicon." *Photonics Research* (2022). DOI: 10.1364/PRJ.448082.
69. Ebadi, R.; Marshall, M. C.; Phillips, D. F.; Cremer, J.; Zhou, T.; Titze, M.; Kehayias, P.; Saleh Ziabari, M.; Deegan, N.; Rajendran, S.; Sushkov, A. O.; Heremans, F. J.; Bielejec, E. S.; Holt, M. V.; Walsworth, R. L. "Directional detection of dark matter using solid-state quantum sensing." *AVS Quantum Science* (2022). DOI: 10.1116/5.0117301.
70. Ehler, A.; Dhiman, A.; Dillard, T.; Dingreville, R.; Barrick, E.; Kustas, A.; Tomar, V. "High-strain rate spall strength measurement for CoCrFeMnNi high-entropy alloy." *Metals* (2022). DOI: 10.3390/met12091482.
71. Elmslie, T. A.; Startt, J.; Soto-Medina, S.; Yang, Y.; Feng, K.; Baumbach, R. E.; Zappala, E.; Morris, G. D.; Frandsen, B. A.; Meisel, M. W.; Manuel, M. V.; Dingreville, R.; Hamlin, J. J. "Magnetic properties of equiatomic CoCrFeMnNi." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.106.014418.
72. Enriquez, E.; Lu, P.; Li, L.; Zhang, B.; Wang, H.; Jia, Q.; Chen, A. "Reducing leakage current and enhancing polarization in multiferroic 3D super-nanocomposites by microstructure engineering." *Nanotechnology* (2022). DOI: Reducing leakage current and enhancing.
73. Erickson, M.; Han, Y.; Rasulev, B.; Kilin, D. "Molecular dynamics study of the photodegradation of polymeric chains." *Journal of Physical Chemistry Letters* (2022). DOI: 10.1021/acs.jpcllett.2c00802.

74. Fanni, A. M.; Okoye, D.; Monge, F. A.; Hammond, J.; Maghsoodi, F.; Martin, T. D.; Brinkley, G.; Phipps, M. L.; Evans, D. G.; Martinez, J. S.; Whitten, D. G.; Chi, E. Y. "Controlled and selective photo-oxidation of amyloid-beta fibrils by oligomeric p-phenylene ethynylenes." *ACS Applied Materials & Interfaces* (2022). DOI: 10.1021/acscami.1c22869.
75. Farache, D. E.; Verduzco, J. C.; McClure, Z. D.; Desai, S.; Strachan, A. "Active learning and molecular dynamics simulations to find high melting temperature alloys." *Computational Materials Science* (2022). DOI: 10.1016/j.commatsci.2022.111386.
76. Fedik, N.; Zubatyuk, R.; Kulichenko, M.; Lubbers, N.; Smith, J. S.; Nebgen, B.; Messerly, R.; Li, Y. W.; Boldyrev, A. I.; Barros, K.; Isayev, O.; Tretiak, S. "Extending machine learning beyond interatomic potentials for predicting molecular properties." *Nature Reviews Chemistry* (2022). DOI: 10.1038/s41570-022-00416-3.
77. Feng, J.; Browning, J. F.; Fitzsimmons, M. R.; Wang, Q.; Majewski, J.; Wang, P.; Schaefer, D. W. "Impact of ferromagnetism on neutron reflectometry of passivated iron." *Thin Solid Films* (2022). DOI: 10.1016/j.tsf.2022.139464.
78. Fernandez, M. E.; Dingreville, R.; Spearot, D. E. "Statistical perspective on embrittling potency for intergranular fracture." *Physical Review Materials* (2022). DOI: 10.1103/PhysRevMaterials.6.083602.
79. Forde, A.; Freixas, V. M.; Fernandez-Alberti, S.; Neukirch, A. J.; Tretiak, S. "Charge-transfer luminescence in a molecular donor–acceptor complex: Computational insights." *Journal of Physical Chemistry Letters* (2022). DOI: 10.1021/acs.jpcclett.2c02479.
80. Forde, A.; Ghosh, D.; Kilin, D.; Evans, A. C.; Tretiak, S.; Neukirch, A. J. "Induced chirality in halide perovskite clusters through surface chemistry." *Journal of Physical Chemistry Letters* (2022). DOI: 10.1021/acs.jpcclett.1c04060.
81. Forde, A.; Lystrom, L.; Sun, W.; Kilin, D.; Kilina, S. "Improving near-infrared emission of meso-aryldipyrrin indium (III) complexes via annulation bridging: Excited-state dynamics." *Journal of Physical Chemistry C* (2022). DOI: 10.1021/acs.jpcclett.2c02115.
82. Foster, N. D.; Miller, A. J.; Hutchins-Delgado, T. A.; Smyth, C. M.; Wanke, M. C.; Lu, T.-M.; Luhman, D. R. "Thermal activation of low-density Ga implanted in Ge." *Applied Physics Letters* (2022). DOI: 10.1063/5.0094900.
83. Frederick, E.; Appelhans, L. N.; DelRio, F. W.; Strong, K. T., Jr.; Smith, S.; Dickens, S.; Vreeland, E. "Synthesis and mechanical properties of sub 5- $\mu$  PolyUiO-66 thin films on gold surfaces." *Chemphyschem* (2022). DOI: 10.1002/cphc.202100673.
84. Freeman, M. L.; Lu, T.-M.; Engel, L. W. "Resistively loaded coplanar waveguide for microwave measurements of induced carriers." *Review of Scientific Instruments* (2022). DOI: 10.1063/5.0085112.
85. Freixas, V. M.; Keefer, D.; Tretiak, S.; Fernandez-Alberti, S.; Mukamel, S. "Ultrafast coherent photoexcited dynamics in a trimeric dendrimer probed by x-ray stimulated-Raman signals." *Chemical Science* (2022). DOI: 10.1039/d2sc00601d.
86. Freixas, V. M.; Tretiak, S.; Fernandez-Alberti, S. "Infinitene: Computational insights from nonadiabatic excited state dynamics." *Journal of Physical Chemistry Letters* (2022). DOI: 10.1021/acs.jpcclett.2c02296.

87. Frischknecht, A. L.; in 't Veld, P. J.; Kolesnichenko, I. V.; Arnot, D. J.; Lambert, T. N. "Morphology and dynamics in hydroxide-conducting polysulfones." *ACS Applied Polymer Materials* (2022). DOI: 10.1021/acscapm.1c01798.
88. Gaidai, I.; Babikov, D.; Teplukhin, A.; Kendrick, B. K.; Mniszewski, S. M.; Zhang, Y.; Tretiak, S.; Dub, P. A. "Molecular dynamics on quantum annealers." *Scientific Reports* (2022). DOI: 10.1038/s41598-022-21163-x.
89. Gallis, D. F. S.; Butler, K. S.; Pearce, C. J.; Valdez, N.; Rodriguez, M. A. "Programmable photoluminescence via intrinsic and DNA- fluorophore association in a mixed cluster heterometallic MOF." *ACS Applied Materials & Interfaces* (2022). DOI: 10.1021/acscami.1c24477.
90. Gao, T.; Shock, C. J.; Stevens, M. J.; Frischknecht, A. L.; Nakamura, I. "Surrogate molecular dynamics simulation model for dielectric constants with ensemble neural networks." *MRS Communications* (2022). DOI: 10.1557/s43579-022-00283-5.
91. Garcia, E.; Bales, C.; Patterson, W.; Zaslavsky, A.; Mitrovic, V. F. "Cryogenic probe for low-noise, high-frequency electronic measurements." *Review of Scientific Instruments* (2022). DOI: 10.1063/5.0106239.
92. Gennaro, S. D.; Doiron, C. F.; Karl, N.; Iyer, P. P.; Serkland, D. K.; Sinclair, M. B.; Brener, I. "Cascaded optical nonlinearities in dielectric metasurfaces." *ACS Photonics* (2022). DOI: 10.1021/acscphotonics.1c01937.
93. Getto, E.; Johnson, M.; Maughan, M.; Nathan, N.; McMahan, J.; Baker, B.; Knipling, K.; Briggs, S.; Hattar, K.; Swenson, M. J. "Friction stir welding and self-ion irradiation effects on microstructure and mechanical properties changes within oxide dispersion strengthened steel MA956." *Journal of Nuclear Materials* (2022). DOI: 10.1016/j.jnucmat.2022.153795.
94. Ghosh, D.; Perezc, C. M.; Prezhdo, O.; Nie, W.; Tretiak, S.; Neukirch, A. J. "Impact of composition engineering on charge carrier cooling in hybrid perovskites: Computational insights." *Journal of Materials Chemistry C* (2022). DOI: 10.1039/D2TC01413K.
95. Ghosh, S.; Hollingsworth, J. A.; Gallea, J. I.; Majumder, S.; Enderlein, J.; Chizhik, A. I. "Excited state lifetime modulation in semiconductor nanocrystals for super-resolution imaging." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/ac73a2.
96. Ghosh, S.; Lane, C.; Ronning, F.; Bauer, E. D.; Thompson, J. D.; Zhu, J.-X.; Rosa, P. F.; Thomas, S. M. "Colossal piezoresistance in narrow-gap  $\text{Eu}_5\text{In}_2\text{Sb}_6$ ." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.106.045110.
97. Gigax, J. G.; Chancey, M. R.; Xie, D.; Kim, H.; Wang, Y.; Maloy, S. A.; Li, N. "A novel microshear geometry for exploring the influence of void swelling on the mechanical properties induced by MeV heavy ion irradiation." *Materials* (2022). DOI: 10.3390/ma15124253.
98. Gikunda, M. N.; Harerimana, F.; Mangum, J. M.; Rahman, S.; Thompson, J. P.; Harris, C. T.; Churchill, H. O. H.; Thibado, P. M. "Array of graphene variable capacitors on 100 mm silicon wafers for vibration-based applications." *Membranes* (2022). DOI: 10.3390/membranes12050533.



99. Girod, C.; Stevens, C. R.; Huxley, A.; Bauer, E. D.; Santos, F. B.; Thompson, J. D.; Fernandes, R. M.; Zhu, J.-X.; Ronning, F.; Rosa, P. F.; Thomas, S. M. "Thermodynamic and electrical transport properties of UTe<sub>2</sub> under uniaxial stress." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.106.L121101.
100. Gomez, D. T.; Pratt, L. R.; Asthagiri, D. N.; Rempe, S. B. "Hydrated anions: From clusters to bulk solution with quasi-chemical theory." *Chemical Physics* (2022).
101. Gorey, T. J.; Stull, J. A.; Hackenberg, R. E.; Clark, C. L.; Hooks, D. E. "Enhancing surface finish of additively manufactured 316L stainless steel with pulse/pulse reverse electropolishing." *JOM* (2022). DOI: 10.1007/s11837-022-05558-9.
102. Grillot, F.; Chow, W. W.; Dong, B.; Ding, S.; Huang, H.; Bowers, J. "Multimode physics in the mode locking of semiconductor quantum dot lasers." *Applied Sciences* (2022). DOI: 10.3390/app12073504.
103. Hale, L. L.; Jung, H.; Gennaro, S. D.; Briscoe, J.; Harris, C. T.; Luk, T. S.; Addamane, S. J.; Reno, J. L.; Brener, I.; Mitrofanov, O. "Terahertz pulse generation from GaAs metasurfaces." *ACS Photonics* (2022). DOI: 10.1021/acsp Photonics.1c01908.
104. Hanmandlu, C.; Paste, R.; Tsai, H.; Yadav, S. N.; Lai, K.-W.; Wang, Y.-Y.; Gantepogu, C. S.; Hou, C.-H.; Shyue, J.-J.; Lu, Y.-J.; Jadhav, T. S.; Liao, J.-M.; Chou, H.-H.; Wong, H. Q.; Yen, T.-J.; Lai, C.-S.; Ghosh, D.; Tretiak, S.; Yen, H.-J.; Chu, C.-W. "3D nanographene precursor suppress interfacial recombination in PEDOT: PSS based perovskite solar cells." *Nano Energy* (2022). DOI: 10.1016/j.nanoen.2022.108136.
105. Hatefipour, M.; Cuozzo, J. J.; Kanter, J.; Strickland, W. M.; Allemang, C. R.; Lu, T.-M.; Rossi, E.; Shabani, J. "Induced superconducting pairing in integer quantum hall edge states." *Nano Letters* (2022). DOI: 10.1021/acs.nanolett.2c01413.
106. Hawkins, M. C.; Thomas, S.; Hixson, R. S.; Gigax, J.; Li, N.; Liu, C.; Valdez, J. A.; Fensin, S. "Dynamic properties of FeCrMnNi, a high entropy alloy." *Materials Science and Engineering A-Structural Materials Properties Microstructure and Processing* (2022). DOI: 10.1016/j.msea.2022.142906.
107. Hayden, S. C.; Chisholm, C.; Eichmann, S. L.; Grudt, R.; Frankel, G. S.; Hanna, B.; Headrick, T.; Jungjohann, K. L. "Genesis of nanogalvanic corrosion revealed in pearlitic steel." *Nano Letters* (2022). DOI: 10.1021/acs.nanolett.2c02122.
108. Heckman, N. M.; Barrios, A.; Barr, C. M.; Adams, D. P.; Furnish, T. A.; Hattar, K.; Boyce, B. L. "Solute segregation improves the high-cycle fatigue resistance of nanocrystalline Pt-Au." *Acta Materialia* (2022). DOI: 10.1016/j.actamat.2022.117794.
109. Henshaw, J.; Kehayias, P.; Ziabari, M. S.; Titze, M.; Morissette, E.; Watanabe, K.; Taniguchi, T.; Li, J. I. A.; Acosta, V. M.; Bielejec, E. S.; Lilly, M. P.; Mounce, A. M. "Nanoscale solid-state nuclear quadrupole resonance spectroscopy using depth-optimized nitrogen-vacancy ensembles in diamond." *Applied Physics Letters* (2022). DOI: 10.1063/5.0083774.
110. Hernandez, A. L.; Freixas, V. M.; Rodriguez-Hernandez, B.; Tretiak, S.; Fernandez-Alberti, S.; Oldani, N. "Exciton-vibrational dynamics induces efficient self-trapping in a substituted nanoring." *Physical Chemistry Chemical Physics* (2022). DOI: 10.1039/d2cp03162k.

111. Heuser, T. A.; Chapin, C. A.; Holliday, M. A.; Wang, Y.; Senesky, D. G. "Effect of proton irradiation temperature on persistent photoconductivity in zinc oxide metal-semiconductor-metal ultraviolet photodetectors." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0077210.
112. Hinojos, A.; Hong, D.; Feng, L.; Gao, X.; Wang, Y.; Mills, M. J.; Anderson, P. M.; Yang, C.; Wharry, J. P.; Hattar, K.; Li, N.; Schaffer, J. E. "Modulating the pseudoelastic response of Nitinol using ion implantation." *SMST Newswire* (2022). DOI: static.asminternational.org/amp/202204/56/.
113. Høglund, E. R.; Bao, D.-L.; O'Hara, A.; Makarem, S.; Piontkowski, Z. T.; Matson, J. R.; Yadav, A. K.; Haislmaier, R. C.; Engel-Herbert, R.; Ihlefeld, J. F.; Ravichandran, J.; Ramesh, R.; Caldwell, J. D.; Beechem, T. E.; Tomko, J. A.; Hachtel, J. A.; Pantelides, S. T.; Hopkins, P. E.; Howe, J. M. "Emergent interface vibrational structure of oxide superlattices." *Nature* (2022). DOI: 10.1038/s41586-021-04238-z.
114. Hao, H.-C.; Hutter, T.; Boyce, B. L.; Watt, J.; Liu, P.; Mitlin, D. "Review of multifunctional separators: Stabilizing the cathode and the anode for alkali (Li, Na, and K) metal–sulfur and selenium batteries." *Chemical Reviews* (2022). DOI: 10.1021/acs.chemrev.1c00838.
115. Hodges, W.; Jarzembki, A.; McDonald, A.; Ziade, E.; Pickrell, G. W. "Sensing depths in frequency domain thermoreflectance." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0088594.
116. Hsu, N.-W.; Hou, W.-C.; Chen, Y.-Y.; Wu, Y.-J.; Kao, H.-S.; Harris, C. T.; Lu, T.-M.; Li, J.-Y. "Temperature dependence of charge distributions and carrier mobility in an undoped Si/SiGe heterostructure." *IEEE Transactions on Electron Devices* (2022). DOI: 10.1109/TED.2021.3138363.
117. Hu, C.; Martin, S.; Dingreville, R. "Accelerating phase-field predictions via recurrent neural networks learning the microstructure evolution in latent space." *Computer Methods in Applied Mechanics and Engineering* (2022). DOI: 10.1016/j.cma.2022.115128.
118. Hu, L. L.; Zhong, F.; Zhang, J.; Zhao, S. J.; Wang, Y. Q.; Cai, G. X.; Cheng, T.; Wei, G.; Jia, S. F.; Zhang, D. X.; Yin, R.; Chen, Z. Q.; Jiang, C. Z.; Ren, F. "High hydrogen isotopes permeation resistance in (TiVAlCrZr)<sub>0</sub> multi-component metal oxide glass coating." *Acta Materialia* (2022). DOI: 10.1016/j.actamat.2022.118204.
119. Huang, J.; Yadav, G.; Turney, D. E.; Cho, J.; Nyce, M.; Wygant, B. R.; Lambert, T. N.; Banerjee, S. "Ion-selective graphene oxide/polyvinyl alcohol composite membranes for rechargeable alkaline zinc manganese dioxide batteries." *ACS Applied Energy Materials* (2022). DOI: 10.1021/acsaem.2c01605.
120. Huang, J.; Yu, R.; Xu, Z.; Zhu, J.-X.; Oh, J. S.; Jiang, Q.; Wang, M.; Wu, H.; Chen, t.; Denlinger, J. D.; Mo, S.-K.; Hashimoto, M.; Michiardi, M.; Pedersen, t. M.; Gorovikov, S.; Zhdanovich, S.; Damascelli, A.; Gu, G.; Dai, P.; Chu, J.-H.; Lu, D.; Si, Q.; Birgeneau, R. J.; Yi, M. "Correlation-driven electronic reconstruction in FeTe<sub>1-x</sub>Sex." *Communications Physics* (2022). DOI: 10.1038/s42005-022-00805-6.
121. Hung, C. Y.; Vetterick, G.; Hopkins, E.; Baldwin, J. K.; Baldo, P.; Kirk, M. A.; Misra, A.; Taheri, M. L. "Insight into defect cluster annihilation at grain boundaries in an irradiated nanocrystalline iron." *Journal of Nuclear Materials* (2022). DOI: 10.1016/j.jnucmat.2022.153761.
122. Hussein, O.; Keith Coffman, D.; Hattar, K.; Lang, E.; Dillon, S. J.; Abdeljawad, F. "Plateau–Rayleigh instability with a grain boundary twist." *Applied Physics Letters* (2022).

123. Hutchins-Delgado, T. A.; Miller, A. J.; Scott, R.; Lu, P.; Luhman, D. R.; Lu, T.-M. "Characterization of shallow, undoped Se/SiGe quantum wells commercially grown on 8-in. (100) Si wafers." *Applied Electronic Materials* (2022). DOI: 10.1021/acsaelm.2c00733.
124. Isaza M., C. A.; Londono-Calderon, A.; Vergara, S.; José-Yacamán, M.; Ramírez, J. M.; Meza, J. M. "Fracture behavior in micro-cantilever beam and tension tests for Mg/CNT composites synthesized by the sandwich technique." *MRS Communications* (2022). DOI: 10.1557/s43579-022-00199-0.
125. Startt, J.; Kustas, A.; Pegues, J.; Yang, P.; Dingreville, R. "Compositional effects on the mechanical and thermal properties of MoNbTaTi refractory complex concentrated alloys." *Materials & Design* (2022). DOI: 10.1016/j.matdes.2021.110311.
126. Jang, B. G.; Lee, C.; Zhu, J. X.; Shim, J. H. "Exploring two-dimensional Van der Waals heavy-fermion material: Data mining theoretical approach." *Npj 2d Materials and Applications* (2022). DOI: 10.1038/s41699-022-00357-x.
127. Jansen, D.; Bonca, J.; Heidrich-Meisner, F. "Finite-temperature optical conductivity with density-matrix renormalization group methods for the Holstein polaron and bipolaron with dispersive phonons." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.106.155129.
128. Lin, J.-X.; Zhuang, Y.-H.; Morissette, E.; Wang, Z.; Liu, S.; Rhodes, D.; K. Watanabe, K.; Taniguchi, T.; Hone, J.; Li, J. I. A. "Spin-orbit-driven ferromagnetism at half moiré filling in magic-angle twisted bilayer graphene." *Science* (2022). DOI: 10.1126/science.abh2889.
129. Jordan, A. M.; Meyer, L.; Kim, K.; Lee, B.; Bates, F. S.; Macosko, C. W. "Improved polypropylene thermoformability through polyethylene layering." *ACS Applied Materials & Interfaces* (2022). DOI: 10.1021/acsaami.2c08586.
130. Murray, J. B.; Cerjan, A. C.; Redding, B. "Distributed Brillouin fiber laser sensor." *Optica* (2022). DOI: 10.1364/OPTICA.435716.
131. Jung, H.; Hale, L. L.; Briscoe, J.; Sarma, R.; Luk, T. S.; Addamane, S. J.; Reno, J. L.; Brener, I.; Mitrofanov, O. "Terahertz detection using enhanced two-step absorption in photoconductive metasurfaces gated at 1.55  $\mu\text{m}$ ." *Advanced Optical Materials* (2022). DOI: 10.1002/adom.202201838.
132. Jung, H.; Hale, L. L.; Gennaro, S. D.; Briscoe, J.; Iyer, P. P.; Doiron, C. F.; Harris, C. T.; Luk, T. S.; Addamane, S. J.; Reno, J. L.; Brener, I.; Mitrofanov, O. "Terahertz pulse generation with binary phase control in nonlinear InAs metasurface." *Nano Letters* (2022). DOI: 10.1021/acs.nanolett.2c03456.
133. Jung, H.; Jo, H.; Lee, W.; Kang, M. S.; Lee, H. "Reconfigurable molecularization of terahertz meta-atoms Br." *ACS Photonics* (2022). DOI: 10.1021/acsp Photonics.2c00397.
134. Kachiraju, S. R.; Nekrashevich, I.; Ahmad, I.; Farooq, H.; Chang, L.; Kim, S.; Kim, M.-H. "Coupled surface plasmon-phonon polariton nanocavity arrays for enhanced mid-infrared absorption." *Nanophotonics* (2022). DOI: 10.1515/nanoph-2022-0339.
135. Kachwala, A.; Chubenko, O.; Kim, D.; Simakov, E. I.; Karkare, S. "Quantum efficiency, photoemission energy spectra, and mean transverse energy of ultrananocrystalline diamond photocathode." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0130114.

136. Kalidindi, S. R.; Buzzy, M.; Boyce, B. L.; Dingreville, R. "Digital twins for materials." *Frontiers in Materials* (2022). DOI: 10.3389/fmats.2022.818535.
137. Hanson, K.; Sankar, K. M.; Weck, P. F.; Startt, J. K.; Dingreville, R.; Deo, C. S.; Sugar, J. D.; Singh, P. M. "Effect of excess Mg to control corrosion in molten MgCl<sub>2</sub> and KCl eutectic salt mixture." *Corrosion Science* (2022). DOI: 10.1016/j.corsci.2021.109914.
138. Kazanowska, B. A.; Sapkota, K. R.; Lu, P.; Talin, A. A.; Bussmann, E.; Ohta, T.; Gunning, B. P.; Jones, K. S.; Wang, G. T. "Fabrication and field emission properties of vertical, tapered GaN nanowires etched via phosphoric acid." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/ac2981.
139. Khalatpour, A.; Paulsen, A. K.; Addamane, S. J.; Deimert, C.; Reno, J. L.; Wasilewski, Z. R.; Hu, Q. "A tunable unidirectional source for gyrotron's local oscillator at 4.74 THz." *IEEE Transactions on Terahertz Science and Technology* (2022). DOI: 10.1109/TTHZ.2021.3124310.
140. Khan, S. N.; Weight, B. M.; Gifford, B. J.; Tretiak, S.; Bishop, A. "Impact of graphene quantum dot edge morphologies on their optical properties." *Journal of Physical Chemistry Letters* (2022). DOI: 10.1021/acs.jpcclett.2c01036.
141. Khurana, S.; Hassan, M. S.; Yadav, P.; Ghosh, D.; Sapra, S. "Impact of bifunctional ligands on charge transfer kinetics in CsPbBr<sub>3</sub>-CdSe/CdS/ZnS nanohybrids." *Journal of Physical Chemistry Letters* (2022). DOI: 10.1021/acs.jpcclett.2c00067.
142. Kiani, M. T.; Gan, L. T.; Traylor, R.; Yang, R.; Barr, C. M.; Hattar, K.; Fan, J. A.; Gu, X. W. "In-situ TEM tensile testing of bicrystals with tailored misorientation angles." *Acta Materialia* (2022). DOI: 10.1016/j.actamat.2021.117505.
143. Kim, D.; Ahmed, T.; Crossley, K.; Baldwin, J. K.; Shin, S. H. R.; Kim, Y.; Sheehan, C.; Li, N.; Pete, D., V.; Han, H. H.; Yoo, J. "A controlled nucleation and growth of Si nanowires by using a tin diffusion barrier layer for lithium-ion batteries." *Nanoscale Advances* (2022). DOI: 10.1039/d1na00844g.
144. Kim, H.; Chancey, M. R.; Chung, T.; Brackenbury, I.; Liedke, M. O.; Butterling, M.; Hirschmann, E.; Wagner, A.; Baldwin, J. K.; Derby, B. K.; Li, N.; Yano, K. H.; Edwards, D. J.; Wang, Y.; Selim, F. A. "Interface effect of Fe and Fe<sub>2</sub>O<sub>3</sub> on the distributions of ion induced defects." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0095013#\_i24.
145. Kim, H.; Gigax, J. G.; Rietema, C. J.; Chancey, M. R.; Baldwin, J. K.; Wang, Y.; Maloy, S. A.; El Atwani, O. "Void swelling of conventional and composition engineered HT9 alloys after high-dose self-ion irradiation." *Journal of Nuclear Materials* (2022). DOI: 10.1016/j.jnucmat.2021.153492.
146. Kim, S. E.; Verma, N.; Özerinç, S.; Jana, S.; Das, S.; Bellon, P.; Averback, R. S. S. "Strengthening of nanocrystalline Al using grain boundary solute additions: Effects of thermal annealing and ion irradiation." *Materialia* (2022). DOI: 10.1016/j.mtla.2022.101564.
147. Kim, Y.; Watt, J.; Ma, X.; Ahmed, T.; Kim, S.; Kang, K.; Luk, T. S.; Hong, Y. J.; Yoo, J. "Fabrication of a microcavity prepared by remote epitaxy over monolayer molybdenum disulfide." *ACS Nano* (2022). DOI: 10.1021/acsnano.1c08779.

148. Kim, Y.; Yeom, S. J.; Yoo, J.; Yun, J.; Lee, H.-W.; Lee, S. W. "Temperature-dependent fracture resistance of silicon nanopillars during electrochemical lithiation." *Nano Letters* (2022). DOI: 10.1021/acs.nanolett.2c01946.
149. Kononov, A.; Lee, C.; dos Santos, T.; Robinson, B.; Yao, Y.; Yao, Y.; Andrade, X.; Baczewski, A.; Constantinescu, E.; Correa, A.; Kanai, Y.; Modine, N.; Schleife, A. "Electron dynamics in extended systems within real-time time-dependent density-functional theory." *MRS Communications* (2022). DOI: 10.1557/s43579-022-00273-7.
150. Kort-Kamp, W. J.; Murdick, R. A.; Htoon, H.; Jones, A. C. "Utilization of coupled eigenmodes in Akiyama atomic force microscopy probes for bimodal multifrequency sensing." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/ac8232#nanoac8232s1.
151. Koulas-Simos, A.; Buchgeister, J.; Drechsler, M. L.; Zhang, T.; Laiho, K.; Sinatkas, G.; Xu, J.; Lohof, F.; Kan, Q.; Zhang, R. K.; Jahnke, F.; Gies, C.; Chow, W. W.; Ning, C.-Z.; Reitzenstein, S. "Quantum fluctuations and lineshape anomaly in a high- $\beta$  silver-coated InP-based metallic nanolaser." *Laser & Photonics Reviews* (2022). DOI: 10.1002/lpor.202200086.
152. Koulas-Simos, A.; Sinatkas, G.; Reitzenstein, S.; Buchgeister, J.; Drechsler, M. L.; Lohof, F.; Jahnke, F.; Gies, C.; Zhang, T.; Xu, J.; Ning, C. Z.; Laiho, K.; Kan, Q.; Zhang, R. K.; Chow, W. W. "Quantum fluctuations and lineshape anomaly in semiconductor lasers." *Optics and Photonics News* (2022). DOI: [https://www.optica-opn.org/home/articles/volume\\_33/december\\_2022/features/optics\\_in\\_2022/](https://www.optica-opn.org/home/articles/volume_33/december_2022/features/optics_in_2022/).
153. Krajewski, B.; Mierzejewski, M.; Bonca, J. "Modeling sample-to-sample fluctuations of the gap ratio in finite disordered spin chains." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.106.014201.
154. Krapivin, V.; Gu, M.; Hickox-Young, D.; Teitelbaum, S. W.; Huang, Y.; de la Peña, G.; Zhu, D.; Sirica, N.; Lee, M.-C.; Prasankumar, R. P.; Maznev, A. A.; Nelson, K. A.; Chollet, M.; Rondinelli, J. M.; Reis, D. A.; Trigo, M. "Ultrafast suppression of the ferroelectric instability in KtAo<sub>3</sub>." *Physical Review Letters* (2022). DOI: 10.1103/PhysRevLett.129.127601.
155. Kumar, A.; Asthana, A.; Masteran, C.; Vleev, E.; Zhang, Y.; Cincio, L.; Tretiak, S.; Dub, P. "Quantum simulation of molecular electronic states with a transcorrelated Hamiltonian: Higher accuracy with fewer qubits." *Journal of Chemical Theory and Computation* (2022). DOI: 10.1021/acs.jctc.2c00520.
156. Kunwar, S.; Somodi, C. B.; Lalk, R. A.; Rutherford, B. X.; Corey, Z.; Roy, P.; Zhang, D.; Hellenbrand, M.; Xiao, M.; MacManus Driscoll, J. L.; Jia, Q.; Wang, H.; Joshua Yang, J.; Nie, W.; Chen, A. "Protons: Critical species for resistive switching in interface-type memristors." *Advanced Electronic Materials* (2022). DOI: 10.1002/aelm.202200816.
157. Lane, C.; Zhu, J. X. "Identifying topological superconductivity in two-dimensional transition-metal dichalcogenides." *Physical Review Materials* (2022). DOI: 10.1103/PhysRevMaterials.6.094001.
158. Lang, E.; Burns, K.; Wang, Y.; Kotula, P. G.; Kustas, A. B.; Rodriguez, S.; Aitkaliyeva, A.; Hattar, K. N. "Compositional effects of additively manufactured refractory high-entropy alloys under high-energy helium irradiation." *Nanomaterials* (2022). DOI: 10.3390/nano12122014.

159. Lear, C. R.; Gigax, J. G.; El Atwani, O.; Chancey, M. R.; Kim, H.; Li, N.; Wang, Y.; Fensin, S. J. "Effects of helium cavity size and morphology on the strength of pure titanium." *Scripta Materialia* (2022). DOI: 10.1016/j.scriptamat.2022.114531.
160. Lear, C. R.; Gigax, J. G.; Schneider, M. M.; Steckley, t. E.; Lienert, T. J.; Maloy, S. A.; Eftink, B. P. "Solid-state welding of the nanostructured ferritic alloy 14YWT using a capacitive discharge resistance welding technique." *Metals* (2022). DOI: 10.3390/met12010023.
161. Lee, C.; Xie, D.; Derby, B. K.; Baldwin, J. K.; Tandoc, C.; El Atwani, O.; Hu, Y.-J.; Valdez, J. A.; Li, N.; Fensin, S. J. "An experimentally driven high-throughput approach to design refractory high-entropy alloys." *Materials & Design* (2022). DOI: 10.1016/j.matdes.2022.111259.
162. Lee, M.-C.; Kwak, I.; Lee, Y.; Lee, B.; Park, B. C.; Wolf, T.; Noh, T. W.; Kim, K. "Nematic response revealed by coherent phonon oscillations in BaFe<sub>2</sub>As<sub>2</sub>." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.105.024501.
163. Lee, M.-C.; Occhialini, C.; Li, J.; Zhu, Z.; Sirica, N. S.; Mix, L. T.; Kim, S.; Yarotski, D. A.; Comin, R.; Prasankumar, R. P. "Ultrafast signatures of spin and orbital order in antiferromagnetic Sr<sub>2</sub>CrO<sub>4</sub>." *Communications Physics* (2022). DOI: 10.1038/s42005-022-01110-y.
164. Lee, M.-C.; Sirica, N.; Teitelbaum, S. W.; Maznev, A.; Pezeril, T.; Tutchtton, R.; Krapivin, V.; de la Pena, G. A.; Huang, Y.; Zhao, L. X.; Chen, G. F.; Xu, B.; Yang, R.; Shi, J.; Zhu, J.-X.; Yarotski, D. A.; Qiu, X. G.; Nelson, K. A.; Trigo, M.; Reis, D. A.; Prasankumar, R. P. "Direct observation of coherent longitudinal and shear acoustic phonons in TaAs using ultrafast x-ray diffraction." *Physical Review Letters* (2022). DOI: 10.1103/PhysRevLett.128.155301.
165. Lei, Y.; Li, Y.; Lu, C.; Yan, Q.; Wu, Y.; Babbe, F.; Gong, H.; Zhang, S.; Zhou, J.; Wang, R.; Zhang, R.; Chen, Y.; Tsai, H.; Gu, Y.; Hu, H.; Lo, Y.-H.; Nie, W.; Lee, T.; Luo, J.; Yang, K.; Jang, K.-I.; Xu, S. "Perovskite superlattices with efficient carrier dynamics." *Nature* (2022). DOI: 10.1038/s41586-022-04961-1.
166. Lemon, M.; Gannon, R. N.; Lu, P.; Battey, S. R.; Rudin, S. P.; toby, B. H.; Johnson, D. C. "Method to determine the distribution of substituted or intercalated ions in transition-metal dichalcogenides: FexVSe<sub>2</sub> and Fe<sub>1-x</sub>VxSE<sub>2</sub>." *Chemistry of Materials* (2022). DOI: 10.1021/acs.chemmater.2c00431.
167. Li, C.; Shyamsunder, A.; Hoane, A. G.; Long, D. M.; YuenKwok, C.; Kotula, P. G.; Zavadil, K. R.; Gewirth, A. A.; Nazar, L. F. "Highly reversible Zn anode with a practical areal capacity enabled by a sustainable electrolyte and super acid interfacial chemistry." *Joule* (2022). DOI: 10.1016/j.joule.2022.04.017.
168. Li, D.; Zhu, B.; Backes, D.; Veiga, L. S. I.; Lee, T.-L.; Wang, H.; He, Q.; Roy, P.; Zhang, J.; Shi, J.; Chen, A.; van Aken, P. A.; Jia, Q.; Dhesi, S. S.; Scanlon, D. O.; Zhang, K. H. L.; Li, W. "Manipulating the metal-to-insulator transition and magnetic properties in manganite thin films via epitaxial strain." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.105.165426.
169. Li, M. K.; Riaz, A.; Wederhake, M.; Fink, K.; Saha, A.; Dehm, S.; He, X.; Schöppler, F.; K., M. M.; Htoon, H.; Popov, V. N.; Doorn, S. K.; Hertel, T.; Hennrich, F.; Krupke, R. "Electroluminescence from single-walled carbon nanotubes with quantum defects." *ACS Nano* (2022). DOI: 10.1021/acsnano.2c03083.
170. Li, M. M.; Ivanov, S. A. "The intrinsic electrochemical behavior of layered Cu<sub>2</sub>WSe<sub>4</sub> nanoparticles." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/ac4132.

171. Li, Q.-Q.; Yan, L.; Chu, W.; He, J.; Luo, H.; Frauenheim, T.; Tretiak, S.; Zhou, L. "Control of polaronic behavior and carrier lifetimes via metal and anion alloying in chalcogenide perovskites." *Journal of Physical Chemistry Letters* (2022). DOI: 10.1021/acs.jpcllett.2c00880.
172. Li, X.; Ning, H.; Mehio, O.; Zhao, H.; Lee, M.-C.; Kim, K.; Nakamura, F.; Maeno, Y.; Cao, G.; Hsieh, D. "Keldysh space control of charge dynamics in a strongly driven Mott insulator." *Physical Review Letters* (2022). DOI: 10.1103/PhysRevLett.128.187402.
173. Li, Y.; Aquino, A. J. A.; Siddique, F.; Niehaus, T. A.; Lischka, H.; Nachtigallova, D. "Pathways to fluorescence via restriction of intramolecular motion in substituted tetraphenylethylenes." *Physical Chemistry Chemical Physics* (2022). DOI: 10.1039/d1cp04848a.
174. Li, Y.; Wang, W.; Zhang, D.; Baskin, M.; Chen, A.; Kvatinsky, S.; Yalon, E.; Kornblum, L. "Scalable Al<sub>2</sub>O<sub>3</sub>-TiO<sub>2</sub> conductive oxide interfaces as defect reservoirs for resistive switching devices." *Advanced Electronic Materials* (2022). DOI: 10.1002/aelm.202200800.
175. Li, Z.; Cheng, J. Y.; Poplawsky, J. D.; Xu, S.; Baldwin, J. K.; Beyerlein, I. J.; Mara, N. A. "Critical length scales for chemical segregation at Cu/Nb 3D interfaces by atom probe tomography." *Scripta Materialia* (2022). DOI: 10.2139/ssrn.4068140.
176. Lidsky, D.; Cain, J. M.; Hutchins-Delgado, T. A.; Lu, T. "Inverse metal-assisted chemical etching of germanium with gold and hydrogen peroxide." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/ac810c.
177. Lin, S.; Habib, M. A.; Burse, S.; Mandavkar, R.; Khalid, T.; Joni, M. H.; Li, M.-Y.; Kunwar, S.; Lee, J. "Hybrid UV photodetector design incorporating AuPt alloy hybrid nanoparticles, ZnO quantum dots, and graphene quantum dots." *ACS Applied Materials & Interfaces* (2022). DOI: 10.1021/acsami.2c19006.
178. Lin, S.; Kulkarni, R.; Mandavkar, R.; Habib, M. A.; Burse, S.; Kunwar, S.; Lee, J. "Surmounting the interband threshold limit by the hot electron excitation of multi-metallic plasmonic AgAuCu NPs for UV photodetector application." *CrystEngComm* (2022). DOI: 10.1039/d2ce00367h.
179. Lin, S.; Mandavkar, R.; Kulkarni, R.; Shalmali Burse, S.; Habib, M. A.; Kim, S. H.; Li, M. Y.; Kunwar, S.; Lee, J. "MoS<sub>2</sub> nanoflake and ZnO quantum dot blended active layers on AuPd nanoparticles for UV photodetectors." *ACS Applied Nano Materials* (2022). DOI: 10.1021/acsanm.1c03748.
180. Liu, F.; Guo, L.; DeFazio, J.; Pavlenko, V.; Yamamoto, M.; Moody, N. A.; Yamaguchi, H. "Photoemission from bialkali photocathodes through an atomically thin protection layer." *ACS Applied Materials & Interfaces* (2022). DOI: 10.1021/acsami.1c19393.
181. Liu, F.; Wu, R.; Wei, J.; Nie, W.; Mohite, A. D.; Brovelli, S.; Manna, L.; Li, H. "Recent progress in halide perovskite radiation detectors for gamma-ray spectroscopy." *ACS Energy Letters* (2022). DOI: 10.1021/acsenenergylett.2c00031.
182. Liu, L.; Nemashkalo, A.; Rezende, L.; Jung, J. Y.; Chhabra, S.; Guerra, M. C.; Heemskerk, I.; Warmflash, A. "Nodal is a short-range morphogen with activity that spreads through a relay mechanism in human gastruloids." *Nature Communications* (2022). DOI: 10.1038/s41467-022-28149-3.

183. Liu, P. H., H.; Celio, H.; Cui, J.; Ren, M.; Wang, Y.; Dong, H.; Chowdhury, A. R.; Hutter, T.; Perras, F. A.; Nanda, J.; Watt, J.; Mitlin, D. "Multifunctional separator allows stable cycling of potassium metal anodes and of potassium metal batteries." *Advanced Materials* (2022). DOI: 10.1002/adma.202270058.
184. Londoño-Calderon, A.; Dhall, R.; Ophus, C.; Schneider, M.; Wang, Y.; Dervishi, E.; Kang, H. S.; Lee, C.-H.; Yoo, J.; Pettes, M. T. "Visualizing grain statistics in MOCVD WSe<sub>2</sub> through four-dimensional scanning transmission electron microscopy." *Nano Letters* (2022). DOI: 10.1021/acs.nanolett.1c04315.
185. Long, D. M.; Singh, M. K.; Small, K. A.; Watt, J. "Cryo-fib for tem investigation of soft matter and beam sensitive energy materials." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/ac92eb.
186. Long, D. M.; Greathouse, J. A.; Xu, G.; Jungjohann, K. L. "Molecular dynamics simulation and cryo-electron microscopy investigation of AOT surfactant structure at the hydrated mica surface." *Minerals* (2022). DOI: 10.3390/min12040479.
187. Lozovoi, A.; Vizkelethy, G.; Bielejec, E.; Meriles, C. A. "Imaging dark charge emitters in diamond via carrier-to-photon conversion." *Science Advances* (2022). DOI: 10.1126/sciadv.abl9402.
188. Luk, T. S.; Xu, G.; Ross, W.; Nogan, J. N.; Scott, E. A.; Ivanov, S.; Niculescu, O.; Mitrofanov, O.; Harris, C. T. "Maximal absorption in ultrathin tin films for microbolometer applications." *Applied Physics Letters* (2022). DOI: 10.1016/j.scriptamat.2022.115226.
189. Mandavkar, R.; Kulkarni, R.; Habib, M. A.; Burse, S.; Lin, S.; Kunwar, S.; Najar, A.; Aravindh, S. A. J., J-H.; Lee, J. "Super-porous Pt/CuO/Pt hybrid platform for ultra-sensitive and selective H<sub>2</sub>O<sub>2</sub> detection." *Applied Surface Science* (2022). DOI: 10.1016/j.apsusc.2022.153454.
190. Mandavkar, R.; Lin, S.; Kulkarni, R.; Burse, S.; Habib, M. A.; Kunwar, S.; Lee, J. "Dual-step photocarrier injection by mixture layer of ZnO QDs and MoS<sub>2</sub> NPs on hybrid PdAu NPs." *Materials Research Bulletin* (2022). DOI: 10.1016/j.materresbull.2022.111832.
191. Maryon, O. O.; Efaw, C. M.; DelRio, F. W.; Graugnard, E.; Hurley, M. F.; Davis, P. "Co-localizing kelvin probe force microscopy with other microscopies and spectroscopies: Selected applications in corrosion characterization of alloys." *Journal of Visualized Experiments* (2022). DOI: 10.3791/64102.
192. Massengale, J. A.; Shen, Y.; Yang, R. Q.; Hawkins, S. D.; Klem, J. F. "Enhanced performance of InAs-based interband cascade lasers emitting between 10-13 μm." *Semiconductor Science and Technology* (2022). DOI: 10.1088/1361-6641/acac4e.
193. Massengale, J. A.; Shen, Y.; Yang, R. Q.; Hawkins, S. D.; Klem, J. F. "Long wavelength interband cascade lasers." *Applied Physics Letters* (2022). DOI: 10.1063/5.0084565.
194. Doucet, M.; Browning, J. F.; Doyle, B. L.; Charlton, T. R.; Ambaye, H.; Seo, J.; Mazza, A. R.; Wenzel, J. F.; Burns, G. R.; Wixom, R. R.; Veith, G. M. "Study of chromium migration in a nickel-based alloy using polarized neutron reflectometry and Rutherford backscattering spectrometry." *Journal of Physical Chemistry C* (2022). DOI: 10.1021/acs.jpcc.1c08216.
195. Matt, C. E.; Liu, Y.; Pirie, H.; Drucker, N. C.; Jo, N. H.; Kuthanazhi, B.; Huang, Z.; Lane, C.; Zhu, J.-X.; Canfield, P. C.; Hoffman, J. E. "Spin-polarized imaging of strongly interacting fermions in the ferrimagnetic state of the Weyl candidate CeBi." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.105.085134.



196. Matthews, B. E.; Yano, K.; Akers, S.; Sassi, M.; Taylor, S.; Wang, L.; Paudel, R.; Comes, R.; Du, Y.; Lang, E.; Hattar, K.; Spurgeon, S. R. "Quantifying defect pathways for disorder in La<sub>1-x</sub>Sr<sub>x</sub>FeO<sub>3</sub> / SrTiO<sub>3</sub> thin films." *Microscopy and Microanalysis* (2022). DOI: 10.1017/S1431927622008157.
197. Mazza, A. R.; Skoropata, E.; Sharma, Y.; Lapano, J.; Heitmann, T. W.; Musico, B. L.; Keppens, V.; Gai, Z.; Freeland, J. W.; Charlton, T. R.; Brahlek, M.; Moreo, A.; Dagotto, E.; Ward, T. Z. "Designing magnetism in high entropy oxides." *Advanced Science* (2022). DOI: 10.1002/advs.202200391.
198. McBean, P.; Milne, Z.; Kanthawar, A.; Hattar, K.; Jungjohann, K.; Jones, L. "Multiphysics simulation for tem objective lens evaluation & design: Microscopy and microanalysis." *Microscopy and Microanalysis* (2022). DOI: 10.1017/S1431927622009540.
199. McBride, M.; Stull, J. A.; Dervishi, E.; Johnson, D. R.; Hooks, D. E. "Controlled compositional gradients of electroformed gold and silver." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0097466.
200. McClary, S. A.; Long, D. M.; Sanz-Matias, A.; Kotula, P. G.; Prendergast, D.; Jungjohann, K. L.; Zavadil, K. R. "A heterogeneous oxide enables reversible calcium electrodeposition for a calcium battery." *ACS Energy Letters* (2022). DOI: 10.1021/acsenerylett.2c01443.
201. McClintock, L.; Song, Z.; Travaglini, H. C.; Senger, R. T.; Chandrasekaran, V.; Htoon, H.; Yarotski, D.; Yu, D. "Highly mobile excitons in single crystal methylammonium lead tribromide perovskite microribbons." *Journal of Physical Chemistry Letters* (2022). DOI: 10.1021/acs.jpcllett.2c00274.
202. McGieson, I.; Bird, V. L.; Barr, C. M.; Hattar, K.; Reed, B. W.; McKeown, J. T.; Yi, F.; LaVan, D. A.; Santala, M. K. "Crystallization kinetics and thermodynamics of an Ag-In-Sb-Te phase change material using complementary in-situ microscopic techniques." *Journal of Materials Research* (2022). DOI: 10.1557/s43578-022-00486-5.
203. McGrath, A. J.; Thompson, J. D.; Ronning, F.; Ivanov, S. A. "One-pot size-controlled synthesis of tin- and antimony-based intermetallic nanoparticles." *Chemistry of Materials* (2022). DOI: 10.1021/acs.chemmater.2c02814.
204. Meng, L.; Duwal, S.; Lane, J. M. D.; Ao, T.; Stoltzfus, B.; Knudson, M.; Park, C.; Chow, P.; Xiao, Y.; Fan, H.; Qin, Y. "High pressure induced atomic and mesoscale phase behaviors of one-dimensional TiO<sub>2</sub> anatase nanocrystals." *MRS Bulletin* (2022). DOI: 10.1557/s43577-021-00250-w.
205. Merrill, L. C.; Long, D. M.; Small, K. A.; Jungjohann, K. L.; Leung, K.; Bassett, K. L.; Harrison, K. L. "Role of coatings as artificial solid electrolyte interphases on lithium metal self-discharge." *Journal of Physical Chemistry C* (2022). DOI: 10.1021/acs.jpcc.2c05385.
206. Miao, X.; Luk, T. S.; Liu, P. Q. "Liquid-metal-based nanophotonic structures for high-performance SEIRA sensing." *Advanced Materials* (2022). DOI: 10.1002/adma.202107950.
207. Miao, Y.; Boutelle, R. C.; Blake, A.; Chandrasekaran, V.; Sheehan, C. J.; Hollingsworth, J.; Neuhauser, D.; Weiss, S. "Super-resolution imaging of plasmonic near-fields: Overcoming emitter mislocalizations." *Journal of Physical Chemistry Letters* (2022). DOI: 10.1021/acs.jpcllett.1c04123.
208. Miller, A.; Hardy, W.; Luhman, D.; Brickson, M.; Baczewski, A.; Liu, C.; Li, J.; Lilly, M.; Lu, T. "Effective out-of-plane g factor in strained-Ge/SiGe quantum dots." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.106.L121402.

209. Mishra, S.; Liu, Y.; Bauer, E. D.; Ronning, F.; Thomas, S. M. "Anisotropic magnetotransport properties of the heavy-fermion superconductor CeRh<sub>2</sub>As<sub>2</sub>." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.106.L140502.
210. Mo, M.; Tang, M.; Chen, Z.; Peterson, J. R.; Shen, X.; Baldwin, J. K.; Frost, M.; Kozina, M.; Reid, A.; Wang, Y.; E, J.; Descamps, A.; Ofori-Okai, B. K.; Li, R.; Luo, S.-N.; Wang, X.; Glenzer, S. "Ultrafast visualization of incipient plasticity in dynamically compressed matter." *Nature Communications* (2022). DOI: 10.1038/s41467-022-28684-z
211. Mohottalalage, S. S.; Aryal, D.; Thurston, B. A.; Grest, G. S.; Perahia, D. "Effects of ionic group distribution on the structure and dynamics of amorphous polymer melts." *Macromolecules* (2022). DOI: 10.1021/acs.macromol.1c02141.
212. Mohottalalage, S. S.; Senanayake, M.; Clemmer, J. T.; Perahia, D.; Grest, G. S.; O'Connor, T. "Nonlinear elongation flows in associating polymer melts: From homogeneous to heterogeneous flow." *Physical Review X* (2022). DOI: 10.1103/PhysRevX.12.021024.
213. Monti, J. M.; Clemmer, J. T.; Srivastava, I.; Silbert, L. E.; Grest, G. S.; Lechman, J. B. "Large-scale frictionless jamming with power-law particle size distributions." *Physical Review E* (2022). DOI: 10.1103/PhysRevE.106.034901.
214. Monti, J. M.; Grest, G. S. "Molecular dynamics simulations of binary sphere mixtures." *Physical Review E* (2022). DOI: 10.1103/PhysRevE.106.054153.
215. Monti, J. M.; Hopkins, E. M.; Hattar, K.; Abdeljawad, F.; Boyce, B. L.; Dingreville, R. "Stability of immiscible nanocrystalline alloys in compositional and thermal fields." *Acta Materialia* (2022). DOI: 10.1016/j.actamat.2022.117620.
216. Monti, J. M. S., J. A.; Custer, J. O.; Adams, D. P.; Depla, D.; Dingreville, R. "Linking simulated polycrystalline thin film microstructures to physical vapor deposition conditions." *Acta Materialia* (2022). DOI: 10.1016/j.actamat.2022.118581.
217. Mook, W. M.; Ilgen, A. G.; Jungjohann, K. L.; DelRio, F. W. "Chemo-mechanical weakening of muscovite quantified with in-situ liquid nanoindentation." *Journal of Materials Science* (2022). DOI: 10.1007/s10853-022-07315-4.
218. Morales, D.; Micheva-Viteva, S.; Adikari, S.; Werner, J.; Wolinsky, M.; Hong-Geller, E.; Kim, J.; Ojima, I. "Targeting the bet-hedging strategy with an inhibitor of bacterial efflux capacity enhances antibiotic efficiency and ameliorates bacterial persistence in-vitro." *Microorganisms* (2022). DOI: 10.3390/microorganisms10101966.
219. Morales, D. P.; Robinson, A. J.; Pawlowski, A. C.; Ark, C.; Kelliher, J. M.; Junier, P.; Werner, J. H.; Chain, P. S. "Advances and challenges in fluorescence in-situ hybridization for visualizing fungal endobacteria." *Frontiers in Microbiology* (2022). DOI: 10.3389/fmicb.2022.892227.
220. Murray, J. M.; Cerjan, A.; Redding, B. "Massively distributed fiber strain sensing using Brillouin lasing." *Optics Express* (2022). DOI: 10.1364/OE.460285.

221. Gjorevski, N.; Nikolaev, M.; Brown, T. E.; Mitrofanova, O.; Brandenburg, N.; DelRio, F. W.; Yavitt, F. M.; Liberali, P.; Anseth, K. S.; Lutolf, M. P. "Tissue geometry drives deterministic organoid patterning." *Science* (2022). DOI: 10.1126/science.aaw9021.
222. Nair, A. N.; Sanad, M. F.; Chava, V. S.; Sreenivasan, S. T. "Platinum-like her onset in a GnR/MoS<sub>2</sub> quantum dot heterostructure through curvature-dependent electron density reconfiguration." *Chemical Communications* (2022). DOI: 10.1039/D2CC03801C.
223. Nathaniel, J. E.; El-Atwani, O.; Huang, S.; Marian, J.; Leff, A. C.; Baldwin, J. K.; Hattar, K.; Taheri, M. L. "Implications of microstructure in helium-implanted nanocrystalline metals." *Materials* (2022). DOI: 10.3390/ma15124092.
224. Naz, S.; Ullah, A.; Zeb, A.; Akram, F.; Karoui, A.; Sheeraz, M.; Ahn, C. W. "High strain response and dielectric properties of Bi<sub>1/2</sub>(Na<sub>0.78</sub>K<sub>0.22</sub>)<sub>1/2</sub>TiO<sub>3</sub> ceramics doped with (F<sub>1/2</sub>Nb<sub>1/2</sub>)<sup>4+</sup>." *Journal of Electronic Materials* (2022). DOI: 10.1007/s11664-022-09746-w.
225. Negrin-Yuvero, H.; Mukazhanova, A.; Freixas, V. M.; Tretiak, S.; Sharifzadeh, S.; Fernandez-Alberti, S. "Vibronic photoexcitation dynamics of perylene diimide: Computational insights." *Journal of Physical Chemistry A* (2022). DOI: 10.1021/acs.jpca.1c09484.
226. Nelson, T. R.; Fernandez-Alberti, S.; Tretiak, S. "Modeling excited-state molecular dynamics beyond the Born–Oppenheimer regime." *Nature Computational Science* (2022). DOI: 10.1038/s43588-022-00357-3.
227. Nemashkalo, A.; Phipps, M.E.; Hennelly, S. P.; Goodwin, P. M. "Real-time, single-molecule observation of biomolecular interactions inside nanophotonic zero mode waveguides." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/ac467c.
228. Nie, W.; Tsai, H. "Perovskite nanocrystal stabilized in metal organic framework for light emission devices." *Journal of Materials Chemistry A* (2022). DOI: 10.1039/D2TA02154D.
229. Noell, P. J.; Deka, N.; Sills, R. B.; Boyce, B. L. "Identifying the microstructural features associated with void nucleation during elevated-temperature deformation of copper." *Fatigue & Fracture of Engineering Materials & Structures* (2022). DOI: 10.1111/ffe.13707.
230. O'Connor, T. C.; Ge, T.; Grest, G. S. "Composite entanglement topology and extensional rheology of symmetric ring-linear polymer blends." *Journal of Rheology* (2022). DOI: 10.1122/8.0000319.
231. Oglesby, S.; Ivanov, S. A.; Londono-Calderon, A.; Pete, D.; Pettes, M. T.; Jones, A. C.; Chabi, S. "Manufacturing of complex silicon-carbon structures: Exploring SixCy materials." *Materials* (2022). DOI: 10.3390/ma15103475.
232. Oommen, V.; Shukla, K.; Goswami, S.; Dingreville, R.; Karniadakis, G. E. "Learning two-phase microstructure evolution using neural operators and autoencoder architectures." *Npj Computational Materials* (2022). DOI: 10.1038/s41524-022-00876-7.
233. Owczarek, M.; Lee, M.; Liu, S.; Blake, E. R.; Taylor, C. S.; Newman, G. A.; Eckert, J. C.; Leal, J. H.; Semelsberger, T. A.; Cheng, H. P.; Nie, W.; Zapf, V. S. "Near-room-temperature magnetoelectric coupling via spin crossover in an iron (II) complex." *Angewandte Chemie International Edition* (2022). DOI: 10.1002/anie.202214335.

234. Owczarek, M.; Lee, M.; Zapf, V.; Nie, W.; Jakubas, R. "Accessing one-dimensional chains of halogenoindates (III) in organic-inorganic hybrids." *Inorganic Chemistry* (2022). DOI: 10.1021/acs.inorgchem.2c00374.
235. Kehayias, P.; Levine, E. V.; Basso, L.; Henshaw, J.; Saleh Ziabari, M.; Titze, M.; Haltli, R.; Okoro, J.; Tibbetts, D. R.; Udoni, D. M.; Bielejec, E.; Lilly, M. P.; Lu, T.-M.; Schwindt, P. D.; Mounce, A. M. "Measurement and simulation of the magnetic fields from a 555 timer integrated circuit using a quantum diamond microscope and finite element analysis." *Physical Review Applied* (2022). DOI: 10.1103/PhysRevApplied.17.014021.
236. Padawer-Blatt, A.; Ducatel, J.; Korkusinski, M.; Bogan, A.; Gaudreau, L.; Zawadzki, P.; Austing, D. G.; Sachrajda, A. S.; Studenikin, S.; Tracy, L.; Reno, J.; Hargett, T. "Characterization of dot-specific and tunable effective g factors in a GaAs/AlGaAs double quantum dot single-hole device." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.105.195305.
237. Padmanabhan, P.; Buessen, F. L.; Tutchton, R.; Kwock, K. W.; Gilinsky, S.; Lee, M. C.; McGuire, M. A.; Singamaneni, S. R.; Yarotski, D. A.; Paramakanti, A.; Zhu, J.-X.; Prasankumar, R. P. "Coherent helicity-dependent spin-phonon oscillations in the ferromagnetic Van der Waals crystal CrI<sub>3</sub>." *Nature Communications* (2022). DOI: 10.1038/s41467-022-31786-3.
238. Pak, D.; Nandi, A.; Titze, M.; Bielejec, E. S.; Alaeian, H.; Hosseini, M. "Long-range cooperative resonances in rare-earth ion arrays inside photonic resonators." *Communications Physics* (2022). DOI: 10.1038/s42005-022-00871-w.
239. Pandey, A.; Gigax, J.; Pokharel, R. "Machine learning interatomic potential for high-throughput screening of high-entropy alloys." *JOM* (2022). DOI: 10.1007/s11837-022-05306-z.
240. Parida, S.; Wang, Y.; Zhao, H.; Htoon, H.; Kucinski, T. M.; Chubarov, M.; Choudhury, T.; Redwing, J. M.; Dongare, A.; Pettes, M. T. "Tuning of the electronic and vibrational properties of epitaxial MoS<sub>2</sub> through He-ion beam modification." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/aca3af.
241. Park, J.; Easterling, C. P.; Armstrong, C. C.; Huber, D. L.; Bowman, J. I.; Sumerlin, B. S.; Winey, K. I.; Taylor, M. K. "Nanoscale layers of precise ion-containing polyamides with lithiated phenyl sulfonate in the polymer backbone." *Polymer Chemistry* (2022). DOI: 10.1039/D2PY00802E.
242. Paudel, B.; Sharma, Y.; Derby, B. K.; Pilania, G.; Schneider, M. M.; Jones, A. C.; Nakotte, H.; Pettes, M. T.; Chen, A. "Effect of lattice strain on magnetism in epitaxial YcRo<sub>3</sub> films." *Materials Research Letters* (2022). DOI: 10.1080/21663831.2021.2010822.
243. Peng, S.; Lane, C.; Hu, Y.; Guo, M.; Chen, X.; Sun, Z.; Hashimoto, M.; Lu, D.; Shen, Z.-X.; Wu, T.; Chen, X.; Markiewicz, R. S.; Wang, Y.; Bansil, A.; Wilson, S. D.; He, J. "Electronic nature of the pseudogap in electron-doped sr2iro4." *Npj Quantum Materials* (2022). DOI: 10.1038/s41535-022-00467-1.
244. Perera, L. N.; Piyasena, M. E. "Acoustic focusing of microplastics in microfabricated and steel tube devices: An experimental study on the effects from particle size and medium density." *Separation and Purification Technology* (2022). DOI: 10.1016/j.seppur.2022.120649.

245. Perez, C. M.; Ghosh, D.; Prezhdo, O.; Nie, W.; Tretiak, S.; Neukirch, A. "Point defects in two-dimensional Ruddlesden–Popper perovskites explored with ab initio calculations." *Journal of Physical Chemistry Letters* (2022). DOI: 10.1021/acs.jpcclett.2c00575.
246. Pettine, J.; Nesbitt, D. J. "Emerging methods for controlling hot carrier excitation and emission distributions in nanoplasmonic systems." *Journal of Physical Chemistry C* (2022). DOI: 10.1021/acs.jpcc.2c03425.
247. Pfeifer, T. W.; Tomko, J. A.; Hoglund, E.; Scott, E. A.; Hattar, K.; Huynh, K.; Liao, M.; Goorsky, M.; Hopkins, P. E. "Measuring sub-surface spatially varying thermal conductivity of silicon implanted with krypton." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0094876.
248. Piva, M. M.; Xiang, L.; Thompson, J. D.; Bud'ko, S. L.; Ribeiro, R. A.; Canfield, P. C.; Rosa, P. F. S. "Effects of external pressure on the narrow-gap semiconductor  $Ce_3Cd_2As_6$ ." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.105.094443.
249. Poerwoprajitno, A. R.; Gloag, L.; Watt, J.; Cheong, S.; Miller, B. K.; Huber, D. L.; Tilley, R. D. "In-situ ETEM reveals formation mechanism of single Pt atom on Ru nanoparticle electrocatalysts for co-resilient methanol oxidation: Microscopy and microanalysis." *Microscopy and Microanalysis* (2022). DOI: 10.1017/S1431927622001428.
250. Poerwoprajitno, A. R.; Gloag, L.; Watt, J.; Cheong, S.; Tan, X.; Lei, H.; Tahini, H. A.; Henson, A.; Subhash, B.; Bedford, N. M.; Miller, B. K.; O'Mara, P. B.; Benedetti, T. M.; Huber, D. L.; Zhang, W.; Smith, S. C.; Gooding, J. J.; Schuhmann, W.; Tilley, R. D. "A single-Pt-atom-on-Ru-nanoparticle electrocatalyst for co-resilient methanol oxidation." *Nature Catalysis* (2022). DOI: 10.1038/s41929-022-00756-9.
251. Pokharel, K.; Lane, C.; Furness, J. W.; Zhang, R.; Ning, J.; Barbiellini, B.; Markiewicz, R. S.; Zhang, Y.; Bansil, A.; Sun, J. "Sensitivity of the electronic and magnetic structures of cuprate superconductors to density functional approximations." *Npj Computational Materials* (2022). DOI: 10.1038/s41524-022-00711-z.
252. Porter, S. J.; Liu, C. H.; Pham, H.; Ghosh, A.; Watt, J.; Kyriakidou, E. A.; Datye, A. K. "Epitaxy of the metal and oxide phases in Pt-Pd 'Janus' particles in 800°C air-aged diesel oxidation catalysts." *Microscopy and Microanalysis* (2022). DOI: 10.1017/S1431927622009497.
253. Poudel, Y. R.; Zhao, X.; Jungjohann, K. L.; Thapa, A.; Guo, R.; Li, W. " $Ni_3S_2$  nanowires filled carbon nanotubes of ultra-high quality: Synthesis methods, structure, and electrical properties." *Diamond and Related Materials* (2022). DOI: 10.1016/j.diamond.2022.109156
254. Priante, D.; Zhang, M.; Albrecht, A. R.; Bek, R.; Zimmer, M.; Nguyen, C. L.; Follman, D. P.; Cole, G. D.; Sheik-Bahae, M. "In-well pumping of a membrane external-cavity surface-emitting laser." *IEEE Journal of Selected Topics in Quantum Electronics* (2022). DOI: 10.1109/JSTQE.2021.3109803.
255. Quenzel, T.; Timmer, D.; G., M.; Zablocki, J.; Zheng, F.; Schiek, M.; Lützen, A.; Frauenheim, T.; Tretiak, S.; Silies, M.; Zhong, J. H.; De Sio, A.; Lienau, C. "Plasmon-enhanced exciton delocalization in squaraine-type molecular aggregates." *ACS Nano* (2022). DOI: 10.1021/acsnano.1c11398.

256. Rahn, M. C.; Kummer, K.; Hariki, A.; Ahn, K.-H.; Kuneš, J.; Amorese, A.; Denlinger, J. D.; Lu, D.-H.; Hashimoto, M.; Rienks, E.; Valvidares, M.; Haslbeck, F.; Byler, D. D.; McClellan, K. J.; Bauer, E. D.; Zhu, J. X.; Booth, C. H.; Christianson, A. D.; Lawrence, J. M.; Ronning, F.; Janoschek, M. "Kondo quasiparticle dynamics observed by resonant inelastic x-ray scattering." *Nature Communications* (2022). DOI: 10.1038/s41467-022-33468-6.
257. Razaghi, Z.; Xie, D. Y.; Lin, M.-h.; Zhu, G.-z. "Ion beam-induced bending of TiO<sub>2</sub> nanowires with bead-like and prismatic shapes." *RSC Advances* (2022). DOI: 10.1039/d1ra09122k.
258. Ren, D.; Dong, C.; Addamane, S. J.; Burghoff, D. "High-quality microresonators in the longwave infrared based on native germanium." *Nature Communications* (2022). DOI: 10.1038/s41467-022-32706-1.
259. Richter, N. A.; Gong, M.; Zhang, Y. F.; Niu, T.; Yang, B.; Wang, J.; Wang, H.; Zhang, X. "Exploring the deformation behavior of nanotwinned Al–Zr alloy via in-situ compression." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0098497.
260. Rimsza, J.; Ilgen, A. "Water weakening of calcium oxide." *Journal of Physical Chemistry C* (2022). DOI: 10.1021/acs.jpcc.2c01343.
261. Rollins, D. S.; Easterling, C. P.; Zeppuhar, A. N.; Krawchuck, J. A.; Dreier, T. A.; Watt, J.; Huber, D. L.; Taylor, M. K. "Templated synthesis enhances the cobalt adsorption capacity of a porous organic polymer." *Nanoscale (2022 Emerging Investigators Collection)* (2022). DOI: 10.1039/D1NR06821K.
262. Rosa, P. F. S.; Weiland, A.; Fender, S. S.; Scott, B. L.; Ronning, F.; Thompson, J. D.; Bauer, E. D.; Thomas, S. M. "Single thermodynamic transition at 2 K in superconducting UTe<sub>2</sub> single crystals." *Communications Materials* (2022). DOI: 10.1038/s43246-022-00254-2.
263. Roy, P.; Kunwar, S.; Zhang, D.; Chen, D.; Corey, Z.; Rutherford, B. X.; Wang, H.; MacManus-Driscoll, J. L.; Jia, Q.; Chen, A. "Role of defects and power dissipation on ferroelectric memristive switching." *Advanced Electronic Materials* (2022). DOI: 10.1002/aelm.202101392.
264. Ruiz, I.; Vizkelethy, G.; McDonald, A. E.; Howell, S. W.; Thelen, P. M.; Goldflam, M. D.; Beechem, T. E. "Detection of high energy ionizing radiation using deeply depleted graphene–oxide–semiconductor junctions." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0118098.
265. Rutherford, B. X.; Dou, H. Y.; Zhang, B.; He, Z.; Barnard, J. P.; Paldi, R. L.; Wang, H. Y. "Single-step fabrication of Au-Fe-BaTiO<sub>3</sub> nanocomposite thin films embedded with non-equilibrium Au-Fe alloyed nanostructures." *Nanomaterials* (2022). DOI: 10.3390/nano12193460.
266. Rutherford, B. X.; Zhang, B.; Kalaswad, M.; He, Z.; Zhang, D.; Wang, X.; Liu, J.; Wang, H. "Tunable three-phase Co–CeO<sub>2</sub>–BaTiO<sub>3</sub> hybrid metamaterials with nano-mushroom-like structure for tailorable multifunctionalities." *ACS Applied Nano Materials* (2022). DOI: 10.1021/acsanm.2c00394.
267. Saadat, Y.; Kim, K.; Foudazi, R. "Two-step thermoresponsive ultrafiltration membranes from polymerization of lyotropic liquid crystals." *ACS Applied Polymer Materials* (2022). DOI: 10.1021/acsapm.2c01095.

268. Sahu, B. P.; Higgins, W. H.; Derby, B. K.; Pharr, G. M.; Misra, A. "Strain-rate dependent deformation mechanisms in single-layered Cu, Mo, and multilayer Cu/Mo thin films." *Materials Science and Engineering A-Structural Materials Properties Microstructure and Processing* (2022). DOI: 10.1016/j.msea.2022.142776.
269. Sakai, H.; Tokunaga, Y.; Kambe, S.; Zhu, J.-X.; Ronning, F.; Thompson, J. D.; Kotegawa, H.; Tou, H.; Suzuki, K.; Oshima, Y.; Yokoyama, M. "Nested antiferromagnetic spin fluctuations and non-fermi-liquid behavior in electron-doped  $\text{CeCo}_{1-x}\text{Ni}_x\text{In}_5$ ." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.106.235152#fulltext.
270. Salners, T.; Curry, J. F.; Hinkle, A. R.; Babuska, t. F.; Argibay, N.; DelRio, F. W.; Chandross, M.; Dahmen, K. "Linking friction scales from nano to macro via avalanches." *Tribology Letters* (2022). DOI: 10.1007/s11249-022-01619-x.
271. Sanders, S.; Dowran, M.; Jain, U.; Lu, T.-M.; Marino, A. M.; Manjavacas, A. "Lattice resonances of nanohole arrays for quantum enhanced sensing." *Physical Review Applied* (2022). DOI: 10.1103/PhysRevApplied.17.014035.
272. Santiago-Cruz, T.; Gennaro, S. D.; Mitrofanov, O.; Addamane, S.; Reno, J.; Brener, I.; Chekhova, M. V. "Resonant metasurfaces for generating complex quantum states." *Science* (2022). DOI: 10.1126/science.abq8684.
273. Santos, A. P.; Frischknecht, A. L. "Phase behavior of polymer-grafted nanoparticles in homopolymer blends from simulations." *Macromolecules* (2022). DOI: 10.1021/acs.macromol.2c01684.
274. Santos, A. P.; Srivastava, I.; Silbert, L. E.; Lechman, J. B.; Grest, G. S. "Fluctuations and power-law scaling of dry, frictionless granular rheology near the hard-particle limit." *Physical Review Fluids* (2022). DOI: 10.1103/PhysRevFluids.7.084303.
275. Sarma, R.; Pribisova, A.; Sumner, B.; Briscoe, J. "Classification of intensity distributions of transmission eigenchannels of disordered nanophotonic structures using machine learning." *Applied Sciences* (2022). DOI: 10.3390/app12136642.
276. Sarma, R.; Xu, J.; Ceglia, D. d.; Carletti, L.; Klem, J.; Belkin, M. A.; Brener, I. "Control of second-harmonic generation in all-dielectric intersubband metasurfaces by controlling the polarity of  $x^{(2)}$  ." *Optics Express* (2022). DOI: 10.1364/OE.468709.
277. Sarma, R.; Xu, J.; de Ceglia, D.; Carletti, L.; Campione, S.; Klem, J.; Sinclair, M. B.; Belkin, M. A.; Brener, I. "An all-dielectric polaritonic metasurface with a giant nonlinear optical response." *Nano Letters* (2022). DOI: 10.1021/acs.nanolett.1c03325.
278. Scott, E. A.; Carow, A.; Pete, D.; Harris, C. T. "Comparative analysis of the sensitivity of nanometallic thin film thermometers." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/ac7650/meta.
279. Scott, E. A.; Singh, M. K.; Barber, J. P.; Rost, C. M.; Ivanov, S.; Watt, J.; Pete, D.; Sharma, P.; Lu, T.-M.; Harris, C. T. "Sensing performance of sub-100 nm vanadium oxide films for room temperature thermal detection applications." *Applied Physics Letters* (2022). DOI: 10.1063/5.0123303.
280. Scott, E. A.; Smyth, C. M.; Singh, M. K.; Lu, T.-M.; Sharma, P.; Pete, D.; Watt, J.; Harris, C. T. "Optimization of gold germanium ( $\text{Au}_{0.17}\text{Ge}_{0.83}$ ) thin films for high sensitivity resistance thermometry." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0099182.

281. Monismith, S.; Qu, J.; Remi Dingreville. "Grain-boundary fracture mechanisms in  $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$  (LLZO) solid electrolytes: When phase transformation acts as a temperature-dependent toughening mechanism." *Journal of the Mechanics and Physics of Solids* (2022). DOI: 10.1016/j.jmps.2022.104791.
282. Sharma, P. A.; Sharma, A. L. L.; Lidsky, D.; Schehrer, E.; Young, K.; Gilbert, S. J.; Siegal, M. P.; Lu, T. M. "Increased intrinsic anomalous hall effect from rare earth content in amorphous  $\text{Sm}_x\text{Co}_{1-x}$  films." *APL Materials* (2022). DOI: 10.1063/5.0068534.
283. Sharma, Y.; Lee, M. C.; Pitike, K. C.; Mishra, K. K.; Zheng, Q.; Gao, X.; Musico, B. L.; Mazza, A. R.; Katiyar, R. S.; Keppens, V.; Brahlek, M.; Yarotski, D. A.; Prasankumar, R. P.; Chen, A.; Cooper, V. R.; Ward, T. Z. "High entropy oxide relaxor ferroelectrics." *ACS Applied Materials & Interfaces* (2022). DOI: 10.1021/acsmi.2c00340.
284. Sharma, Y.; Paudel, B.; Huon, A.; Schneider, M. M.; Roy, P.; Corey, Z.; Schönemann, R.; Jones, A. C.; Jaime, M.; Yarotski, D. A.; Charlton, T.; Fitzsimmons, M. R.; Jia, Q.; Pettes, M. T.; Yang, P.; Chen, A. "Induced ferromagnetism in epitaxial uranium dioxide thin films." *Advanced Science* (2022). DOI: 10.1002/advs.202203473.
285. Shrestha, S.; Li, X.; Tsai, H.; Hou, C.-H.; Huang, H.-H.; Ghosh, D.; Shyue, J.-J.; Wang, L.; Tretiak, S.; Ma, X.; Nie, W. "Long carrier diffusion length in two-dimensional lead halide perovskite single crystals." *Chem* (2022). DOI: 10.1016/j.chempr.2022.01.008.
286. Sidebottom, M. A.; Babuska, T. F.; Ullah, S.; Heckman, N.; Boyce, B. L.; Krick, B. A. "Nanomechanical filler functionality enables ultralow wear polytetrafluoroethylene composites." *ACS Applied Materials & Interfaces* (2022). DOI: 10.1021/acsmi.2c13644.
287. Singh, A.; Huang, H. Y.; Lane, C.; Li, J. H.; Okamoto, J.; Komiya, S.; Markiewicz, R. S.; Bansil, A.; Lee, T. K.; Fujimori, A.; Chen, C. T.; Huang, D. J. "Acoustic plasmons and conducting carriers in hole-doped cuprate superconductors." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.105.235105.
288. Singh, A.; Rohilla, J.; Hassan, M. S.; Devaiah, T. C.; Ingole, P. P.; Santra, P. K.; Ghosh, D.; Sapra, S. " $\text{MoSe}_2/\text{SnS}$  nanoheterostructures for water splitting." *ACS Applied Nano Materials* (2022). DOI: 10.1021/acsnm.2c00233.
289. Singh, B.; Chernova, N. A.; Ghosh, D.; Ramanan, A. "Magneto-structural studies of manganese (II) 2, 4'-benzophenone dicarboxylate based coordination polymers." *Crystal Growth and Design* (2022). DOI: 10.1021/acs.cgd.2c00791.
290. Smyth, C. M.; Cain, J. M.; Lang, E. J.; Lu, P.; Yan, X.; Liu, S. E.; Yuan, J.; Bland, M. P.; Madden, N. J.; Ohta, T.; Sangwan, V. K.; Hersam, M. C.; Hattar, K.; Chou, S. S.; Lu, T.-M. "Resilience of monolayer  $\text{MoS}_2$  memtransistor under heavy ion irradiation." *Journal of Materials Research* (2022). DOI: 10.1557/s43578-022-00642-x.
291. Song, Y.; Zhang, C.; Lundh, J. S.; Huang, H.-L.; Zheng, Y.; Zhang, Y.; Park, M.; Mirabito, T.; Beaucejour, R.; Chae, C.; McIlwaine, N.; Esteves, G.; Beechem, T. E.; Moe, C.; Dargis, R.; Jones, J.; Leach, J. H.; Lavelle, R. M.; Snyder, D. W.; Maria, J.-P.; Olsson, R. H.; Redwing, J. M.; Ansari, A.; Hwang, J.; Wang, X.; Foley, B. M.; Trolrier-McKinstry, S. E.; Choi, S. "Growth-microstructure-thermal property relations in  $\text{AlN}$  thin films." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0106916.



292. Souza, J. C.; Thomas, S. M.; Bauer, E. D.; Thompson, J. D.; Ronning, F.; Pagliuso, P. G.; Rosa, P. F. S. "Microscopic probe of magnetic polarons in antiferromagnetic  $\text{Eu}_5\text{In}_2\text{Sb}_6$ ." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.105.035135.
293. Srinivasan, S.; Hornbuckle, B. C.; Darling, K. A.; Kim, H.; Wang, Y. Q.; Solanki, K. "Helium partitioning to the core-shelled ta nanoclusters in nanocrystalline Cu-Ta alloy." *Scripta Materialia* (2022). DOI: 10.1016/j.scriptamat.2021.114344.
294. Stangebye, S.; Lei, C.; Kinghorn, A.; Robertson, I.; Kacher, J.; Hattar, K. "Dynamics of the gold-silicon eutectic reaction studied at limited length scales using in-situ TEM and STEM." *Journal of Materials Research* (2022). DOI: 10.1557/s43578-022-00761-5. DOI: 10.1557/s43578-022-00761-5.
295. Staude, I.; Chen, H.; Miroshnichenko, A.; Takahara, J.; Padilla, W. J. "Metasurfaces for photonic devices." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0131810.
296. Steinmetz, S. A.; De La Riva, A. T.; Riley, C.; Schrader, P.; Datye, A.; Spoerke, E. D.; Kliewer, C. J. "Gas-phase hydrogen-atom measurement above catalytic and noncatalytic materials during ethane dehydrogenation." *Journal of Physical Chemistry C* (2022). DOI: 10.1021/acs.jpcc.1c09955.
297. Stevens, M. J.; Rempe, S. L. "Carboxylate binding prefers two cations to one." *Physical Chemistry Chemical Physics* (2022). DOI: 10.1039/D2CP03561H.
298. Strzelecki, A. C.; Chariton, S.; Cockreham, C. B.; Pettes, M. T.; Prakapenka, V.; Chidester, B. A.; Wu, D.; Bradley, C. R.; Euler, G. G.; Guo, X.; Boukhalifa, H.; Xu, H. "Determination of P-V equation of state of a natural clinoptilolite using high-pressure powder synchrotron x-ray diffraction." *Physics and Chemistry of Minerals* (2022). DOI: 10.1007/s00269-022-01224-3.
299. Sun, K.; Bao, Z.-Q.; Yu, W.; Hawkins, S. D.; Klem, J. F.; Pan, W.; Shi, X. "Charge transport spectra in superconductor-InAs/GaSb-superconductor heterostructures." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/ac3a36.
300. Sun, T.; Cho, J.; Shang, Z.; Niu, t.; Ding, J.; Wang, J.; Wang, H.; Zhang, X. "Deformation mechanism in nanolaminate FeCrAl alloys by in-situ micromechanical strain rate jump tests at elevated temperatures." *Scripta Materialia* (2022). DOI: 10.1016/j.scriptamat.2022.114698.
301. Gennaro, S. D.; Sarma, R.; Brener, I. "Nonlinear and ultrafast all-dielectric metasurfaces at the center for integrated nanotechnologies." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/ac7654/pdf.
302. Tafoya, R. R.; Gallegos, M. A.; Downing, J. R.; Gamba, L.; Kaehr, B.; Coker, E. N.; Hersam, M. C.; Secor, E. B. "Morphology and electrical properties of high-speed flexography-printed graphene." *Microchimica Acta* (2022). DOI: 10.1007/s00604-022-05232-6.
303. Tang, Y.; McLaughlan, J. E.; Grest, G. S.; Cheng, S. "Modeling solution drying by moving a liquid-vapor interface: Method and applications." *Polymers Special Issue Molecular Dynamics Simulations of Polymers* (2022). DOI: 10.3390/polym14193996.
304. Taylor, J. C.; Chatterjee, E.; Kindel, W. F.; Soh, D.; Eichenfield, M. "Reconfigurable quantum phononic circuits via piezo-acoustomechanical interactions." *Npj Quantum Information* (2022). DOI: 10.1038/s41534-022-00526-2.

305. Teplukhin, A.; Kendrick, B. K.; Mniszewski, S. M.; Tretiak, S.; Dub, P. A. "Sampling electronic structure quadratic unconstrained binary optimization problems (qubos) with Ocean and Mukai solvers." *PLOS ONE* (2022). DOI: 10.1371/journal.pone.0263849.
306. Thompson, A. P.; Aktulga, H. M.; Berger, R.; Bolintineanu, D. S.; Brown, W. M.; Crozier, P. S.; in 't Veld, P. J.; Kohlmeyer, A.; Moore, S. G.; Nguyen, T. D.; Shan, R.; Stevens, M. J.; Tranchida, J.; Trott, C.; Plimpton, S. J. "LAMMPS — Flexible simulation tool for particle-based materials modeling at the atomic, meso, and continuum scales." *Computer Physics Communications* (2022). DOI: 10.1016/j.cpc.2021.108171.
307. Thornton, C. S.; Tuttle, B.; Turner, E.; Law, M. E.; Pantelides, S. T.; Wang, G. T.; Jones, K. S. "The diffusion mechanism of Ge during oxidation of Si/SiGe nanofins." *ACS Applied Materials & Interfaces* (2022). DOI: 10.1021/acsmami.2c05470.
308. Thurston, B. A.; Grest, G. S.; Stevens, M. J. "Overlap concentration of sodium polystyrene sulfonate in solution." *ACS Macro Letters* (2022). DOI: 10.1021/acsmacrolett.1c00649.
309. Timmer, D.; Zheng, F.; Gittinger, M.; Quenzel, T.; Lünemann, D. C.; Winte, K.; Zhang, Y.; Madjet, M. E.; Zablocki, J.; Lützen, A.; Zhong, J.-H.; De Sio, A.; Frauenheim, T.; Tretiak, S.; Lienau, C. "Charge delocalization and vibronic couplings in quadrupolar squaraine dyes." *Journal of the American Chemical Society* (2022). DOI: 10.1021/jacs.2c08682.
310. Tingare, Y. S.; Su, C.; Lin, J.-H.; Hsieh, Y.-C.; Lin, H.-J.; Hsu, Y.-C.; Li, M.-C.; Chen, G.-L.; Tseng, K.-W.; Yang, Y.-H.; Wang, L.; Tsai, H.; Nie, W.; Li, W.-R. "Benzimidazole based hole-transporting materials for high-performance inverted perovskite solar cells." *Advanced Functional Materials* (2022). DOI: 10.1002/adfm.202201933.
311. Titze, M.; Byeon, H.; Flores, A.; Henshaw, J.; Harris, C. T.; Mounce, A. M.; Bielejec, E. S. "In-situ ion counting for improved implanted ion error rate and silicon vacancy yield uncertainty." *Nano Letters* (2022). DOI: 10.1021/acs.nanolett.1c04646.
312. Titze, M.; Katzenmeyer, A.; Chandrasekaran, V.; Flores, A.; Doyle, B.; Wang, Y.; Htoon, H.; Bielejec, E. "Expanding the energy range from eV to MeV and fabrication of sources enabling novel focused ion beam nanofabrication and modification." *Microscopy and Microanalysis* (2022). DOI: 10.1017/S1431927622000940.
313. Tracy, D. A.; Fernandez-Alberti, S.; Tretiak, S.; Roitberg, A. E. "Adiabatic excited-state molecular dynamics with an explicit solvent: NEXMD-SANDER implementation." *Journal of Chemical Theory and Computation* (2022). DOI: 10.1021/acs.jctc.2c00561.
314. Trugman, S. A. B., J. "Electron removal spectral function of a polaron coupled to dispersive optical phonons." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.106.174303.
315. Tsai, H.; Ghosh, D.; Panaccione, W.; Su, L. Y.; Hou, C.-H.; Wang, L.; Cao, L. R.; Tretiak, S.; Nie, W. "Addressing the voltage induced instability problem of perovskite semiconductor detectors." *ACS Energy Letters* (2022). DOI: 10.1021/acsenerylett.2c02054.
316. Tsai, H.; Huang, H.-H.; Watt, J.; Hou, C.-H.; Strzalka, J.; Shyue, J.-J.; Wang, L.; Nie, W. "Cesium lead halide perovskite nanocrystals assembled in metal-organic frameworks for stable blue light emitting diodes." *Advanced Science* (2022). DOI: 10.1002/advs.202105850.

317. Tsai, H.; Shrestha, S.; Pan, L.; Huang, H. H.; Strzalka, J.; Williams, D.; Wang, L.; Cao, L. R.; Nie, W. "Quasi-2S perovskite crystalline layers for printable direct conversion x-ray imaging." *Advanced Materials* (2022). DOI: 10.1002/adma.202106498.
318. Tsitkov, S.; Rodriguez, J. B.; Bassir Kazeruni, N. M.; Sweet, M.; Nitta, T.; Hess, H. "The rate of microtubule breaking increases exponentially with curvature." *Scientific Reports* (2022). DOI: 10.1038/s41598-022-24912-0.
319. Turner, E. M.; Campbell, Q.; Avci, I.; Weber, W. J.; Lu, P.; Wang, G. T.; Jones, K. S. "Selective amorphization of SiGe in Si/SiGe nanostructures via high energy Si<sup>+</sup> implant." *Journal of Applied Physics* (2022). DOI: 10.1063/5.0094185.
320. Vetterick, G.; Hung, C.-Y.; Hopkins, E.; Baldwin, J. K.; Baldo, P.; Kirk, M. A.; Misra, A.; He, S.; Marian, J.; Taheri, M. L. "Temperature effects on the radiation damage morphology in nanocrystalline iron." *Scripta Materialia* (2022). DOI: 10.1016/j.scriptamat.2022.114607.
321. Vigneshwaran, J.; Narayan, R. L.; Ghosh, D.; Chakkravarthy, V.; Jose, S. P. "Robust hierarchical three dimensional nickel cobalt tungstate-MXene nanocomposite for high performance symmetric coin cell supercapacitors." *Journal of Energy Storage* (2022). DOI: 10.1016/j.est.2022.106102.
322. Vizoso, D.; Deo, C.; Dingreville, R. "The effects of dose, dose rate, and irradiation type and their equivalence on radiation-induced segregation in binary alloy systems via phase-field simulations." *Journal of Nuclear Materials* (2022). DOI: 10.1016/j.jnucmat.2022.153924.
323. Wang, B.; Jackson, S.; Nakano, A.; Nomura, K.-I.; Vashishta, P.; Kalia, R.; Stevens, M. "Neural network for principle of least action." *Journal of Chemical Information and Modeling* (2022). DOI: 10.1021/acs.jcim.2c00515.
324. Wang, J.; O'Connor, T. C.; Grest, G. S.; Ge, T. "Super stretchable elastomer from cross-linked ring polymers." *Physical Review Letters* (2022). DOI: 10.1103/PhysRevLett.128.237801.
325. Wang, X.; Jin, K.; Wong, C. Y.; Chen, D.; Bei, H.; Wang, Y. Q.; Ziatdinov, M.; Weber, W. J.; Zhang, Y.; Poplawsky, J.; More, K. L. "Understanding effects of chemical complexity on helium bubble formation in Ni-based concentrated solid solution alloys based on elemental segregation measurements." *Journal of Nuclear Materials* (2022). DOI: 10.1016/j.jnucmat.2022.153902.
326. Wang, X.; Lin, Y.-C.; Tai, C.-T.; Lee, S. W.; Lu, T.-M.; Shin, S. H.; Addamane, S. J.; Sheehan, C.; Li, J.-Y.; Kim, Y.; Yoo, J. "Formation of tubular conduction channel in a SiGe (P)/Si core/shell nanowire heterostructure." *APL Materials* (2022). DOI: 10.1063/5.0119654.
327. Wang, Y.; Liu, Y.; Nguyen, M.; Cho, J.; Katyal, N.; Vishnugopi, B. S.; Hao, H.; Fang, R.; Wu, N.; Liu, P.; Mukherjee, P. P.; Nanda, J.; Henkelman, G.; Watt, J.; Mitlin, D. "Stable anode-free all-solid-state lithium battery through tuned metal wetting on the copper current collector." *Advanced Materials* (2022). DOI: 10.1002/adma.202206762.
328. Weiland, A.; Thomas, S. M.; Rosa, P. F. "Investigating the limits of superconductivity in UTe<sub>2</sub>." *Journal of Physics Materials* (2022). DOI: 10.1088/2515-7639/ac8ba9.
329. Wenson, G.; Tsai, H.; Thakkar, H.; Stein, J. S.; Singh, R.; Nie, W. "The degradation and recovery behavior of mix-cations perovskite solar cells in moisture and gas mixture environment." *Journal of Materials*

*Chemistry A* (2022). DOI: 10.1039/D2TA02352K.

330. White, B. C.; Garland, A.; Boyce, B. L. "Topological homogenization of metamaterial variability." *Materials Today* (2022). DOI: 10.1016/j.mattod.2022.01.021.
331. White, B. C.; Garland, A. P.; Boyce, B. L. "Toughening by interpenetrating lattices." *Matter* (2022). DOI: 10.1016/j.matt.2022.11.025.
332. Whiting, E. B.; Goldflam, M. D.; Kang, L.; Sinclair, M. B.; Musick, K. M.; Campbell, S. D.; Burckel, D. B.; Werner, D. H. "Broadband asymmetric transmission of linearly polarized mid-infrared light based on quasi-3D metamaterials." *Advanced Functional Materials* (2022). DOI: 10.1002/adfm.202109659.
333. Wu, X.; Liu, B.; Frauenheim, T.; Tretiak, S.; Yam, C. Y.; Zhang, Y. "Investigation of plasmon relaxation mechanisms using nonadiabatic molecular dynamics." *Journal of Chemical Physics* (2022). DOI: 10.1063/5.0127435.
334. Wu, X.; Wen, S.; Song, H.; Frauenheim, T.; Tretiak, S.; Yam, C. Y.; Zhang, Y. "Nonadiabatic molecular dynamics simulations based on time-dependent density functional tight-binding method." *Journal of Chemical Physics* (2022). DOI: 10.1063/5.0100339.
335. Wu, Y.; Curwen, C. A.; Hayton, D. J.; Reno, J. L.; Williams, B. S. "Continuous wave operation of terahertz metasurface quantum-cascade vecsel with a long intra-cryostat cavity." *Applied Physics Letters* (2022). DOI: 10.1063/5.0107667.
336. Wygant, B. R.; Kolesnichenko, I. V.; Schorr, N. B.; Harrison, K. L.; Lambert, T. N. "Multispecies lithiation/delithiation of amorphous FeS<sub>x</sub>/C cathode material for Li batteries." *Journal of Physical Chemistry C* (2022). DOI: 10.1021/acs.jpcc.2c01634.
337. Wygant, B. R.; Schorr, N. B.; Kolesnichenko, I. V.; Lambert, T. N. "Nanoparticulate FeF<sub>2</sub>@C as a Li battery conversion cathode." *ACS Applied Energy Materials* (2022). DOI: 10.1021/acsaem.2c01988.
338. Xu, C.; Cao, C.; Zhu, J.-X. "Pressure-induced concomitant topological and metal-insulator quantum phase transitions in Ce<sub>3</sub>Pd<sub>3</sub>Bi<sub>4</sub>." *Npj Quantum Materials* (2022). DOI: 10.1038/s41535-022-00427-9.
339. Yadav, D.; Chen, P.; Xiang, S.; Wang, Y.; Baldwin, J. K.; Evans, P.; Williams, N.; Demkowicz, M. J.; Xie, K. Y. "Outgassing of implanted He via short circuit transport along phase and grain boundaries in vapor co-deposited Cu-W nanocomposites." *Acta Materialia* (2022). DOI: 10.1016/j.actamat.2022.118306.
340. Yadav, G. G.; Weiner, M.; Upreti, A.; Huang, J.; Lambert, T. N.; Arnot, D. J.; Schorr, N. B.; Bell, N. S.; Turney, D.; Hawkins, B.; Wei, X.; Lim, M.; Banerjee, S. "The advent of membrane-less zinc-anode aqueous batteries with lithium battery-like voltage." *Materials Horizons* (2022). DOI: 10.1039/d2mh00280a.
341. Yan, Z.; Chaluvadi, A.; FitzGerald, S.; Spence, S.; Bleyer, C.; Zhu, J.; Crawford, T. M.; Getman, R. B.; Watt, J.; Huber, D. L.; Mefford, O. T. "Effect of manganese substitution of ferrite nanoparticles on particle grain structure." *Nanoscale Advances* (2022). DOI: 10.1039/D2NA00200K.
342. Yang, C.; Olsen, T.; Lau, M. L.; Smith, K. A.; Hattar, K.; Sen, A.; Wu, Y.; Hou, D.; Narayanan, B.; Long, M.; Wharry, J. P.; Xiong, H. "In-situ ion irradiation of amorphous TiO<sub>2</sub> nanotubes." *Journal of Materials Research* (2022). DOI: 10.1557/s43578-022-00516-2.

343. Yang, K. M.; Liu, G. S.; Ma, H. Y.; Song, J.; Li, Q.; Chen, N. Q.; Wang, Y. Q.; Chen, D. Y.; Liu, D. T.; Fan, X. "Formation of misfit dislocation arrays and helium nanochannels near copper surface assisted by high-temperature graphene deposition." *Acta Materialia* (2022). DOI: 10.1016/j.actamat.2022.118134.
344. Yu, X.; Nikitin, V.; Ching, D. J.; Aslan, S.; Gursoy, D.; Bicer, T. "Scalable and accurate multi-gpu-based image reconstruction of large-scale ptychography data." *Scientific Reports* (2022). DOI: 10.1038/s41598-022-09430-3.
345. Yu, Z.; Xu, X.; Chen, W. Y.; Sharma, Y.; Wang, X.; Chen, A.; Ulmer, C. J.; Motta, A. T. "In-situ irradiation-induced studies of grain growth kinetics of nanocrystalline Uo<sub>2</sub>." *Acta Materialia* (2022). DOI: 10.1016/j.actamat.2022.117856.
346. Yuan, L.; Pokharel, R.; Devkota, S.; Kuchoor, H.; Dawkins, K.; Lee, M.-C.; Huang, Y.; Yarotski, D.; Iyer, S.; Prasankumar, R. P. "Revealing charge carrier dynamics and transport in Te-doped GaAsSb and GaAsSbN nanowires by correlating ultrafast terahertz spectroscopy and optoelectronic characterization." *Nanotechnology* (2022). DOI: 10.1088/1361-6528/ac7d61/.
347. Zhang, D.; Gao, X.; Lu, J.; Lu, P.; Deitz, J.; Shen, J.; Dou, H.; He, Z.; Shang, Z.; Wade, C. A.; Zhang, X.; Chen, A.; Wang, H. "Novel self-assembled two-dimensional layered oxide structure incorporated with Au nanoinclusions towards multifunctionalities." *Nano Research* (2022). DOI: 10.1007/s12274-022-4663-1.
348. Zhang, D.; Lu, J.; Gao, X.; Lu, P.; Shen, J.; Dou, H.; He, Z.; Wang, H. "Reveal of magnetic domains and tunable supercell structures in two-dimensional layered oxide thin film via differential phase contrast imaging and atomic-resolution stem." *Microscopy and Microanalysis* (2022). DOI: 10.1017/S1431927622006766.
349. Zhang, R.; Singh, B.; Lane, C.; Kidd, J.; Zhang, Y.; Barbiellini, B.; Markiewicz, R. S.; Bansil, A.; Sun, J. "Critical role of magnetic moments in heavy-fermion materials: Revisiting SmB<sub>6</sub>." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.105.195134#fulltext.
350. Zhang, S.; Zhang, G.; Liu, Z.; He, Z.; Feng, X.; Yang, S.; Ding, G.; Wang, G.; Wang, Y. "Dual-mode surface-enhanced Raman scattering sensors assembled from graphene plasmonic nanoresonator on photoactive soi." *Journal of Materials Chemistry C* (2022). DOI: 10.1039/D2TC01880B.
351. Zhang, Y.; Cincio, L.; Negre, C. F.; Czarnik, P.; Coles, P. J.; Anisimov, P. M.; Mniszewski, S. M.; Tretiak, S.; Dub, P. A. "Variational quantum eigensolver with reduced circuit complexity." *Npj Quantum Information* (2022). DOI: 10.1038/s41534-022-00599-z.
352. Zhang, Y.; Li, N.; Schneider, M. M.; Nizolek, T. J.; Capolungo, L.; McCabe, R. J. "Kink mechanism in Cu/Nb nanolaminates explored by in-situ pillar compression." *Acta Materialia* (2022). DOI: 10.1016/j.actamat.2022.118150.
353. Zhang, Y.; Niu, T.; Richter, N. A.; Sun, T.; Li, N.; Wang, H.; Zhang, X. "Tribological behaviors of nanotwinned Al alloys." *Applied Surface Science* (2022). DOI: 10.1016/j.apsusc.2022.154108.
354. Zhang, Y.; Zhang, D.; Liu, J.; Lu, P.; Deitz, J.; Shen, J.; He, Z.; Zhang, X.; Wang, H. "Self-assembled HfO<sub>2</sub>-Au nanocomposites with ultra-fine vertically aligned Au nanopillars." *Nanoscale* (2022). DOI: 10.1039/D2NR03104C.

355. Zhang, Y. F.; Gigax, J. G.; Nizolek, T. J.; Carpenter, J. S.; Schneider, M. M.; Li, N.; Capolungo, L.; McCabe, R. J. "Tensile and failure behaviors of Cu/Nb nanolaminates: The effects of loading direction, layer thickness, and annealing." *Acta Materialia* (2022). DOI: 10.1016/j.actamat.2022.118346.
356. Zhao Huang, C. S. T., Jian-Xin Zhu, and Shi-Zeng Lin. "Gapless Higgs mode in the Fulde-Ferrell-Larkin-Ovchinnikov state of a superconductor." *Physical Review B* (2022). DOI: 10.1103/PhysRevB.105.014502.
357. Zhao, X.; Tang, J.; Pei, K.; Wang, W.; Lin, S. Z.; Du, H.; Tian, M.; Che, R. "Current-induced magnetic skyrmions with controllable polarities in the helical phase." *Nano Letters* (2022). DOI: 10.1021/acs.nanolett.2c02061.
358. Zheng, Y.; Han, Y.; Weight, B. M.; Lin, Z.; Gifford, B. J.; Zheng, M.; Kilin, D.; Kilina, S.; Doorn, S. K.; Htoon, H.; Tretiak, S. "Photochemical spin-state control of binding configuration for tailoring organic color center emission in carbon nanotubes." *Nature Communications* (2022). DOI: 10.1038/s41467-022-31921-0.
359. Zhou, G.; Lubbers, N.; Barros, K.; Tretiak, S.; Nebgen, B. "Deep learning of dynamically responsive chemical Hamiltonians with semiempirical quantum mechanics." *Proceedings of the National Academy of Sciences of the United States of America* (2022). DOI: 10.1073/pnas.2120333119.
360. Zhu, C.; Schorr, N. B.; Qi, Z.; Wygant, B. R.; Turney, D. E.; Yadav, G. G.; Worsley, M. A.; Duoss, E. B.; Banerjee, S.; Spoerke, E. D.; van Buuren, A.; Lambert, T. N. "Direct ink writing of 3D Zn structures as high-capacity anodes for rechargeable alkaline batteries." *Small Structures* (2022). DOI: 10.1002/sstr.202200323.
361. Zhu, J.-X. "Heavy fermions multipole polaron roams the devil's staircase." *Nature Materials* (2022). DOI: 10.1038/s41563-022-01218-0.
362. Zhu, L.-G.; Sheng, Z.; Schneider, H.; Chen, H.-T.; Tani, M. "Ultrafast phenomena and terahertz waves: Introduction." *Journal of the Optical Society of America B* (2022). DOI: 10.1364/JOSAB.457128.