LIST OF MRSEC-SUPPORTED PUBLICATIONS

2022–2023 [177]

March 1, 2022 – February 28, 2023

IRG-1 [5]

a. Primary MRSEC Support that Acknowledge the MRSEC Award DMR-1720256 [2]

1. J.A. Mayer, R. **Seshadri**, Electron count dictates phase separation in Heusler alloys, *Phys. Rev. Mater.* **6** (2022) 054406. DOI: 10.1103/PhysRevMaterials.6.054406
2. F. Walsh, A.R. Natarajan, A. **Van der Ven**, Order parameters for antiferromagnetic structures: A first-principles study of iridium manganese, *Phys. Rev. Mater.* **6** (2022) 044402. DOI: 10.1103/PhysRevMaterials.6.044402

b. Partial MRSEC Support that Acknowledge the MRSEC Award DMR-1720256 [3]

3. M. Alfreider, G. Balbus, F. Wang, J. Zechner, D.S. **Gianola**, D. Kiener, Interface mediated deformation and fracture of an elastic–plastic bimaterial system resolved by in situ transmission scanning electron microscopy, *Mater. Des.* **223** (2022) 111136. DOI: 10.1016/j.matdes.2022.111136
4. C. Bean, F. Wang, M.A. Charpagne, P. Villechaise, V. Valle, S.R. Agnew, D.S. **Gianola**, T.M. **Pollock**, J.C. Stinville, Heterogeneous slip localization in an additively manufactured 316L stainless steel, *Int. J. Plast.* **159** (2022) 103436. DOI: 10.1016/j.ijplas.2022.103436
5. L.H. Mills, M.G. Emigh, C.H. Frey, N.R. Philips, S.P. Murray, J. Shin, D.S. **Gianola**, T.M. **Pollock**, Temperature-dependent tensile behavior of the HfNbTaTiZr multi-principal element alloy, *Acta Mater.* **245** (2023) 118618. DOI: 10.1016/j.actamat.2022.118618

IRG-2 [9]

a. Primary MRSEC Support that Acknowledge the MRSEC Award DMR-1720256 [3]

6. G.H. **Fredrickson**, S. Xie, J. Edmund, M.L. Le, D. Sun, D.J. Grzetic, D.L. Vigil, K.T. Delaney, M.L. **Chabinyc**, R.A. **Segalman**, Ionic compatibilization of polymers, *ACS Polym. Au* **2** (2022) 299–312. DOI: 10.1021/acspolymersau.2c00026
7. S.D. Jones, J. Bamford, G.H. **Fredrickson**, R.A. **Segalman**, Decoupling ion transport and matrix dynamics to make high performance solid polymer electrolytes, *ACS Polym. Au* **2** (2022) 430–448. DOI: 10.1021/acspolymersau.2c00024

8. S. Xie, A. Nikolaev, O.A. Nordness, L.C. Llanes, S.D. Jones, P.M. Richardson, H. Wang, R.J. **Clément**, J. **Read de Alaniz**, R.A. **Segalman**, Polymer electrolyte based on cyano-functionalized polysiloxane with enhanced salt dissolution and high ionic conductivity, *Macromolecules* **55** (2022) 5723–5732. DOI: 10.1021/acs.macromol.2c00329

b. Partial MRSEC Support that Acknowledge the MRSEC Award DMR-1720256 [6]

9. S.P.O. Danielsen, B.J. Thompson, G.H. **Fredrickson**, T-Q. **Nguyen**, G.C. Bazan, R.A. **Segalman**, Ionic tunability of conjugated polyelectrolyte solutions, *Macromolecules* **55** (2022) 3437–3448. DOI: 10.1021/acs.macromol.2c00178
10. G.H. **Fredrickson**, K.T. Delaney. (2023) *Field-Theoretic Simulations in Soft Matter and Quantum Fluids*. Oxford, U.K.: Oxford University Press. DOI: 10.1093/oso/9780192847485.001.0001
11. S. Jiao, D.M. Rivera Mirabal, A.J. DeStefano, R.A. **Segalman**, S. Han, M.S. Shell, Sequence modulates polypeptoid hydration water structure and dynamics, *Biomacromolecules* **23** (2022) 1745–1756. DOI: 10.1021/acs.biomac.1c01687
12. X.Z. Meng, F.H. Käfer, G.M. Wallraff, C.K. Ober, R.A. **Segalman**, (2022), 'Controlled sequence peptoids as photoresist platforms for high-resolution DUV/EUV photoresists', *Proceedings Vol. 12292, International Conference on Extreme Ultraviolet Lithography 2022; 122920Q*. Event: SPIE Photomask Technology + EUV Lithography, September 25–29, 2022, Monterey, California. DOI: 10.1117/12.2642965
13. G. Pace, O. Nordness, K. Asham, R.J. **Clément**, R.A. **Segalman**, Impact of side chain chemistry on lithium transport in mixed ion–electron-conducting polymers, *Chem. Mater.* **34** (2022) 4672–4681. DOI: 10.1021/acs.chemmater.2c00592
14. X. Wang, C. Zhang, M. Sawczyk, J. Sun, Q. Yuan, F. Chen, T.C. Mendes, P.C. Howlett, C. Fu, Y. Wang, X. Tan, D.J. Searles, P. Král, C.J. **Hawker**, A.K. Whittaker, M. Forsyth, Ultra-stable all-solid-state sodium metal batteries enabled by perfluoropolyether-based electrolytes, *Nat. Mater.* **21** (2022) 1057–1065. DOI: 10.1038/s41563-022-01296-0

IRG-3 [20]

a. Primary MRSEC Support that Acknowledge the MRSEC Award DMR-1720256 [10]

15. M. Areyano, E. Valois, I. Sanchez Carvajal, I. Rajkovic, W.R. Wonderly, A. Kossa, R.M. **McMeeking**, J.H. **Waite**, Viscoelastic analysis of mussel threads reveals energy dissipative mechanisms, *J.R. Soc. Interface* **19** (2022) 20210828. DOI: 10.1098/rsif.2021.0828
16. C.W. Barney, M.E. **Helgeson**, M.T. **Valentine**, Network structure influences bulk modulus of nearly incompressible filled silicone elastomers, *Extreme Mech. Lett.* **52** (2022) 101616. DOI: 10.1016/j.eml.2022.101616
17. C.W. Barney, M.T. **Valentine**, M.E. **Helgeson**, Strength of fluid-filled soft composites across the elastofracture length, *Soft Matter* **18** (2022) 4897–4904. DOI: 10.1039/D2SM00177B

18. A.L. Chau, P.T. Getty, A.R. Rhode, C.M. **Bates**, C.J. **Hawker**, A.A. **Pitenis**, Superlubricity of pH-responsive hydrogels in extreme environments, *Front. Chem*. **10** (2022) 891519. DOI: 10.3389/fchem.2022.891519
19. J. Chen, A. Rizvi, J.P. Patterson, C.J. **Hawker**, Discrete libraries of amphiphilic poly(ethylene glycol) graft copolymers: Synthesis, assembly, and bioactivity, *J. Am. Chem. Soc.* **144** (2022) 19466–19474. DOI: 10.1021/jacs.2c07859
20. R. Goh, E. Yoshida, E. Schaible, R. Behrens, C.A. Monnier, B. Killingsworth, K.W. Kong, S.H. Hiew, A. Miserez, S. Hoon, J.H. **Waite**, Nanolattice-forming hybrid collagens in protective shark egg cases, *Biomacromolecules* **23** (2022) 2878–2890. DOI: 10.1021/acs.biomac.2c00341
21. Y. Kwon, S.E. Seo, J. Lee, S. Berezvai, J. **Read de Alaniz**, C.D. Eisenbach, R.M. **McMeeking**, C.J. **Hawker**, M.T. **Valentine**, 3D-printed polymer foams maintain stiffness and energy dissipation under repeated loading, *Compos. Commun.* **37** (2023) 101453. DOI: 10.1016/j.coco.2022.101453
22. E.A. Murphy, Y.-Q. Chen, K. Albanese, J.R. Blankenship, A. Abdilla, M.W. Bates, C. Zhang, C.M. **Bates**, C.J. **Hawker**, Efficient creation and morphological analysis of ABC triblock terpolymer libraries, *Macromolecules* **55** (2022) 8875–8882. DOI: 10.1021/acs.macromol.2c01480
23. L.L. Robinson, E.S. Taddese, J.L. Self, C.M. **Bates**, J. **Read de Alaniz**, Z. Geng, C.J. **Hawker**, Neighboring group participation in ionic covalent adaptable networks, *Macromolecules* **55** (2022) 9780–9789. DOI: 10.1021/acs.macromol.2c01618
24. W.R. Wonderly, T.T.D. Nguyen, K.G. Malollari, D. DeMartini, P. Delparastan, E. Valois, P.B. Messersmith, M.E. **Helgeson**, J.H. **Waite**, A multi-tasking polypeptide from bloodworm jaws: Catalyst, template, and copolymer in film formation, *Matter* **5** (2022) 1890–1908. DOI: 10.1016/j.matt.2022.04.001

b. Partial MRSEC Support that Acknowledge the MRSEC Award DMR-1720256 [10]

25. S.J. Bailey, C.W. Barney, N.J. Sinha, S.V. Pangali, C.J. **Hawker**, M.E. **Helgeson**, M.T. **Valentine**, J. **Read de Alaniz**, Rational mechanochemical design of Diels–Alder crosslinked biocompatible hydrogels with enhanced properties, *Mater. Horiz*. **9** (2022) 1947–1953. DOI: 10.1039/D2MH00338D
26. M. Ciavarella, A. Papangelo, R. **McMeeking**, Transient and steady state viscoelastic crack propagation in a double cantilever beam specimen, *Int. J. Mech. Sci.* **229** (2022) 107510. DOI: 10.1016/j.ijmecsci.2022.107510
27. M. Ciavarella, T. Zhang, R.M. **McMeeking**, External work rate and dissipation during crack growth in a viscoelastic material, *J. Mech. Phys. Solids* **169** (2022) 105096. DOI: 10.1016/j.jmps.2022.105096
28. A. Kossa, M.T. **Valentine**, R.M. **McMeeking**, Analysis of the compressible, isotropic, neo-Hookean hyperelastic model, *Meccanica* **58** (2023) 217–232. DOI: 10.1007/s11012-022-01633-2

29. Y. Luo, M. Gu, C.E.R. Edwards, M.T. **Valentine**, M.E. **Helgeson**, High-throughput microscopy to determine morphology, microrheology, and phase boundaries applied to phase separating coacervates, *Soft Matter* **18** (2022) 3063–3075. DOI: 10.1039/D1SM01763B
30. S. Najafi, J. McCarty, K.T. Delaney, G.H. **Fredrickson**, J.E. **Shea**. (2023). Field-theoretic simulation method to study the liquid–liquid phase separation of polymers. In: H.X. Zhou, J.H. Spille, P.R. Banerjee, (eds) *Phase-Separated Biomolecular Condensates. Methods in Molecular Biology*, Vol. **2563**. Humana, New York, NY. DOI: 10.1007/978-1-0716-2663-4_2
31. M. Nguyen, N. Sherck, K. Shen, C.E.R. Edwards, B. Yoo, S. Köhler, J.C. Speros, M.E. **Helgeson**, K.T. Delaney, M.S. Shell, G.H. **Fredrickson**, Predicting polyelectrolyte coacervation from a molecularly informed field-theoretic model, *Macromolecules* **55** (2022) 9868–9879. DOI: 10.1021/acs.macromol.2c01759
32. M. Park, F. Stricker, J. Guillen Campos, K.D. Clark, J. Lee, Y. Kwon, M.T. **Valentine**, J. **Read de Alaniz**, Design of surface-aligned main-chain liquid-crystal networks prepared under ambient, light-free conditions using the Diels–Alder cycloaddition, *ACS Macro Lett.* **12** (2023) 33–39. DOI: 10.1021/acsmacrolett.2c00616
33. R. Sengupta, M.D. Tikekar, K.T. Delaney, M.C. Villet, G.H. **Fredrickson**, Interfacial reaction-induced roughening in polymer thin films, *Soft Matter* **18** (2022) 2936–2950. DOI: 10.1039/D2SM00150K
34. R. Sengupta, M.D. Tikekar, J.V. Raj, K.T. Delaney, M.C. Villet, G.H. **Fredrickson**, Phase-field simulations of morphology development in reactive polymer blending, *J. Rheol.* **67** (2023) 1. DOI: 10.1122/8.0000523

SEED [2]

a. Primary MRSEC Support that Acknowledge the MRSEC Award DMR-1720256 [0]

None

b. Partial MRSEC Support that Acknowledge the MRSEC Award DMR-1720256 [2]

35. N. Conrad, G. Chang, D.K. Fygenson, O.A. **Saleh**, Emulsion imaging of a DNA nanostar condensate phase diagram reveals valence and electrostatic effects, *J. Chem. Phys*. **157** (2022) 234203. DOI: 10.1063/5.0130808
36. B.K. Mai, N.M. Neris, Y. **Yang**, P. Liu, C–N bond forming radical rebound is the enantioselectivity-determining step in P411-catalyzed enantioselective C(sp^3)–H amination: A combined computational and experimental investigation, *J. Am. Chem. Soc.* **144** (2022) 11215–11225. DOI: 10.1021/jacs.2c02283

iSUPERSEED [3]

a. Primary MRSEC Support that Acknowledge the MRSEC Award DMR-1720256 [2]

37. R. Adkins, I. Kolvin, Z. You, S. Witthaus, M.C. **Marchetti**, Z. **Dogic**, Dynamics of active liquid interfaces, *Science* **377** (2022) 768–772. DOI: 10.1126/science.abo5423
38. A. Hopkins, M. Chiang, B. Loewe, D. Marenduzzo, M.C. **Marchetti**, Local yield and compliance in active cell monolayers, *Phys. Rev. Lett*. **129** (2022) 148101. DOI: 10.1103/PhysRevLett.129.148101

b. Partial MRSEC Support that Acknowledge the MRSEC Award DMR-1720256 [1]

39. A. Hernandez, M.F. Staddon, M.J. **Bowick**, M.C. **Marchetti**, M. Moshe, Anomalous elasticity of a cellular tissue vertex model, *Phys. Rev. E* **105** (2022) 064611. DOI: 10.1103/PhysRevE.105.064611

SHARED FACILITIES [138]

40. N.A. Aadit, A. Grimaldi, M. Carpentieri, L. Theogarajan, J.M. Martinis, G. Finocchio, K.Y. Camsari, Massively parallel probabilistic computing with sparse Ising machines, *Nat. Electron.* **5** (2022) 460–468. DOI: 10.1038/s41928-022-00774-2
41. A. Agee, T.M. Gill, G. Pace, R. **Segalman**, A. Furst, Electrochemical characterization of biomolecular electron transfer at conductive polymer interfaces, *J. Electrochem. Soc.* **170** (2023) 016509. DOI: 10.1149/1945-7111/acb239
42. B. Ahmadikia, L. Wang, M.A. Kumar, I.J. Beyerlein, Grain boundary slip – twin transmission in titanium, *Acta Mater.* **244** (2023) 118556. DOI: 10.1016/j.actamat.2022.118556
43. J. Ahn, Y. Ha, R. Satish, R. Giovine, L. Li, J. Liu, C. Wang, R.J. **Clément**, R. Kostecki, W. Yang, G. Chen, Exceptional cycling performance enabled by local structural rearrangements in disordered rocksalt cathodes, *Adv. Energy Mater.* **12** (2022) 2200426. DOI: 10.1002/aenm.202200426
44. A. Angiuli, N. Detering, J-P. Fouque, M. Laurière, J. Lin, (2022), 'Reinforcement learning for intra-and-inter-bank borrowing and lending mean field control game', *ICAIF '22: Proc. of the Third ACM International Conference on AI in Finance*, New York, NY, November 2–4, 2022, pp. 369–376. DOI: 10.1145/3533271.3561743
45. C. Asokan, M. Xu, S. Dai, X. Pan, P. Christopher, Synthesis of atomically dispersed Rh catalysts on oxide supports via strong electrostatic adsorption and characterization by cryogenic infrared spectroscopy, *J. Phys. Chem. C* **126** (2022) 18704–18715. DOI: 10.1021/acs.jpcc.2c05426
46. S.W. Baek, K.E. Wyckoff, D.D. Robertson, M. Frajnkovič, Y. Zhou, S.H. Tolbert, R. **Seshadri**, L. Pilon, *Operando* calorimetry investigation of particle size effects on heat generation in Wadsley–Roth $(W_{0.2}V_{0.8})_3O_7$-based electrodes, *ACS Appl. Energy Mater.* **6** (2023) 1355–1367. DOI: 10.1021/acsaem.2c03150
47. E. Bayat, R. Egan, D. Bochkov, A. Sauret, F. Gibou, A sharp numerical method for the simulation of Stefan problems with convective effects, *J. Comput. Phys.* **471** (2022) 111627. DOI: 10.1016/j.jcp.2022.111627

48. S.S. Behara, A. **Van der Ven**, Ferroelectric HfO_2 and the importance of strain, *Phys. Rev. Mater*. **6** (2022) 054403. DOI: 10.1103/PhysRevMaterials.6.054403
49. S. Bhunia, A. Peña-Duarte, H. Li, H. Li, M.F. Sanad, P. Saha, M.A. Addicoat, K. Sasaki, T.A. Strom, M.J. Yacamán, C.R. Cabrera, R. **Seshadri**, S. Bhattacharya, J-L. Brédas, L. Echegoyen, [2,1,3]-Benzothiadiazole-spaced co-porphyrin-based covalent organic frameworks for O_2 reduction, *ACS Nano* **17** (2023) 3492–3505. DOI: 10.1021/acsnano.2c09838
50. (a) J.R. Blankenship, A.E. Levi, D.J. Goldfeld, J.L. Self, N. Alizadeh, D. Chen, G.H. **Fredrickson**, C.M. **Bates**, Asymmetric miktoarm star polymers as polyester thermoplastic elastomers, *Macromolecules* **55** (2022) 4929–4936. DOI: 10.1021/acs.macromol.2c00214
50. (b) J.R. Blankenship, A.E. Levi, D.J. Goldfeld, J.L. Self, N. Alizadeh, D. Chen, G.H. **Fredrickson**, C.M. **Bates**, Correction to 'Asymmetric miktoarm star polymers as polyester thermoplastic elastomers', *Macromolecules* **55** (2022) 6294. DOI: 10.1021/acs.macromol.2c01292
51. Z. Cabin, N.J. Derieg, A. Garton, T. Ngo, A. Quezada, C. Gasseholm, M. Simon, S.A. Hodges, Non-pollinator selection for a floral homeotic mutant conferring loss of nectar reward in Aquilegia coerulea, *Curr. Biol.* **32** (2022) 1332–1341. DOI: 10.1016/j.cub.2022.01.066
52. J.C. Cáceres, C.A. Bailey, K. Yokoyama, B.L. Greene, Chapter Five - Selenocysteine substitutions in thiyl radical enzymes, *Methods Enzymol.* **662** (2022) 119–141. DOI: 10.1016/bs.mie.2021.10.014 (Published 28 January 2022. This paper was missed when compiling last year's report.) Also part of Volume *Selenoprotein Structure and Function,* Ed. by E. Weerapana, Cambridge, MA: Academic Press (2022) pp. 119–141.
53. J.C. Caravez, K.S. Iyer, R.D. Kavthe, J.R.A. Kincaid, B.H. Lipshutz, A 1-pot synthesis of the SARS-CoV-2 Mpro inhibitor nirmatrelvir, the key ingredient in Paxlovid, *Org. Lett.* **24** (2022) 9049–9053. DOI: 10.1021/acs.orglett.2c03683
54. H-M. Chang, P. Chan, N. Lim, V. Rienzi, M.J. Gordon, S.P. DenBaars, S. Nakamura, Demonstration of C-plane InGaN-based blue laser diodes grown on a strain-relaxed template, *Crystals* **12** (2022) 1208. DOI: 10.3390/cryst12091208
55. H-M. Chang, P. Chan, N. Lim, V. Rienzi, H. Zhang, D.A. Cohen, M.J. Gordon, S.P. DenBaars, S. Nakamura, InGaN based C-plane blue laser diodes on strain relaxed template with reduced absorption loss, *Crystals* **12** (2022) 1230. DOI: 10.3390/cryst12091230
56. D. Chen, T. Quah, K.T. Delaney, G.H. **Fredrickson**, Investigation of the self-assembly behavior of statistical bottlebrush copolymers via self-consistent field theory simulations, *Macromolecules* **55** (2022) 9324–9333. DOI: 10.1021/acs.macromol.2c01622
57. J.Y. Cheng, S. Xu, Y. Chen, Z. Li, J.K. Baldwin, I.J. Beyerlein, N.A. Mara, Simultaneous high-strength and deformable nanolaminates with thick biphase interfaces, *Nano Lett.* **22** (2022) 1897–1904. DOI: 10.1021/acs.nanolett.1c04144
58. C. Choi, Y. Okayama, P.T. Morris, L.L. Robinson, M. Gerst, J.C. Speros, C.J. **Hawker**, J. **Read de Alaniz**, C.M. **Bates**, Digital light processing of dynamic bottlebrush materials, *Adv. Funct. Mater.* **32** (2022) 2200883. DOI: 10.1002/adfm.202200883

59. A.F.M.K. Chowdhury, R. Deshmukh, G.C. Wu, A. Uppal, A. Mileva, T. Curry, L. Armstrong, S. Galelli, K. Ndhlukula, Enabling a low-carbon electricity system for Southern Africa, *Joule* **6** (2022) 1826–1844. DOI: 10.1016/j.joule.2022.06.030
60. A.J. Cooper, M.P. Howard, S. Kadulkar, D. Zhao, K.T. Delaney, V. Ganesan, T.M. Truskett, G.H. **Fredrickson**, Multiscale modeling of solute diffusion in triblock copolymer membranes, *J. Chem. Phys.* **158** (2023) 024905. DOI: 10.1063/5.0127570
61. R.M. France, J. Selvidge, K. Mukherjee, M.A. Steiner, Optically thick GaInAs/GaAsP strain-balanced quantum-well tandem solar cells with 29.2% efficiency under the AM0 space spectrum, *J. Appl. Phys.* **132** (2022) 184502. DOI: 10.1063/5.0125998
62. G.H. **Fredrickson**, K.T. Delaney, Direct free energy evaluation of classical and quantum many-body systems via field-theoretic simulation, *Proc. Natl. Acad. Sci.* **119** (2022) e2201804119. DOI: 10.1073/pnas.2201804119
63. Y. Fu, H. Chen, W. Fu, M. Garcia-Borràs, Y. **Yang**, P. Liu, Engineered P450 atom-transfer radical cyclases are bifunctional biocatalysts: Reaction mechanism and origin of enantioselectivity, *J. Am. Chem. Soc.* **144** (2022) 13344–13355. DOI: 10.1021/jacs.2c04937
64. J.A. Goldberg, Y-F. Jiang, L. Bildsten, Numerical simulations of convective three-dimensional red supergiant envelopes, *Astrophys. J.* **929** (2022) 156. DOI: 10.3847/1538-4357/ac5ab3
65. J.A. Goldberg, Y-F. Jiang, L. Bildsten, Shock breakout in three-dimensional red supergiant envelopes, *Astrophys. J.* **933** (2022) 164. DOI: 10.3847/1538-4357/ac75e3
66. A. Goswami, A.P. McFadden, T. Zhao, H. Inbar, J.T. Dong, R. Zhao, C.R.H. McRae, R.W. Simmonds, C.J. Palmstrøm, D.P. Pappas, Towards merged-element transmons using silicon fins: The FinMET, *Appl. Phys. Lett*. **121** (2022) 064001. DOI: 10.1063/5.0104950
67. D.J. Grzetic, A.J. Cooper, K.T. Delaney, G.H. **Fredrickson**, Modeling microstructure formation in block copolymer membranes using dynamical self-consistent field theory, *ACS Macro Lett.* **12** (2023) 8–13. DOI: 10.1021/acsmacrolett.2c00611
68. P. Gulati, S. Shankar, M.C. Marchetti, Boundaries control active channel flows, *Front. Phys.* **10** (2022) 675. DOI: 10.3389/fphy.2022.948415
69. B. Guo, A.C. Lygo, X. Dai, S. Stemmer, $\nu = 0$ quantum Hall state in a cadmium arsenide thin film, *APL Mater.* **10** (2022) 091116. DOI: 10.1063/5.0102703
70. B. Guo, A.C. Lygo, T.N. Pardue, S. Stemmer, Hall bar measurements of topological surface states of (001) cadmium arsenide thin films interfaced with superconductors, *Phys. Rev. Mater*. **6** (2022) 034203. DOI: 10.1103/PhysRevMaterials.6.034203
71. B.B. Haidet, E. Hughes, K. Mukherjee, Epitaxial integration and defect structure of layered SnSe films on PbSe/III–V substrates, *Cryst. Growth Des.* **22** (2022) 3824–3833. DOI: 10.1021/acs.cgd.2c00188
72. B.B. Haidet, J. Meyer, P. Reddy, E.T. Hughes, K. Mukherjee, Versatile strain relief pathways in epitaxial films of (001)−oriented PbSe on III-V substrates, *Phys. Rev. Mater*. **7** (2023) 024602. DOI: 10.1103/PhysRevMaterials.7.024602
73. A. Hallett, J.W. Harter, Modeling polar order in compressively strained $SrTiO_3$, *Phys. Rev. B* **106** (2022) 214107. DOI: 10.1103/PhysRevB.106.214107

74. L. Heki, Y. Mohtashami, R.A. DeCrescent, A. Alhassan, S. Nakamura, S.P. DenBaars, J.A. Schuller, Designing highly directional luminescent phased-array metasurfaces with reciprocity-based simulations, *ACS Omega* **7** (2022) 22477–22483. DOI: 10.1021/acsomega.2c01654
75. P.R. Hertler, L. Kautzsch, A.J. Touchton, G. Wu, T.W. Hayton, Metal–metal-bonded Fe_4 clusters with slow magnetic relaxation, *Inorg. Chem.* **61** (2022) 9997–10005. DOI: 10.1021/acs.inorgchem.2c00865
76. Y. Hu, S.M.L. Teicher, B.R. Ortiz, Y. Luo, S. Peng, L. Huai, J. Ma, N.C. Plumb, S.D. **Wilson**, J. He, M. Shi, Topological surface states and flat bands in the kagome superconductor CsV_3Sb_5, *Sci. Bull.* **67** (2022) 495–500. DOI: 10.1016/j.scib.2021.11.026
77. Y. Hu, X. Wu, B.R. Ortiz, X. Han, N.C. Plumb, S.D. **Wilson**, A.P. Schnyder, M. Shi, Coexistence of trihexagonal and star-of-David pattern in the charge density wave of the kagome superconductor AV_3Sb_5, *Phys. Rev. B* **106** (2022) L241106. DOI: 10.1103/PhysRevB.106.L241106
78. Y. Hu, X. Wu, B.R. Ortiz, S. Ju, X. Han, J. Ma, N.C. Plumb, M. Radovic, R. Thomale, S.D. **Wilson**, A.P. Schnyder, M. Shi, Rich nature of Van Hove singularities in Kagome superconductor CsV_3Sb_5, *Nat. Commun.* **13**, Article number: 2220 (2022). DOI: 10.1038/s41467-022-29828-x
79. L. Huai, Y. Luo, S.M.L. Teicher, B.R. Ortiz, K. Wang, S. Peng, Z. Wei, J. Shen, B. Wang, Y. Miao, X. Sun, Z. Ou, S.D. **Wilson**, J. He, Surface-induced orbital-selective band reconstruction in kagome superconductor CsV_3Sb_5, *Chin. Phys. B* **31** (2022) 057403. DOI: 10.1088/1674-1056/ac4f50
80. E.T. Hughes, M. Dumont, Y. Hu, D. Liang, R.G. Beausoleil, J.E. Bowers, K. Mukherjee, Dislocation formation and filtering in III–V regrowth on GaAs bonded on Si, *Cryst. Growth Des.* **22** (2022) 5852–5860. DOI: 10.1021/acs.cgd.2c00309
81. L.B. Hughes, Z. Zhang, C. Jin, S.A. Meynell, B. Ye, W. Wu, Z. Wang, E.J. Davis, T.E. Mates, N.Y. Yao, K. Mukherjee, A.C. Bleszynski **Jayich**, Two-dimensional spin systems in PECVD-grown diamond with tunable density and long coherence for enhanced quantum sensing and simulation, *APL Materials* **11** (2023) 021101. DOI: 10.1063/5.0133501
82. H.S. Inbar, D.Q. Ho, S. Chatterjee, M. Pendharkar, A.N. Engel, J.T. Dong, S. Khalid, Y.H. Chang, T. Guo, A.V. Fedorov, D. Lu, M. Hashimoto, D. Read, A. Janotti, C.J. Palmstrøm, Epitaxial growth, magnetoresistance, and electronic band structure of GdSb magnetic semimetal films, *Phys. Rev. Mater.* **6** (2022) L121201. DOI: 10.1103/PhysRevMaterials.6.L121201
83. J.H. Jang, J.T. Hopper, I. Ro, P. Christopher, M.M. Abu-Omar, One-step production of renewable adipic acid esters from mucic acid over an Ir–ReO_x/C catalyst with low Ir loading, *Catal. Sci. Technol*. **13** (2023) 714–725. DOI: 10.1039/D2CY01144A
84. D.K. Jangid, N.R. Brodnik, M.G. Goebel, A. Khan, S. Majeti, M.P. Echlin, S.H. **Daly**, T.M. **Pollock**, B.S. Manjunath, Adaptable physics-based super-resolution for electron backscatter diffraction maps, *npj Comput. Mater.* **8** (2022) 255. DOI: 10.1038/s41524-022-00924-2
85. E. Janzen, Y. Shen, A. Vázquez-Salazar, Z. Liu, C. Blanco, J. Kenchel, I.A. Chen, Emergent properties as by-products of prebiotic evolution of aminoacylation ribozymes,

Nat. Commun. **13**, Article number: 3631 (2022). DOI: 10.1038/s41467-022-31387-0

86. H. Jeong, R. Russell, N.G. Combs, T.N. Pardue, J.W. Harter, S. Stemmer, Similarity in the critical thicknesses for superconductivity and ferroelectricity in strained $SrTiO_3$ films, *Appl. Phys. Lett.* **121** (2022) 012601. DOI: 10.1063/5.0095172
87. Y. Ji, C. Palmer, E.E. Foley, R. Giovine, E. Yoshida, E. Sebti, A.R. Patterson, E. McFarland, R.J. **Clément**, Valorizing the carbon byproduct of methane pyrolysis in batteries, *Carbon* **204** (2023) 26–35. DOI: 10.1016/j.carbon.2022.12.044
88. C-M. Jian, B. Bauer, A. Keselman, A.W.W. Ludwig, Criticality and entanglement in nonunitary quantum circuits and tensor networks of noninteracting fermions, *Phys. Rev. B* **106** (2022) 134206. DOI: 10.1103/PhysRevB.106.134206
89. W-R. Jian, Z. Xie, S. Xu, X. Yao, I.J. Beyerlein, Shock-induced amorphization in medium entropy alloy CoCrNi, *Scr. Mater.* **209** (2022) 114379. DOI: 10.1016/j.scriptamat.2021.114379
90. W-R. Jian, S. Xu, Y. Su, I.J. Beyerlein, Energetically favorable dislocation/nanobubble bypass mechanism in irradiation conditions, *Acta Mater.* **230** (2022) 117849. DOI: 10.1016/j.actamat.2022.117849
91. W-R. Jian, S. Xu, Y. Su, I.J. Beyerlein, Role of layer thickness and dislocation distribution in confined layer slip in nanolaminated Nb, *Int. J. Plast.* **152** (2022) 103239. DOI: 10.1016/j.ijplas.2022.103239
92. S. Jiao, L.E. Katz, M.S. Shell, Inverse design of pore wall chemistry to control solute transport and selectivity, *ACS Cent. Sci.* **8** (2022) 1609–1617. DOI: 10.1021/acscentsci.2c01011
93. M. Joos, D. Bluvstein, Y. Lyu, D. Weld, A. Bleszynski **Jayich**, Protecting qubit coherence by spectrally engineered driving of the spin environment, *npj Quantum Inf.* **8**, Article number: 47 (2022). DOI: 10.1038/s41534-022-00560-0
94. F. Kaboudvand, S.M.L. Teicher, S.D. **Wilson**, R. **Seshadri**, M.D. Johannes, Fermi surface nesting and the Lindhard response function in the kagome superconductor CsV_3Sb_5, *Appl. Phys. Lett.* **120** (2022) 111901. DOI: 10.1063/5.0081081
95. J.L. Kaufman, A. **Van der Ven**, First-principles investigation of phase stability in layered Na_xCrO_2, *Phys. Rev. Mater*. **6** (2022) 115401. DOI: 10.1103/PhysRevMaterials.6.115401
96. L. Kautzsch, B.R. Ortiz, K. Mallayya, J. Plumb, G. Pokharel, J.P.C. Ruff, Z. Islam, E-A. Kim, R. **Seshadri**, S.D. **Wilson**, Structural evolution of the kagome superconductors AV_3Sb_5 (A = K, Rb, and Cs) through charge density wave order, *Phys. Rev. Mater*. **7** (2023) 024806. DOI: 10.1103/PhysRevMaterials.7.024806
97. D.A. Kealhofer, R. Kealhofer, D. Ohara, T.N. Pardue, S. Stemmer, Controlling and visualizing Dirac physics in topological semimetal heterostructures, *Sci. Adv.* **8** (2022) eabn4479. DOI: 10.1126/sciadv.abn4479
98. M. Keener, M. Mattejat, S-L. Zheng, G. Wu, T.W. Hayton, G. Ménard, Selective electrochemical capture and release of uranyl from aqueous alkali, lanthanide, and actinide mixtures using redox-switchable carboranes, *Chem. Sci*. **13** (2022) 3369. DOI: 10.1039/d1sc07070c

99. (a) M. Kellom, S. Pagliara, T.A. Richards, A.E. Santoro, Exaggerated trans-membrane charge of ammonium transporters in nutrient-poor marine environments, *Open Biol.* **12** (2022) 220041. DOI: 10.1098/rsob.220041
99. (b) M. Kellom, S. Pagliara, T.A. Richards, A.E. Santoro, Correction to 'Exaggerated trans-membrane charge of ammonium transporters in nutrient-poor marine environments', *Open Biol.* **12** (2022) 220268. DOI: 10.1098/rsob.220268
100. R.M. Kennard, C.J. Dahlman, E.E. Morgan, J. Chung, B.L. Cotts, J.R.A. Kincaid, R.A. DeCrescent, K.H. Stone, S. Panuganti, Y. Mohtashami, L. Mao, R.D. Schaller, A. Salleo, M.G. Kanatzidis, J.A. Schuller, R. **Seshadri**, M.L. **Chabinyc**, Enhancing and extinguishing the different emission features of 2D $(EA_{1-x}FA_x)_4Pb_3Br_{10}$ perovskite films, *Adv. Opt. Mater.* **10** (2022) 2200547. DOI: 10.1002/adom.202200547
101. S.A. Khan, S.M. Godahewa, P.N. Wimalasiri, W.H. Thompson, S.L. Scott, B. Peters, Modeling the structural heterogeneity of vicinal silanols and its effects on $TiCl_4$ grafting onto amorphous silica, *Chem. Mater.* **34** (2022) 3920–3930. DOI: 10.1021/acs.chemmater.1c04016
102. V. Khanna, M.F. Doherty, B. Peters, Predicting solubility and driving forces for crystallization using the absolute chemical potential route, *Mol. Phys.* **121** (2023) e2155595. DOI: 10.1080/00268976.2022.2155595
103. J.R.A. Kincaid, J.C. Caravez, K.S. Iyer, R.D. Kavthe, N. Fleck, D.H. Aue, B.H. Lipshutz, A sustainable synthesis of the SARS-CoV-2 M^{pro} inhibitor nirmatrelvir, the active ingredient in Paxlovid, *Commun. Chem.* **5**, Article number: 156 (2022). DOI: 10.1038/s42004-022-00758-5
104. L.Á. Larios-Cárdenas, F. Gibou, A hybrid inference system for improved curvature estimation in the level-set method using machine learning, *J. Comp. Phys.* **463** (2022) 111291. DOI: 10.1016/j.jcp.2022.111291
105. L.Á. Larios-Cárdenas, F. Gibou, Error-correcting neural networks for semi-Lagrangian advection in the level-set method, *J. Comp. Phys* **471** (2022) 111623. DOI: 10.1016/j.jcp.2022.111623
106. M.L. Le, D.J. Grzetic, K.T. Delaney, K-C. Yang, S. Xie, G.H. **Fredrickson**, M.L. **Chabinyc**, R.A. **Segalman**, Electrostatic interactions control the nanostructure of conjugated polyelectrolyte–polymeric ionic liquid blends, *Macromolecules* **55** (2022) 8321–8331. DOI: 10.1021/acs.macromol.2c01142
107. B.R. Luginbuhl, S-J. Ko, N.A. Ran, H. Hu, S.M. Becwar, A. Karki, M. Seifrid, T. Okubo, M. Wang, H.W. Ade, B.F. **Chmelka**, G.C. Bazan, G.N.M. Reddy, T-Q. **Nguyen**, Low voltage-loss organic solar cells light the way for efficient semitransparent photovoltaics, *RRL Solar* **6** (2022) 2200135. DOI: 10.1002/solr.202200135
108. Y. Luo, S. Peng, S.M. L. Teicher, L. Huai, Y. Hu, Y. Han, B.R. Ortiz, Z. Liang, Z. Wei, J. Shen, Z. Ou, B. Wang, Y. Miao, M. Guo, M. Hashimoto, D. Lu, Z. Qi., Z. Wang, S.D. **Wilson**, X. Chen, J. He, Electronic states dressed by an out-of-plane supermodulation in the quasi-two-dimensional kagome superconductor CsV_3Sb_5, *Phys. Rev. B* **105** (2022) L241111. DOI: 10.1103/PhysRevB.105.L241111

109. A.C. Lygo, B. Guo, A. Rashidi, V. Huang, P. Cuadros-Romero, S. Stemmer, Two-dimensional topological insulator state in cadmium arsenide thin films, *Phys. Rev. Lett*. **130** (2023) 046201. DOI: 10.1103/PhysRevLett.130.046201
110. J.D. Majher, V. da Cruz Pinha Barbosa, C. Chae, T.A. Strom, J. Hwang, P.M. Woodward, Exploring the links between photoluminescence and microstructure in $Cs_2InBr_5{\cdot}H_2O$ samples doped with Pb^{2+}, *Chem. Mater.* **35** (2023) 482–489. DOI: 10.1021/acs.chemmater.2c02817
111. L. Mao, E.E. Morgan, A. Li, R.M. Kennard, M.J. Hong, Y. Liu, C.J. Dahlman, J.G. Labram, M.L. **Chabinyc**, R. **Seshadri**, Layered hybrid lead iodide perovskites with short interlayer distances, *ACS Energy Lett.* **7** (2022) 2801–2806. DOI: 10.1021/acsenergylett.2c01321
112. A. Miller-ter Kuile, A. Apigo, A. Bui, B. DiFiore, E.S. Forbes, M. Lee, D. Orr, D.L. Preston, R.Behm, T. Bogar, J. Childress, R. Dirzo, M. Klope, K.D. Lafferty, J. McLaughlin, M. Morse, C. Motta, K. Park, K. Plummer, D. Weber, R. Young, H. Young, Predator–prey interactions of terrestrial invertebrates are determined by predator body size and species identity, *Ecology* **103** (2022) e3634. DOI: 10.1002/ecy.3634
113. K.J. Modica, Y. Xi, S.C. Takatori, Porous media microstructure determines the diffusion of active matter: Experiments and simulations, *Front. Phys*. **10** (2022) 869175. DOI: 10.3389/fphy.2022.869175
114. D.L. Morel, K.D. Morell, E.A. Keller, T.M. Rittenour, Quaternary chronology and rock uplift recorded by marine terraces, Gaviota coast, Santa Barbara County, California, USA, *GSA Bulletin* **134** (2022) 871–884. DOI: 10.1130/B35609.1
115. E.E. Morgan, H.A. Evans, K. Pilar, C.M. Brown, R.J. **Clément**, R. Maezono, R. **Seshadri**, B. Monserrat, A.K. Cheetham, Lattice dynamics in the NASICON $NaZr_2(PO_4)_3$ solid electrolyte from temperature-dependent neutron diffraction, NMR, and ab initio computational studies, *Chem. Mater.* **34** (2022) 4029–4038. DOI: 10.1021/acs.chemmater.2c00212
116. S. Mu, C.G. Van de Walle, Phase stability of $(Al_xGa_{1-x})_2O_3$ polymorphs: A first-principles study, *Phys. Rev. Mater*. **6** (2022) 104601. DOI: 10.1103/PhysRevMaterials.6.104601
117. S. Mu, M. Wang, J.B. Varley, J.L. Lyons, D. Wickramaratne, C.G. Van de Walle, Role of carbon and hydrogen in limiting *n*-type doping of monoclinic $(Al_xGa_{1-x})_2O_3$, *Phys. Rev. B* **105** (2022) 155201. DOI: 10.1103/PhysRevB.105.155201
118. R.D. Murphy, R.V. Garcia, S.J. Oh, T.J. Wood, K.D. Jo, J. **Read de Alaniz**, E. Perkins, C.J. **Hawker**, Tailored polypeptide star copolymers for 3D printing of bacterial composites via direct ink writing, *Adv. Mater.* **35** (2023) 2207542. DOI: 10.1002/adma.202207542
119. A. Nascimento, S. Roongta, M. Diehl, I.J. Beyerlein, A machine learning model to predict yield surfaces from crystal plasticity simulations, *Int. J. Plast.* **161** (2023) 103507. DOI: 10.1016/j.ijplas.2022.103507
120. K.G. Oberle, E.L. Whitman, C.S. Jolly, K.A. Webster, B.S. Marx, C.M. Howard, C.A. Hanger, E.E. Ramey, Y. Zou, J.C. Lowe, M. Turlington, C.R. Turlington, Metallopolymers in minutes *via* organocatalysis at room temperature, *Polym. Chem*. **13** (2022) 4747. DOI: 10.1039/d2py00747a

121. Y.M. Oey, F. Kaboudvand, B.R. Ortiz, R. **Seshadri**, S.D. **Wilson**, Tuning charge density wave order and superconductivity in the kagome metals $KV3Sb_{5-x}$ Sn_x and RbV_3Sb_{5-x} Sn_x, *Phys. Rev. Mater.* **6** (2022) 074802. DOI: 10.1103/PhysRevMaterials.6.074802
122. Y.M. Oey, B.R. Ortiz, F. Kaboudvand, J. Frassineti, E. Garcia, R. Cong, S. Sanna, V.F. Mitrović, R. **Seshadri**, S.D. **Wilson**, Fermi level tuning and double-dome superconductivity in the kagome metal $CsV_3Sb_{5-x}Sn_x$, *Phys. Rev. Mater*. **6** (2022) L041801. DOI: 10.1103/PhysRevMaterials.6.L041801
123. B.R. Ortiz, A.N. Capa Salinas, M.J. Knudtson, P.M. Sarte, G. Pokahrel, S.D. **Wilson**, Complete miscibility amongst the AV_3Sb_5 kagome superconductors: Design of mixed A-site AV_3Sb_5 (A: K, Rb, Cs) alloys, *Phys. Rev. Mater*. **7** (2023) 014801. DOI: 10.1103/PhysRevMaterials.7.014801
124. B.R. Ortiz, P.M. Sarte, A.H. Avidor, S.D. **Wilson**, Defect control in the Heisenberg-Kitaev candidate material $NaRuO_2$, *Phys. Rev. Mater*. **6** (2022) 104413. DOI: 10.1103/PhysRevMaterials.6.104413
125. B.R. Ortiz, P.M. Sarte, G. Pokharel, M. Garcia, M. Marmolejo, S.D. **Wilson**, Traversing the pyrochlore stability diagram: Microwave-assisted synthesis and discovery of mixed *B*-site Ln_2InSbO_7 family, *Phys. Rev. Mater*. **6** (2022) 094403. DOI: 10.1103/PhysRevMaterials.6.094403
126. W. Ouyang, X. Zuo, B. **Liao**, Impact of photoexcitation on secondary electron emission: A Monte Carlo study, *J. Appl. Phys*. **133** (2023) 064301. DOI: 10.1063/5.0131989
127. C. Palmer, M.J. Gordon, H. Metiu, E.W. McFarland, Influence of hydrocarbon feed additives on the high-temperature pyrolysis of methane in molten salt bubble column reactors, *React. Chem. Eng.* **7** (2022) 1199–1209. DOI: 10.1039/D1RE00517K
128. S. Patil, D. Darbar, E.C. Self, T. Malkowski, V.C. Wu, R. Giovine, N.J. Szymanski, R.D. McAuliffe, B. Jiang, J.K. Keum, K.P. Koirala, B. Ouyang, K. Page, C. Wang, G. Ceder, R.J. **Clément**, J. Nanda, Alternate synthesis method for high-performance manganese rich cation disordered rocksalt cathodes, *Adv. Energy Mater.* **13** (2023) 2203207. DOI: 10.1002/aenm.202203207
129. K.A. Peterson, M.L. **Chabinyc**, Lewis acid–base pair doping of p-type organic semiconductors, *J. Mater. Chem. C* **10** (2022) 6287–6295. DOI: 10.1039/D2TC00605G
130. G. Pokharel, B. Ortiz, J. Chamorro, P. Sarte, L. Kautzsch, G. Wu, J. Ruff, S.D. **Wilson**, Highly anisotropic magnetism in the vanadium-based kagome metal TbV_6Sn_6, *Phys. Rev. Mater*. **6** (2022) 104202. DOI: 10.1103/PhysRevMaterials.6.104202
131. A.T. Polonsky, N. Raghavan, M.P. Echlin, M.M. Kirka, R.R. Dehoff, T.M. **Pollock**, Scan strategies in EBM-printed IN718 and the physics of bulk 3D microstructure development, *Mater. Charact.* **190** (2022) 112043. DOI: 10.1016/j.matchar.2022.112043
132. Z. Porter, P.M. Sarte, T. Petersen, M.H. Upton, L. Hozoi, S.D. **Wilson**, Spin-orbit excitons and electronic configuration of the $5d^4$ insulator $Sr_3Ir_2O_7F_2$, *Phys. Rev. B* **106** (2022) 115140. DOI: 10.1103/PhysRevB.106.115140
133. B.S. Rajput, T.A.P. Hai, M.D. Burkart, High bio-content thermoplastic polyurethanes from azelaic acid, *Molecules* **27** (2022) 4885. DOI: 10.3390/molecules27154885
134. B.S. Rajput, T.A.P. Hai, N.R. Gunawan, M. Tessman, N. Neelakantan, G.B. Scofield, J. Brizuela, A.A. Samoylov, M. Modi, J. Shepherd, A. Patel, R.S. Pomeroy, N. Pourahmady,

S.P. Mayfield, M.D. Burkart, Renewable low viscosity polyester-polyols for biodegradable thermoplastic polyurethanes, *J. Appl. Polym. Sci.* **139** (2022) e53062. DOI: 10.1002/app.53062

135. A. Rashidi, R. Kealhofer, A.C. Lygo, S. Stemmer, Universal conductance fluctuations in nanoscale topological insulator devices, *Appl. Phys. Lett*. **122** (2023) 053101. DOI: 10.1063/5.0136020
136. P. Raval, R.M. Kennard, E.S. Vasileiadou, C.J. Dahlman, I. Spanopoulos, M.L. **Chabinyc**, M. Kanatzidis, G.N. Manjunatha Reddy, Understanding instability in formamidinium lead halide perovskites: Kinetics of transformative reactions at grain and subgrain boundaries, *ACS Energy Lett.* **7** (2022) 1534–1543. DOI: 10.1021/acsenergylett.2c00140
137. A.D. Ready, S.M. Becwar, D. Jung, A. Kallistova, E. Schueller, K.P. Anderson, R. Kubena, R. **Seshadri**, B.F. **Chmelka**, A.M. Spokoyny, Synthesis and structural properties of a 2D Zn(II) dodecahydroxy-closo-dodecaborate coordination polymer, *Dalton Trans*. **51** (2022) 11547–11557. DOI: 10.1039/D2DT01292H
138. V.G. Reynolds, D.H. Callan, K. Saurabh, E.A. Murphy, K.R. Albanese, Y-Q. Chen, C. Wu, E. Gann, C.J. **Hawker**, B. Ganapathysubramanian, C.M. **Bates**, M.L. **Chabinyc**, Simulation-guided analysis of resonant soft X-ray scattering for determining the microstructure of triblock copolymers, *Mol. Syst. Des. Eng.* **7** (2022) 1449–1458. DOI: 10.1039/D2ME00096B
139. K.K. Samudrala, W. Huynh, R.W. Dorn, A.J. Rossini, M.P. Conley, Formation of a strong heterogeneous aluminum Lewis acid on silica, *Angew. Chem. Int. Ed.* **61** (2022) e202205745. DOI: 10.1002/anie.202205745
140. A.F. Samuel, Z.S. Levin, C.P. Trujillo, S.J. Fensin, M.J. Demkowicz, I.J. Beyerlein, F.W. Zok, Quasi-static and dynamic response of a Cu/Nb composite following equal channel angular extrusion, *Mater. Sci. Eng, A* **853** (2022) 143711. DOI: 10.1016/j.msea.2022.143711
141. R.L. Schoch, G. Haran, F.L.H. Brown, Dynamic correlations in lipid bilayer membranes over finite time intervals, *J. Chem. Phys*. **158** (2023) 044112. DOI: 10.1063/5.0129130
142. E. Sebti, H.A. Evans, H. Chen, P.M. Richardson, K.M. White, R. Giovine, K.P. Koirala, Y. Xu, E. Gonzalez-Correa, C. Wang, C.M. Brown, A.K. Cheetham, P. Canepa, R.J. **Clément**, Stacking faults assist lithium-ion conduction in a halide-based superionic conductor, *J. Am. Chem. Soc.* **144** (2022) 5795–5811. DOI: 10.1021/jacs.1c11335
143. E. Sebti, J. Qi, S. Banerjee, Y. S. Meng, P.M. Richardson, P. Ridley, E.A. Wu, R. Giovine, A. Cronk, S-Y. Ham, S. P. Ong, R.J. **Clément**, Synthetic control of structure and conduction properties in Na–Y–Zr–Cl solid electrolytes, *J. Mater. Chem. A* **10** (2022) 21565. DOI: 10.1039/d2ta05823e
144. A.D. Sezer, U. Madhow, All-digital LoS MIMO with low-precision analog-to-digital conversion, *IEEE Trans. Wireless Commun.* **21** (2022) 5600. DOI: 10.1109/TWC.2022.3142305
145. A.D. Sezer, U. Madhow, (2022), 'Spatially redundant, precision-constrained transmit precoding for mmWave LoS MIMO', *2022 IEEE 23rd International Workshop on Signal Processing Advances in Wireless Communication (SPAWC),* Oulu, Finland, July 4–6, 2022, pp. 1–5. DOI: 10.1109/SPAWC51304.2022.9833963

146. P. Shapturenka, A. Devata, S.P. DenBaars, S. Nakamura, M.J. Gordon, Computational design and optimization of nanostructured AlN deep-UV grating reflectors, *Opt. Express* **30** (2022) 12120–12130. DOI: 10.1364/OE.455624
147. J. Shin, F. Wang, G.H. Balbus, T. Lei, T.J. Rupert, D.S. **Gianola**, Optimizing thermal stability and mechanical behavior in segregation-engineered nanocrystalline Al–Ni–Ce alloys: A combinatorial study, *J. Mater. Res.* **37** (2022) 3083–3098. DOI: 10.1557/s43578-022-00715-x
148. K.K. Sivakumar, B. Vishwanath, K. Rose, (2022), 'Joint asymptotic closed-loop design of secondary transform and scan order for inter coding in AV1', *2022 IEEE 24th International Workshop on Multimedia Signal Processing (MMSP),* Shanghai, China, September 26–28, 2022, pp. 1–6. DOI: 10.1109/MMSP55362.2022.9949187
149. J.C. Stinville, J.M. Hestroffer, M.A. Charpagne, A.T. Polonsky, M.P. Echlin, C.J. Torbet, V. Valle, K.E. Nygren, M.P. Miller, O. Klaas, A. Loghin, I.J. Beyerlein, T.M. **Pollock**, Multi-modal dataset of a polycrystalline metallic material: 3D microstructure and deformation fields, *Sci. Data* **9** (2022), Article number: 460. DOI: 10.1038/s41597-022-01525-w
150. J.C. Stinville, W. Ludwig, P.G. Callahan, M.P. Echlin, V. Valle, T.M. **Pollock**, H. Proudhon, Observation of bulk plasticity in a polycrystalline titanium alloy by diffraction contrast tomography and topotomography, *Mater. Charact.* **188** (2022) 111891. DOI: 10.1016/j.matchar.2022.111891
151. J.S. Straub, M.S. Nowotarski, J. Lu, T. Sheth, S. Jiao, M.P.A. Fisher, M.S. Shell, M.E. **Helgeson**, A. Jerschow, S. Han, Phosphates form spectroscopically dark state assemblies in common aqueous solutions, *Proc. Natl. Acad. Sci.* **120** (2022) e2206765120. DOI: 10.1073/pnas.2206765120
152. Y. Su, M.A. Kumar, I.J. Beyerlein, Critical shape for the growth of grain boundary twin embryos in Mg and Mg alloys: Crystal plasticity modeling, *Alloys* **1** (2022) 212–231. DOI: 10.3390/alloys1020013
153. N.J. Szymanski, Y. Zeng, T. Bennett, S. Patil, J.K. Keum, E.C. Self, J. Bai, Z. Cai, R. Giovine, B. Ouyang, F. Wang, C.J. Bartel, R.J. **Clément**, W. Tong, J. Nanda, G. Ceder, Understanding the fluorination of disordered rocksalt cathodes through rational exploration of synthesis pathways, *Chem. Mater.* **34** (2022) 7015–7028. DOI: 10.1021/acs.chemmater.2c01474
154. S.M.L. Teicher, J.F. Linnartz, R. Singha, D. Pizzirani, S. Klemenz, S. Wiedmann, J. Cano, L.M. Schoop, 3D analogs of square-net nodal line semimetals: Band topology of cubic $LaIn_3$, *Chem. Mater.* **34** (2022) 4446–4455. DOI: 10.1021/acs.chemmater.2c00175
155. A.J. Touchton, G. Wu, T.W. Hayton, $[Ni_{30}S_{16}(PEt_3)_{11}]$: an open-shell nickel sulfide nanocluster with a "metal-like" core, *Chem. Sci*. **13** (2022) 5171. DOI: 10.1039/d2sc00960a
156. T.M. Tran, J. **Read de Alaniz**, Controlled synthesis of a homopolymer network using a well-defined single-component Diels–Alder cyclopentadiene monomer, *J. Am. Chem. Soc.* **145** (2023) 3462–3469. DOI: 10.1021/jacs.2c11416
157. C.L. Tsai, G.H. **Fredrickson**, Using particle swarm optimization and self-consistent field theory to discover globally stable morphologies of block copolymers, *Macromolecules* **55** (2022) 5249–5262. DOI: 10.1021/acs.macromol.2c00042

158. B.T.-H. Tsang, D. Kasen, L. Bildsten, 3D hydrodynamics of pre-supernova outbursts in convective red supergiant envelopes, *Astrophys. J.* **936** (2022) 28. DOI: 10.3847/1538-4357/ac83bc
159. B.T.-H. Tsang, D. Vartanyan, A. Burrows, Applications of machine learning to predicting core-collapse supernova explosion outcomes, *Astrophys. J. Lett.* **937** (2022) L15. DOI: 10.3847/2041-8213/ac8f4b
160. D.L. Vigil, T. Quah, D. Sun, K.T. Delaney, G.H. **Fredrickson**, Self-consistent field theory predicts universal phase behavior for linear, comb, and bottlebrush diblock copolymers, *Macromolecules* **55** (2022) 4237–4244. DOI: 10.1021/acs.macromol.2c00192
161. R.C. Vincent, Y. Luo, J.L. Andrews, A. Zohar, Y. Zhou, Q. Yan, E.M. Mozur, M.B. Preefer, J.N. Weker, A.K. Cheetham, J. Luo, L. Pilon, B.C. Melot, B. Dunn, R. **Seshadri**, High-rate lithium cycling and structure evolution in Mo_4O_{11}, *Chem. Mater.* **34** (2022) 4122–4133. DOI: 10.1021/acs.chemmater.2c00420
162. P. Vishnoi, J.L. Zuo, X. Li, D.C. Binwal, K.E. Wyckoff, L. Mao, L. Kautzsch, G. Wu, S.D. **Wilson**, M.G. Kanatzidis, R. **Seshadri**, A.K. Cheetham, Hybrid layered double perovskite halides of transition metals, *J. Am. Chem. Soc*. **144** (2022) 6661–6666. DOI: 10.1021/jacs.1c12760
163. N.M. Wang, G. Strong, V. DaSilva, L. Gao, R. Huacuja, I.A. Konstantinov, M.S. Rosen, A.J. Nett, S. Ewart, R. Geyer, S.L. Scott, D. Guironnet, Chemical recycling of polyethylene by tandem catalytic conversion to propylene, *J. Am. Chem. Soc*. **144** (2022) 18526–18531. DOI: 10.1021/jacs.2c07781
164. S. Wang, E.E. Morgan, S. Panuganti, L. Mao, P. Vishnoi, G. Wu, Q. Liu, M.G. Kanatzidis, R.D. Schaller, R. **Seshadri**, Ligand control of structural diversity in luminescent hybrid copper(I) iodides, *Chem. Mater.* **34** (2022) 3206–3216. DOI: 10.1021/acs.chemmater.1c04408
165. D. Werhahn , B.R. Ortiz , A.K. Hay , S.D. **Wilson** , R. **Seshadri**, D. Johrendt, The kagomé metals $RbTi_3Bi_5$ and $CsTi_3Bi_5$, *Z. Naturforsch., B* **77** (2022) 757–764. DOI: 10.1515/znb-2022-0125
166. E.G. Wilbanks, H. Doré, M.H. Ashby, C. Heiner, R.J. Roberts, J.A. Eisen, Metagenomic methylation patterns resolve bacterial genomes of unusual size and structural complexity, *ISME J.* **16**, (2022) 1921–1931. DOI: 10.1038/s41396-022-01242-7
167. V.C. Wu, R. Giovine, E.E. Foley, J. Finzel, M. Balasubramanian, E. Sebti, E.M. Mozur, A.H. Kwon, R.J. **Clément**, Unlocking new redox activity in alluaudite cathodes through compositional design, *Chem. Mater.* **34** (2022) 4088–4103. DOI: 10.1021/acs.chemmater.2c00324
168. W. Wu, N.G. Combs, S. Stemmer, Revealing the intrinsic transport properties of antiperovskite Sr_3SnO thin films, *Appl. Phys. Lett*. **121** (2022) 233101. DOI: 10.1063/5.0128316
169. K.E. Wyckoff, J.L. Kaufman, S.W. Baek, C. Dolle, J.J. Zak, J. Bienz, L. Kautzsch, R.C. Vincent, A. Zohar, K.A. See, Y.M. Eggeler, L. Pilon, A. **Van der Ven**, R. **Seshadri**, Metal–metal bonding as an electrode design principle in the low-strain cluster compound $LiScMo_3O_8$, *J. Am. Chem. Soc.* **144** (2022) 5841–5854. DOI: 10.1021/jacs.1c12070

170. R. Xie, I. Lapkriengkri, N.B. Pramanik, S. Mukherjee, J.R. Blankenship, K. Albanese, H. Wang, M.L. **Chabinyc**, C.M. **Bates**, Hydrogen-bonding bottlebrush networks: Self-healing materials from super-soft to stiff, *Macromolecules* **55** (2022) 10513–10521. DOI: 10.1021/acs.macromol.2c01886
171. C. Xu, C. McCully, B. Dong, D.A. Howell, P. Sen, Cosmic-CoNN: A cosmic-ray detection deep-learning framework, data set, and toolkit, *Astrophys. J.* **942** (2023) 73. DOI: 10.3847/1538-4357/ac9d91P
172. S. Xu, J.Y. Cheng, N.A. Mara, I.J. Beyerlein, Dislocation dynamics in heterogeneous nanostructured materials, *J. Mech. Phys. Solids* **168** (2022) 105031. DOI: 10.1016/j.jmps.2022.105031
173. S. Xu, J.Y. Cheng, N.A. Mara, I.J. Beyerlein, (2022), 'Thick interface size effect on dislocation transmission in nanolaminates', *42ND Risø International Symposium on Materials Science*, Technical University of Denmark, Denmark September 5–9, 2022. IOP Publishing *IOP Conf. Series: Mater. Sci. Eng*. **1249** (2022) 012005. DOI: 10.1088/1757-899X/1249/1/012005
174. S. Xu, W-R. Jian, I.J. Beyerlein, Ideal simple shear strengths of two HfNbTaTi-based quinary refractory multi-principal element alloys, *APL Mater.* **10** (2022) 111107. DOI: 10.1063/5.0116898
175. L. Zhang, O. Blaes, Y-F. Jiang, Radiative relativistic magnetohydrodynamic simulations of neutron star column accretion in Cartesian geometry, *Mon. Not. R. Astron. Soc.* **515** (2022) 4371–4390. DOI: 10.1093/mnras/stac1815
176. Y. Zhang, S.P.O. Danielsen, B.C. Popere, A.T. Heitsch, M. Li, P. Trefonas, R.A. **Segalman**, R. Katsumata, Discrete, shallow doping of semiconductors via cylinder-forming block copolymer self-assembly, *Macromol. Mater. Eng.* **307** (2022) 2200155. DOI: 10.1002/mame.202200155
177. K. Zhao, P. Kohnke, Z. Yang, X. Cheng, S-L. You, L. Zhang, Enantioselective dearomative cyclization enabled by asymmetric cooperative gold catalysis, *Angew. Chem. Int. Ed.* **61** (2022) e202207518. DOI: 10.1002/anie.202207518