

Publications list Centre for Doctoral Training in New & Sustainable Photovoltaics

1. Sturdza, B. K., Kong, F., Yao, X., Niu, W., Ma, J., Feng, X., Riede, M. K., Bogani, L., Nicholas, R. J. "Emissive brightening in molecular graphene nanoribbons by twilight states," *Nature Communications* (15:2985), 2024. 10.1038/s41467-024-47139-1
2. Sturdza, B. K., Gallant, B. M., Holzhey, P., Duijnste, E. A., von der Leyen, M. W., Sansom, H. C., Snaith, H. J., Riedea, M. K., and Nicholas, R. J. "Direct observation of phase transitions between delta- and alpha-phase FAPbI₃ via defocused Raman spectroscopy," *Journal of Materials Chemistry A* (12), 2024, pp. 5406-5413. 10.1039/D3TA06411E
3. Bastianini, F., Hidalgo, A. I. C., Hook, D. Z., Smith, J. A., Cumming, D. and Dunbar, A. "Using Ag nanoparticles in the electron transport layer of perovskite solar cells to improve efficiency," *Solar Energy* (268), 2024, pp. 112318. 10.1016/j.solener.2024.112318
4. Baikie, T. K., Wey, L. T., Lawrence, J. M., Medipally, H., Reisner, E., Nowaczyk, M. M., Friend, R. H., Howe, C. J., Schnedermann, C., Rao, A. and Zhang, J. Z. "Photosynthesis re-wired on the pico-second timescale," *Nature* (615:7954), 2023, pp. 836-840. 10.1038/s41586-023-05763-9
5. Bennett, L. J., Riquelme, A. J., Anta, J. A., Courtier, N. E. and Richardson, G. "Avoiding Ionic Interference in Computing the Ideality Factor for Perovskite Solar Cells and an Analytical Theory of Their Impedance-Spectroscopy Response," *Physical Review Applied* (19:1), 2023. 10.1103/physrevapplied.19.014061
6. Cassella, E. J., Spooner, E. L. K., Smith, J. A., Thornber, T., O'Kane, M. E., Oliver, R. D. J., Catley, T. E., Choudhary, S., Wood, C. J., Hammond, D. B., Snaith, H. J. and Lidzey, D. G. "Binary Solvent System Used to Fabricate Fully Annealing-Free Perovskite Solar Cells," *Advanced Energy Materials* (13:11), 2023, pp. 2203468. 10.1002/aenm.202203468
7. Duijnste, E. A., Gallant, B. M., Holzhey, P., Kubicki, D. J., Collavini, S., Sturdza, B. K., Sansom, H. C., Smith, J., Gutmann, M. J., Saha, S., Gedda, M., Nugraha, M. I., Kober-Czerny, M., Xia, C., Wright, A. D., Lin, Y.-H., Ramadan, A. J., Matzen, A., Hung, E. Y.-H., Seo, S., Zhou, S., Lim, J., Anthopoulos, T. D., Filip, M. R., Johnston, M. B., Nicholas, R. J., Delgado, J. L. and Snaith, H. J. "Understanding the Degradation of Methylendiammonium and Its Role in Phase-Stabilizing Formamidinium Lead Triiodide," *Journal of the American Chemical Society* (145:18), 2023, pp. 10275-10284. 10.1021/jacs.3c01531
8. Game, O. S., Thornber, T., Cepero-Mejías, F., Infante-Ortega, L. C., Togay, M., Cassella, E. J., Kilbride, R. C., Gordon, R. H., Mullin, N., Greenhalgh, R. C., Isherwood, P. J. M., Walls, J. M., Fairclough, J. P. A. and Lidzey, D. G. "Direct Integration of Perovskite Solar Cells with Carbon Fiber Substrates," *Advanced Materials*, 2023, pp. 2209950. 10.1002/adma.202209950
9. Spooner, E. L. K., Cassella, E. J., Smith, J. A., Catley, T. E., Burholt, S. and Lidzey, D. G. "Air-Knife-Assisted Spray Coating of Organic Solar Cells," *ACS Applied Materials & Interfaces* (15:33), 2023, pp. 39625-39635. 10.1021/acsami.3c05306
10. Andreasen, J. W., Arca, E., Bowers, J. W., Bär, M., Breternitz, J., Dale, P. J., Dimitrievska, M., Fermin, D. J., Ganose, A., Hages, C. J., Hobson, T., Jaramillo, R., Kavanagh, S. R., Kayastha, P., Kondrotas, R., Lee, J., Major, J. D., Mandati, S., Mitzi, D. B., Scanlon, D. O., Schorr, S., Scragg, J. J. S., Shin, B., Siebentritt, S., Smiles, M., Sood, M., Sopiha, K. V., Spalatu, N., Sutton, M., Unold, T., Valdes, M., Walsh, A., Wang, M., Wang, X., Weiss, T. P., Woo, Y. W., Woods-Robinson, R. and Tiwari, D. "Novel chalcogenides, pnictides and defect-tolerant semiconductors: general discussion," *Faraday*

Discussions (239), 2022, pp. 287-316. 10.1039/d2fd90057b

11. Baikie, T. K., Ashoka, A., Rao, A. and Greenham, N. C. "Thermodynamic Limits of Photon-Multiplier Luminescent Solar Concentrators," *PRX Energy* (1:3), 2022. 10.1103/prxenergy.1.033001
12. Bastola, E., Phillips, A. B., Abudulium, A., Kornienko, V., Jamarkattel, M. K., Rabbani, Z. H., Friedl, J. D., Kalurachchi, P. N., Abbas, A., Quader, A., Mathew, X., Walls, M., Ellingson, R. J. and Heben, M. J. "Understanding the Behavior of Fixed Composition CdSe_xTe_{1-x} (CST) Solar Cells", '2022 IEEE 49th Photovoltaics Specialists Conference (PVSC)', 2022. 10.1109/pvsc48317.2022.9938589
13. Bello, S., Urwick, A., Bastianini, F., Nedoma, A. J. and Dunbar, A. "An introduction to perovskites for solar cells and their characterisation," *Energy Reports* (8), 2022, pp. 89-106. 10.1016/j.egy.2022.08.205
14. Blackburn, D., Routledge, T. J., O'Kane, M., Cassella, E. J., Game, O. S., Catley, T. E., Wood, C. J., McArdle, T. and Lidzey, D. G. "Low-Temperature, Scalable, Reactive Deposition of Tin Oxide for Perovskite Solar Cells," *Solar RRL* (6:8), 2022. 10.1002/solr.202200263
15. Bukhari, F., Jones, L., Law, A., Abbas, A. and Walls, J. M. "Effect of Dilute Acid Exposure on Sol-gel Porous Silica Anti-Reflection Coatings", '2022 IEEE 49th Photovoltaics Specialists Conference (PVSC)', 2022. 10.1109/pvsc48317.2022.9938670
16. Cassella, E. J., Spooner, E. L. K., Thornber, T., O'Kane, M. E., Catley, T. E., Bishop, J. E., Smith, J. A., Game, O. S. and Lidzey, D. G. "Gas-Assisted Spray Coating of Perovskite Solar Cells Incorporating Sprayed Self-Assembled Monolayers," *Advanced Science* (9:14), 2022. 10.1002/adv.202104848
17. Greenhalgh, R., Morris, K., Kornienko, V., Bliss, M., Abbas, A., Bowers, J. and Walls, M. "Effect of Microstructure on the Photoactivity of Thin Film CdSe", '2022 IEEE 49th Photovoltaics Specialists Conference (PVSC)', 2022. 10.1109/pvsc48317.2022.9938834
18. Hobson, T. D. C., Shiel, H., Savory, C. N., Swallow, J. E. N., Jones, L. A. H., Featherstone, T. J., Smiles, M. J., Thakur, P. K., Lee, T.-L., Das, B., Leighton, C., Zoppi, G., Dhanak, V. R., Scanlon, D. O., Veal, T. D., Durose, K. and Major, J. D. "P-type conductivity in Sn-doped Sb₂Se₃," *Journal of Physics: Energy* (4:4), 2022, pp. 045006. 10.1088/2515-7655/ac91a6
19. Jones, L. A. H., Xing, Z., Swallow, J. E. N., Shiel, H., Featherstone, T. J., Smiles, M. J., Fleck, N., Thakur, P. K., Lee, T.-L., Hardwick, L. J., Scanlon, D. O., Regoutz, A., Veal, T. D. and Dhanak, V. R. "Band Alignments, Electronic Structure, and Core-Level Spectra of Bulk Molybdenum Dichalcogenides (MoS₂, MoSe₂, and MoTe₂)," *The Journal of Physical Chemistry C* (126:49), 2022, pp. 21022-21033. 10.1021/acs.jpcc.2c05100
20. Kornienko, V., Oklobia, O., Irvine, S., Jones, S., Kartopu, G., Abbas, A., Tse, Y. Y., Bowers, J., Barth, K. and Walls, M. "Large Area Survey Grain Size and Texture Optimization For Thin Film CdTe Solar Cells Using Xenon-Plasma Focused Ion Beam (PFIB)", '2022 IEEE 49th Photovoltaics Specialists Conference (PVSC)', 2022. 10.1109/pvsc48317.2022.9938662
21. Law, A. M., Bukhari, F., Jones, L. O., Abbas, A. and Walls, J. M. "Testing the Abrasion Resistance of Porous SiO₂ Anti-reflection Coatings for Solar Cover Glass", '2022 IEEE 49th Photovoltaics Specialists Conference (PVSC)', 2022.
22. Law, A. M., Bukhari, F., Jones, L. O., Isherwood, P. J. M. and Walls, J. M. "Multilayer Antireflection Coatings for Cover Glass on Silicon Solar Modules," *IEEE Journal of Photovoltaics* (12:5), 2022, pp. 1205-1210. 10.1109/pvsc48317.2022.9938907

23. McNab, S., Yu, M., Al-Dhahir, I., Khorani, E., Rahman, T., Boden, S. A., Altermatt, P. P., Wilshaw, P. R. and Bonilla, R. S. "Alternative dielectrics for hole selective passivating contacts and the influence of nanolayer built-in charge", 'AIP Conference Proceedings', AIP Publishing, 2022. 10.1063/5.0089282
24. Oklobia, O., Jones, S., Kartopu, G., Lu, D., Miller, W., Mallick, R., Li, X., Xiong, G., Kornienko, V., Abbas, A., Bliss, M., Walls, J. M. and Irvine, S. J. C. "Impact of In-Situ Cd Saturation MOCVD Grown CdTe Solar Cells on As Doping and VOC," *IEEE Journal of Photovoltaics* (12:6), 2022, pp. 1296-1302. 10.1109/jphotov.2022.3195086
25. Sasitharan, K., Kilbride, R. C., Spooner, E. L. K., Clark, J., Iraqi, A., Lidzey, D. G. and Foster, J. A. "Metal-Organic Framework Nanosheets as Templates to Enhance Performance in Semi-Crystalline Organic Photovoltaic Cells," *Advanced Science* (9:21), 2022. 10.1002/adv.202200366
26. Smiles, M. J., Law, A. M., Urwick, A. N., Thomas, L., Irvine, L. A. D., Pilot, M. T., Bowman, A. R. and Walker, A. B. "Next steps in the footprint project: A feasibility study of installing solar panels on Bath Abbey," *Energy Science & Engineering* (10:3), 2022, pp. 892-902. 10.1002/ese3.1069
27. Smiles, M. J., Shalvey, T. P., Thomas, L., Hobson, T. D. C., Jones, L. A. H., Phillips, L. J., Don, C., Beesley, T., Thakur, P. K., Lee, T.-L., Durose, K., Major, J. D. and Veal, T. D. "GeSe photovoltaics: doping, interfacial layer and devices," *Faraday Discussions* (239), 2022, pp. 250-262. 10.1039/d2fd00048b
28. Sturdza, B. K., Lauritzen, A. E., Zhou, S., Bennett, A. J., Form, J., Christoforo, M. G., Dalgliesh, R. M., Snaith, H. J., Riede, M. K. and Nicholas, R. J. "Improving performance of fully scalable, flexible transparent conductive films made from carbon nanotubes and ethylene-vinyl acetate," *Energy Reports* (8), 2022, pp. 48-60. 10.1016/j.egy.2022.05.047
29. Thomas, L., Don, C. H. and Major, J. D. "An investigation into the optimal device design for selenium solar cells," *Energy Reports* (8), 2022, pp. 14-22. 10.1016/j.egy.2022.05.045
30. Thornber, T., Game, O. S., Cassella, E. J., O'Kane, M. E., Bishop, J. E., Routledge, T. J., Alanazi, T. I., Togay, M., Isherwood, P. J. M., Infante-Ortega, L. C., Hammond, D. B., Walls, J. M. and Lidzey, D. G. "Nonplanar Spray-Coated Perovskite Solar Cells," *ACS Applied Materials & Interfaces* (14:33), 2022, pp. 37587-37594. 10.1021/acscami.2c05085
31. Tyson, J. J., Rahman, T. and Boden, S. A. "Angle-Resolved Spectrophotometry for the Optical Characterization of Material Surfaces," *IEEE Transactions on Instrumentation and Measurement* (71), 2022, pp. 1-8. 10.1109/tim.2022.3146947
32. Urwick, A. N., Bastianini, F., Pérez, G. E. and Dunbar, A. "Deciphering perovskite decomposition in a humid atmosphere with TOF-GISANS," *Energy Reports* (8), 2022, pp. 23-33. 10.1016/j.egy.2022.05.044
33. Bowman, A. R., Lang, F., Chiang, Y.-H., Jiménez-Solano, A., Frohna, K., Eperon, G. E., Ruggeri, E., Abdi-Jalebi, M., Anaya, M., Lotsch, B. V. and Stranks, S. D. "Relaxed Current Matching Requirements in Highly Luminescent Perovskite Tandem Solar Cells and Their Fundamental Efficiency Limits," *ACS Energy Letters* (6:2), 2021, pp. 612-620. 10.1021/acscenergylett.0c02481
34. Buizza, L. R. V. and Herz, L. M. "Polarons and Charge Localization in Metal-Halide Semiconductors for Photovoltaic and Light-Emitting Devices," *Advanced Materials* (33:24), 2021. 10.1002/adma.202007057

35. Buizza, L. R. V., Wright, A. D., Longo, G., Sansom, H. C., Xia, C. Q., Rosseinsky, M. J., Johnston, M. B., Snaith, H. J. and Herz, L. M. "Charge-Carrier Mobility and Localization in Semiconducting Cu₂AgBiI₆ for Photovoltaic Applications," *ACS Energy Letters* (6:5), 2021, pp. 1729-1739. 10.1021/acsenergylett.1c00458
36. Castro-Chong, A., Riquelme, A. J., Aernouts, T., Bennett, L. J., Richardson, G., Oskam, G. and Anta, J. A. "Illumination Intensity Dependence of the Recombination Mechanism in Mixed Perovskite Solar Cells," *ChemPlusChem* (86:9), 2021, pp. 1347-1356. 10.1002/cplu.202100233
37. Duijnste, E. A., Le Corre, V. M., Johnston, M. B., Koster, L. J. A., Lim, J. and Snaith, H. J. "Understanding Dark Current-Voltage Characteristics in Metal-Halide Perovskite Single Crystals," *Physical Review Applied* (15:1), 2021. 10.1103/physrevapplied.15.014006
38. Gillett, A. J., Tonnelé, C., Londi, G., Ricci, G., Catherin, M., Unson, D. M. L., Casanova, D., Castet, F., Olivier, Y., Chen, W. M., Zaborova, E., Evans, E. W., Drummond, B. H., Conaghan, P. J., Cui, L.-S., Greenham, N. C., Puttisong, Y., Fages, F., Beljonne, D. and Friend, R. H. "Spontaneous exciton dissociation enables spin state interconversion in delayed fluorescence organic semiconductors," *Nature Communications* (12:1), 2021. 10.1038/s41467-021-26689-8
39. Irvine, L. A. D., Walker, A. B. and Wolf, M. J. "Quantifying polaronic effects on the scattering and mobility of charge carriers in lead halide perovskites," *Physical Review B* (103:22), 2021. 10.1103/physrevb.103.l220305
40. Kornienko, V., Robertson, S., Maclachlan, R., Shimpi, T., Sampath, W., Barth, K. L., Fiducia, T., Abbas, A., Tse, Y. Y., Bowers, J. and Walls, M. "High Speed 3-Dimensional Characterisation of Graded CdSeTe/CdTe PV Devices Using a Xenon Plasma-Focused Ion beam (PFIB)", '2021 IEEE 48th Photovoltaic Specialists Conference (PVSC)', 2021. 10.1109/pvsc43889.2021.9519098
41. Le Corre, V. M., Duijnste, E. A., El Tambouli, O., Ball, J. M., Snaith, H. J., Lim, J. and Koster, L. J. A. "Revealing Charge Carrier Mobility and Defect Densities in Metal Halide Perovskites via Space-Charge-Limited Current Measurements," *ACS Energy Letters* (6:3), 2021, pp. 1087-1094. 10.1021/acsenergylett.0c02599
42. Leaver, J. F., Durose, K. and Major, J. D. "Annealing and Treatment Effects on Se Diffusion in CdTe Photovoltaics", '2021 IEEE 48th Photovoltaic Specialists Conference (PVSC)', 2021. 10.1109/pvsc43889.2021.9518821
43. Newkirk, J. M., Nayshevsky, I., Sinha, A., Law, A. M., Xu, Q., To, B., Ndione, P. F., Schelhas, L. T., Walls, J. M., Lyons, A. M. and Miller, D. C. "Artificial linear brush abrasion of coatings for photovoltaic module first-surfaces," *Solar Energy Materials and Solar Cells* (219), 2021, pp. 110757. 10.1016/j.solmat.2020.110757
44. O'Kane, M. E., Smith, J. A., Alanazi, T. I., Cassella, E. J., Game, O., van Meurs, S. and Lidzey, D. G. "Perovskites on Ice: An Additive-Free Approach to Increase the Shelf-Life of Triple-Cation Perovskite Precursor Solutions," *ChemSusChem* (14:12), 2021, pp. 2486-2486. 10.1002/cssc.202100987
45. Sansom, H. C., Longo, G., Wright, A. D., Buizza, L. R. V., Mahesh, S., Wenger, B., Zanella, M., Abdi-Jalebi, M., Pitcher, M. J., Dyer, M. S., Manning, T. D., Friend, R. H., Herz, L. M., Snaith, H. J., Claridge, J. B. and Rosseinsky, M. J. "Highly Absorbing Lead-Free Semiconductor Cu₂AgBiI₆ for Photovoltaic Applications from the Quaternary CuI-AgI-BiI₃ Phase Space," *Journal of the American Chemical Society* (143:10), 2021, pp. 3983-3992. 10.1021/jacs.1c00495
46. Shiel, H., Hobson, T. D. C., Hutter, O. S., Phillips, L. J., Smiles, M. J., Jones, L. A. H., Featherstone, T.

- J., Swallow, J. E. N., Thakur, P. K., Lee, T.-L., Major, J. D., Durose, K. and Veal, T. D. "Band alignment of Sb₂O₃ and Sb₂Se₃," *Journal of Applied Physics* (129:23), 2021. 10.1063/5.0055366
47. Smiles, M. J., Skelton, J. M., Shiel, H., Jones, L. A. H., Swallow, J. E. N., Edwards, H. J., Murgatroyd, P. A. E., Featherstone, T. J., Thakur, P. K., Lee, T.-L., Dhanak, V. R. and Veal, T. D. "Ge 4s₂ lone pairs and band alignments in GeS and GeSe for photovoltaics," *Journal of Materials Chemistry A* (9:39), 2021, pp. 22440-22452. 10.1039/d1ta05955f
48. Tennyson, E. M., Frohna, K., Drake, W. K., Sahli, F., Chien-Jen Yang, T., Fu, F., Werner, J., Chosy, C., Bowman, A. R., Doherty, T. A. S., Jeangros, Q., Ballif, C. and Stranks, S. D. "Multimodal Microscale Imaging of Textured Perovskite–Silicon Tandem Solar Cells," *ACS Energy Letters* (6:6), 2021, pp. 2293-2304. 10.1021/acsenergylett.1c00568
49. Tsevas, K., Smith, J. A., Kumar, V., Rodenburg, C., Fakis, M., Mohd Yusoff, A. R. b., Vasilopoulou, M., Lidzey, D. G., Nazeeruddin, M. K. and Dunbar, A. D. F. "Controlling PbI₂ Stoichiometry during Synthesis to Improve the Performance of Perovskite Photovoltaics," *Chemistry of Materials* (33:2), 2021, pp. 554-566. 10.1021/acs.chemmater.0c03517
50. Wright, A. D., Buizza, L. R. V., Savill, K. J., Longo, G., Snaith, H. J., Johnston, M. B. and Herz, L. M. "Ultrafast Excited-State Localization in Cs₂AgBiBr₆ Double Perovskite," *The Journal of Physical Chemistry Letters* (12:13), 2021, pp. 3352-3360. 10.1021/acs.jpcllett.1c00653
51. Alanazi, T. I., Game, O. S., Smith, J. A., Kilbride, R. C., Greenland, C., Jayaprakash, R., Georgiou, K., Terrill, N. J. and Lidzey, D. G. "Potassium iodide reduces the stability of triple-cation perovskite solar cells," *RSC Advances* (10:66), 2020, pp. 40341-40350. 10.1039/d0ra07107b
52. Andaji-Garmaroudi, Z., Abdi-Jalebi, M., Kosasih, F. U., Doherty, T., Macpherson, S., Bowman, A. R., Man, G. J., Cappel, U. B., Rensmo, H., Ducati, C., Friend, R. H. and Stranks, S. D. "Elucidating and Mitigating Degradation Processes in Perovskite Light-Emitting Diodes," *Advanced Energy Materials* (10:48), 2020. 10.1002/aenm.202002676
53. Bishop, J. E., Read, C. D., Smith, J. A., Routledge, T. J. and Lidzey, D. G. "Fully Spray-Coated Triple-Cation Perovskite Solar Cells," *Scientific Reports* (10:1), 2020. 10.1038/s41598-020-63674-5
54. Bishop, J. E., Smith, J. A. and Lidzey, D. G. "Development of Spray-Coated Perovskite Solar Cells," *ACS Applied Materials & Interfaces* (12:43), 2020, pp. 48237-48245. 10.1021/acsam.0c14540
55. Bossanyi, D. G., Matthiesen, M., Wang, S., Smith, J. A., Kilbride, R. C., Shipp, J. D., Chekulaev, D., Holland, E., Anthony, J. E., Zaumseil, J., Musser, A. J. and Clark, J. "Emissive spin-0 triplet-pairs are a direct product of triplet–triplet annihilation in pentacene single crystals and anthradithiophene films," *Nature Chemistry* (13:2), 2020, pp. 163-171. 10.1038/s41557-020-00593-y
56. Bowman, A. R., Anaya, M., Greenham, N. C. and Stranks, S. D. "Quantifying Photon Recycling in Solar Cells and Light-Emitting Diodes: Absorption and Emission Are Always Key," *Physical Review Letters* (125:6), 2020. 10.1103/physrevlett.125.067401
57. Cai, J., Wang, H., Zhang, X., Li, W., Li, D., Mao, Y., Du, B., Chen, M., Zhuang, Y., Liu, D., Qin, H.-L., Zhao, Y., Smith, J. A., Kilbride, R. C., Parnell, A. J., Jones, R. A. L., Lidzey, D. G. and Wang, T. "Fluorinated solid additives enable high efficiency non-fullerene organic solar cells," *Journal of Materials Chemistry A* (8:8), 2020, pp. 4230-4238. 10.1039/c9ta13974e
58. Cave, J. M., Courtier, N. E., Blakborn, I. A., Jones, T. W., Ghosh, D., Anderson, K. F., Lin, L., Dijkhoff, A. A., Wilson, G. J., Feron, K., Saiful Islam, M., Foster, J. M., Richardson, G. and Walker, A. B.

"Deducing transport properties of mobile vacancies from perovskite solar cell characteristics," *Journal of Applied Physics* (128:18), 2020. 10.1063/5.0021849

59. Chen, S., Chen, X., Duijnste, E. A., Sanyal, B. and Banerjee, T. "Unveiling Temperature-Induced Structural Domains and Movement of Oxygen Vacancies in SrTiO₃ with Graphene," *ACS Applied Materials & Interfaces* (12:47), 2020, pp. 52915-52921. 10.1021/acscami.0c15458
60. Don, C. H., Shiel, H., Hobson, T. D. C., Savory, C. N., Swallow, J. E. N., Smiles, M. J., Jones, L. A. H., Featherstone, T. J., Thakur, P. K., Lee, T.-L., Durose, K., Major, J. D., Dhanak, V. R., Scanlon, D. O. and Veal, T. D. "Sb 5s₂ lone pairs and band alignment of Sb₂Se₃: a photoemission and density functional theory study," *Journal of Materials Chemistry C* (8:36), 2020, pp. 12615-12622. 10.1039/d0tc03470c
61. Duijnste, E. A., Ball, J. M., Le Corre, V. M., Koster, L. J. A., Snaith, H. J. and Lim, J. "Toward Understanding Space-Charge Limited Current Measurements on Metal Halide Perovskites," *ACS Energy Letters* (5:2), 2020, pp. 376-384. 10.1021/acscenergylett.9b02720
62. Game, O. S., Smith, J. A., Alanazi, T. I., Wong-Stringer, M., Kumar, V., Rodenburg, C., Terrill, N. J. and Lidzey, D. G. "Solvent vapour annealing of methylammonium lead halide perovskite: what's the catch?," *Journal of Materials Chemistry A* (8:21), 2020, pp. 10943-10956. 10.1039/d0ta03023f
63. Hobson, T. D. C., Phillips, L. J., Hutter, O. S., Shiel, H., Swallow, J. E. N., Savory, C. N., Nayak, P. K., Mariotti, S., Das, B., Bowen, L., Jones, L. A. H., Featherstone, T. J., Smiles, M. J., Farnworth, M. A., Zoppi, G., Thakur, P. K., Lee, T.-L., Snaith, H. J., Leighton, C., Scanlon, D. O., Dhanak, V. R., Durose, K., Veal, T. D. and Major, J. D. "Isotype Heterojunction Solar Cells Using n-Type Sb₂Se₃ Thin Films," *Chemistry of Materials* (32:6), 2020, pp. 2621-2630. 10.1021/acs.chemmater.0c00223
64. Jones, L. A. H., Linhart, W. M., Fleck, N., Swallow, J. E. N., Murgatroyd, P. A. E., Shiel, H., Featherstone, T. J., Smiles, M. J., Thakur, P. K., Lee, T.-L., Hardwick, L. J., Alaria, J., Jäckel, F., Kudrawiec, R., Burton, L. A., Walsh, A., Skelton, J. M., Veal, T. D. and Dhanak, V. R. "Sn 5S₂ lone pairs and the electronic structure of tin sulphides: A photoreflectance, high-energy photoemission, and theoretical investigation," *Physical Review Materials* (4:7), 2020. 10.1103/physrevmaterials.4.074602
65. Lang, F., Jošt, M., Frohna, K., Köhnen, E., Al-Ashouri, A., Bowman, A. R., Bertram, T., Morales-Vilches, A. B., Koushik, D., Tennyson, E. M., Galkowski, K., Landi, G., Creatore, M., Stannowski, B., Kaufmann, C. A., Bundesmann, J., Rappich, J., Rech, B., Denker, A., Albrecht, S., Neitzert, H.-C., Nickel, N. H. and Stranks, S. D. "Proton Radiation Hardness of Perovskite Tandem Photovoltaics," *Joule* (4:5), 2020, pp. 1054-1069. 10.1016/j.joule.2020.03.006
66. Longo, G., Mahesh, S., Buizza, L. R. V., Wright, A. D., Ramadan, A. J., Abdi-Jalebi, M., Nayak, P. K., Herz, L. M. and Snaith, H. J. "Understanding the Performance-Limiting Factors of Cs₂AgBiBr₆ Double-Perovskite Solar Cells," *ACS Energy Letters* (5:7), 2020, pp. 2200-2207. 10.1021/acscenergylett.0c01020
67. Murgatroyd, P. A. E., Smiles, M. J., Savory, C. N., Shalvey, T. P., Swallow, J. E. N., Fleck, N., Robertson, C. M., Jäckel, F., Alaria, J., Major, J. D., Scanlon, D. O. and Veal, T. D. "GeSe: Optical Spectroscopy and Theoretical Study of a van der Waals Solar Absorber," *Chemistry of Materials* (32:7), 2020, pp. 3245-3253. 10.1021/acs.chemmater.0c00453
68. Riquelme, A., Bennett, L. J., Courtier, N. E., Wolf, M. J., Contreras-Bernal, L., Walker, A. B., Richardson, G. and Anta, J. A. "Identification of recombination losses and charge collection efficiency in a perovskite solar cell by comparing impedance response to a drift-diffusion model," *Nanoscale* (12:33), 2020, pp. 17385-17398. 10.1039/d0nr03058a

69. Shiel, H., Hutter, O. S., Phillips, L. J., Swallow, J. E. N., Jones, L. A. H., Featherstone, T. J., Smiles, M. J., Thakur, P. K., Lee, T.-L., Dhanak, V. R., Major, J. D. and Veal, T. D. "Natural Band Alignments and Band Offsets of Sb₂Se₃ Solar Cells," *ACS Applied Energy Materials* (3:12), 2020, pp. 11617-11626. 10.1021/acsaem.0c01477
70. Smith, J. A., Game, O. S., Bishop, J. E., Spooner, E. L. K., Kilbride, R. C., Greenland, C., Jayaprakash, R., Alanazi, T. I., Cassella, E. J., Tejada, A., Chistiakova, G., Wong-Stringer, M., Routledge, T. J., Parnell, A. J., Hammond, D. B. and Lidzey, D. G. "Rapid Scalable Processing of Tin Oxide Transport Layers for Perovskite Solar Cells," *ACS Applied Energy Materials* (3:6), 2020, pp. 5552-5562. 10.1021/acsaem.0c00525
71. Soh, E. J. H., Sarwat, S. G., Mazzotta, G., Porter, B. F., Riede, M., Nicholas, R., Kim, J. S. and Bhaskaran, H. "Filamentary High-Resolution Electrical Probes for Nanoengineering," *Nano Letters* (20:2), 2020, pp. 1067-1073. 10.1021/acs.nanolett.9b04302
72. Swallow, J. E. N., Vorwerk, C., Mazzolini, P., Vogt, P., Bierwagen, O., Karg, A., Eickhoff, M., Schörmann, J., Wagner, M. R., Roberts, J. W., Chalker, P. R., Smiles, M. J., Murgatroyd, P., Razek, S. A., Lebens-Higgins, Z. W., Piper, L. F. J., Jones, L. A. H., Thakur, P. K., Lee, T.-L., Varley, J. B., Furthmüller, J., Draxl, C., Veal, T. D. and Regoutz, A. "Influence of Polymorphism on the Electronic Structure of Ga₂O₃," *Chemistry of Materials* (32:19), 2020, pp. 8460-8470. 10.1021/acs.chemmater.0c02465
73. Swallow, J. E. N., Williamson, B. A. D., Sathasivam, S., Birkett, M., Featherstone, T. J., Murgatroyd, P. A. E., Edwards, H. J., Lebens-Higgins, Z. W., Duncan, D. A., Farnworth, M., Warren, P., Peng, N., Lee, T.-L., Piper, L. F. J., Regoutz, A., Carmalt, C. J., Parkin, I. P., Dhanak, V. R., Scanlon, D. O. and Veal, T. D. "Resonant doping for high mobility transparent conductors: the case of Mo-doped In₂O₃," *Materials Horizons* (7:1), 2020, pp. 236-243. 10.1039/c9mh01014a
74. Trimpl, M. J., Wright, A. D., Schutt, K., Buizza, L. R. V., Wang, Z., Johnston, M. B., Snaith, H. J., Müller-Buschbaum, P. and Herz, L. M. "Charge-Carrier Trapping and Radiative Recombination in Metal Halide Perovskite Semiconductors," *Advanced Functional Materials* (30:42), 2020. 10.1002/adfm.202004312
75. Ulatowski, A. M., Wright, A. D., Wenger, B., Buizza, L. R. V., Motti, S. G., Eggimann, H. J., Savill, K. J., Borchert, J., Snaith, H. J., Johnston, M. B. and Herz, L. M. "Charge-Carrier Trapping Dynamics in Bismuth-Doped Thin Films of MAPbBr₃ Perovskite," *The Journal of Physical Chemistry Letters* (11:9), 2020, pp. 3681-3688. 10.1021/acs.jpcclett.0c01048
76. Williamson, B. A. D., Featherstone, T. J., Sathasivam, S. S., Swallow, J. E. N., Shiel, H., Jones, L. A. H., Smiles, M. J., Regoutz, A., Lee, T.-L., Xia, X., Blackman, C., Thakur, P. K., Carmalt, C. J., Parkin, I. P., Veal, T. D. and Scanlon, D. O. "Resonant Ta Doping for Enhanced Mobility in Transparent Conducting SnO₂," *Chemistry of Materials* (32:5), 2020, pp. 1964-1973. 10.1021/acs.chemmater.9b04845
77. Ye, H., Kesava, S. V., Hardigree, J. F. M., Brown, R. E., Mazzotta, G., Warren, R., Skabara, P. J. and Riede, M. "Efficiency enhancement of small molecule organic solar cells using hexapropyltruxene as an interface layer," *Journal of Materials Chemistry C* (8:14), 2020, pp. 4909-4918. 10.1039/c9tc06845g
78. Bailey, C. G., Piana, G. M. and Lagoudakis, P. G. "High-Energy Optical Transitions and Optical Constants of CH₃NH₃PbI₃ Measured by Spectroscopic Ellipsometry and Spectrophotometry," *The Journal of Physical Chemistry C* (123:47), 2019, pp. 28795-28801. 10.1021/acs.jpcc.9b08903

79. Ball, J. M., Buizza, L., Sansom, H. C., Farrar, M. D., Klug, M. T., Borchert, J., Patel, J., Herz, L. M., Johnston, M. B. and Snaith, H. J. "Dual-Source Coevaporation of Low-Bandgap FA1-xCsxSn1-yPbyI3 Perovskites for Photovoltaics," *ACS Energy Letters* (4:11), 2019, pp. 2748-2756. 10.1021/acsenergylett.9b01855
80. Bastianini, F., Pérez, G. E., Hobson, A. R., Rogers, S. E., Parnell, A. J., Grell, M., Gutiérrez, A. F. and Dunbar, A. D. F. "In-situ monitoring Poly(3-hexylthiophene) nanowire formation and shape evolution in solution via small angle neutron scattering," *Solar Energy Materials and Solar Cells* (202), 2019, pp. 110128. 10.1016/j.solmat.2019.110128
81. Bowman, A. R., Klug, M. T., Doherty, T. A. S., Farrar, M. D., Senanayak, S. P., Wenger, B., Divitini, G., Booker, E. P., Andaji-Garmaroudi, Z., Macpherson, S., Ruggeri, E., Sirringhaus, H., Snaith, H. J. and Stranks, S. D. "Microsecond Carrier Lifetimes, Controlled p-Doping, and Enhanced Air Stability in Low-Bandgap Metal Halide Perovskites," *ACS Energy Letters* (4:9), 2019, pp. 2301-2307. 10.1021/acsenergylett.9b01446
82. Buizza, L. R. V., Crothers, T. W., Wang, Z., Patel, J. B., Milot, R. L., Snaith, H. J., Johnston, M. B. and Herz, L. M. "Charge-Carrier Dynamics, Mobilities, and Diffusion Lengths of 2D-3D Hybrid Butylammonium-Cesium-Formamidinium Lead Halide Perovskites," *Advanced Functional Materials* (29:35), 2019. 10.1002/adfm.201902656
83. Chen, M., Zhang, Z., Li, W., Cai, J., Yu, J., Spooner, E. L. K., Kilbride, R. C., Li, D., Du, B., Gurney, R. S., Liu, D., Tang, W., Lidzey, D. G. and Wang, T. "Regulating the morphology of fluorinated non-fullerene acceptor and polymer donor via binary solvent mixture for high efficiency polymer solar cells," *Science China Chemistry* (62:9), 2019, pp. 1221-1229. 10.1007/s11426-019-9484-8
84. Courtier, N. E., Cave, J. M., Foster, J. M., Walker, A. B. and Richardson, G. "How transport layer properties affect perovskite solar cell performance: insights from a coupled charge transport/ion migration model," *Energy & Environmental Science* (12:1), 2019, pp. 396-409. 10.1039/c8ee01576g
85. Courtier, N. E., Cave, J. M., Walker, A. B., Richardson, G. and Foster, J. M. "IonMonger: a free and fast planar perovskite solar cell simulator with coupled ion vacancy and charge carrier dynamics," *Journal of Computational Electronics* (18:4), 2019, pp. 1435-1449. 10.1007/s10825-019-01396-2
86. Ferdani, D. W., Pering, S. R., Ghosh, D., Kubiak, P., Walker, A. B., Lewis, S. E., Johnson, A. L., Baker, P. J., Islam, M. S. and Cameron, P. J. "Partial cation substitution reduces iodide ion transport in lead iodide perovskite solar cells," *Energy & Environmental Science* (12:7), 2019, pp. 2264-2272. 10.1039/c9ee00476a
87. Fiducia, T. A. M., Mendis, B. G., Li, K., Grovenor, C. R. M., Munshi, A. H., Barth, K., Sampath, W. S., Wright, L. D., Abbas, A., Bowers, J. W. and Walls, J. M. "Author Correction: Understanding the role of selenium in defect passivation for highly efficient selenium-alloyed cadmium telluride solar cells," *Nature Energy* (4:6), 2019, pp. 526-526. 10.1038/s41560-019-0416-0
88. Freestone, B. G., Smith, J. A., Piana, G., Kilbride, R. C., Parnell, A. J., Sortino, L., Coles, D. M., Ball, O. B., Martsinovich, N., Thompson, C. J., Alanazi, T. I., Game, O. S., Tartakovskii, A. I., Lagoudakis, P. and Lidzey, D. G. "Low-dimensional emissive states in non-stoichiometric methylammonium lead halide perovskites," *Journal of Materials Chemistry A* (7:18), 2019, pp. 11104-11116. 10.1039/c8ta12184b
89. Kubiak, P. S., Johnson, A. L., Cameron, P. J. and Kociok-Köhn, G. "Single Source Precursors for Calcium Sulfide (CaS) Deposition," *European Journal of Inorganic Chemistry* (2019:36), 2019, pp. 3962-3969. 10.1002/ejic.201900550

90. Piana, G. M., Bailey, C. G. and Lagoudakis, P. G. "Phonon-Assisted Trapping and Re-excitation of Free Carriers and Excitons in Lead Halide Perovskites," *The Journal of Physical Chemistry C* (123:32), 2019, pp. 19429-19436. 10.1021/acs.jpcc.9b06712
91. Routledge, T. J., Wong-Stringer, M., Game, O. S., Smith, J. A., Bishop, J. E., Vaenas, N., Freestone, B. G., Coles, D., McArdle, T., Buckley, A. R. and Lidzey, D. G. "Low-temperature, high-speed reactive deposition of metal oxides for perovskite solar cells," *Journal of Materials Chemistry A* (7:5), 2019, pp. 2283-2290. 10.1039/c8ta10827g
92. Swallow, J. E. N., Varley, J. B., Jones, L. A. H., Gibbon, J. T., Piper, L. F. J., Dhanak, V. R. and Veal, T. D. "Transition from electron accumulation to depletion at β -Ga₂O₃ surfaces: The role of hydrogen and the charge neutrality level," *APL Materials* (7:2), 2019. 10.1063/1.5054091
93. Whalley, L. D., Frost, J. M., Morgan, B. J. and Walsh, A. "Impact of nonparabolic electronic band structure on the optical and transport properties of photovoltaic materials," *Physical Review B* (99:8), 2019. 10.1103/physrevb.99.085207
94. Wong-Stringer, M., Routledge, T. J., McArdle, T., Wood, C. J., Game, O. S., Smith, J. A., Bishop, J. E., Vaenas, N., Coles, D. M., Buckley, A. R. and Lidzey, D. G. "A flexible back-contact perovskite solar micro-module," *Energy & Environmental Science* (12:6), 2019, pp. 1928-1937. 10.1039/c8ee03517b
95. Alsari, M., Bikondoa, O., Bishop, J., Abdi-Jalebi, M., Y. Ozer, L., Hampton, M., Thompson, P., T. Hörantner, M., Mahesh, S., Greenland, C., Macdonald, J. E., Palmisano, G., Snaith, H. J., Lidzey, D. G., Stranks, S. D., Friend, R. H. and Lilliu, S. "In situ simultaneous photovoltaic and structural evolution of perovskite solar cells during film formation," *Energy & Environmental Science* (11:2), 2018, pp. 383-393. 10.1039/c7ee03013d
96. Bastianini, F. and Dunbar, A. "Comparison of physical and chemical techniques to create nanostructured composite Hole Transport Layers for Perovskite Solar Cells", '14th Photovoltaic Science, Applications and Technology Conference (PVSAT-14)', International Solar Energy Society, U. K. Section, 2018.
97. Bishop, J. E., Smith, J. A., Greenland, C., Kumar, V., Vaenas, N., Game, O. S., Routledge, T. J., Wong-Stringer, M., Rodenburg, C. and Lidzey, D. G. "High-Efficiency Spray-Coated Perovskite Solar Cells Utilizing Vacuum-Assisted Solution Processing," *ACS Applied Materials & Interfaces* (10:46), 2018, pp. 39428-39434. 10.1021/acsami.8b14859
98. Cave, J. M. and Walker, A. B. "Modelling Hysteresis in Perovskite Solar Cells", *Photovoltaic Modeling Handbook*, Wiley, 2018, pp. 267-278. 10.1002/9781119364214.ch10
99. Courtier, N. E., Foster, J. M., O'Kane, S. E. J., Walker, A. B. and Richardson, G. "Systematic derivation of a surface polarisation model for planar perovskite solar cells," *European Journal of Applied Mathematics* (30:3), 2018, pp. 427-457. 10.1017/s0956792518000207
100. D. Whalley, L. "effmass: An effective mass package," *Journal of Open Source Software* (3:28), 2018, pp. 797. 10.21105/joss.00797
101. Ghosh, D., Smith, A. R., Walker, A. B. and Islam, M. S. "Mixed A-Cation Perovskites for Solar Cells: Atomic-Scale Insights Into Structural Distortion, Hydrogen Bonding, and Electronic Properties," *Chemistry of Materials* (30:15), 2018, pp. 5194-5204. 10.1021/acs.chemmater.8b01851
102. Holmes, N. P., Marks, M., Cave, J. M., Feron, K., Barr, M. G., Fahy, A., Sharma, A., Pan, X.,

- Kilcoyne, D. A. L., Zhou, X., Lewis, D. A., Andersson, M. R., van Stam, J., Walker, A. B., Moons, E., Belcher, W. J. and Dastoor, P. C. "Engineering Two-Phase and Three-Phase Microstructures from Water-Based Dispersions of Nanoparticles for Eco-Friendly Polymer Solar Cell Applications," *Chemistry of Materials* (30:18), 2018, pp. 6521-6531. 10.1021/acs.chemmater.8b03222
103. Idígoras, J., Contreras-Bernal, L., Cave, J. M., Courtier, N. E., Barranco, Á., Borrás, A., Sánchez-Valencia, J. R., Anta, J. A. and Walker, A. B. "The Role of Surface Recombination on the Performance of Perovskite Solar Cells: Effect of Morphology and Crystalline Phase of TiO₂ Contact," *Advanced Materials Interfaces* (5:21), 2018. 10.1002/admi.201801076
104. Mariotti, S., Hutter, O. S., Phillips, L. J., Yates, P. J., Kundu, B. and Durose, K. "Stability and Performance of CsPbI₂Br Thin Films and Solar Cell Devices," *ACS Applied Materials & Interfaces* (10:4), 2018, pp. 3750-3760. 10.1021/acsami.7b14039
105. Mazzotta, G., Dollmann, M., Habisreutinger, S. N., Christoforo, M. G., Wang, Z., Snaith, H. J., Riede, M. K. and Nicholas, R. J. "Solubilization of Carbon Nanotubes with Ethylene-Vinyl Acetate for Solution-Processed Conductive Films and Charge Extraction Layers in Perovskite Solar Cells," *ACS Applied Materials & Interfaces* (11:1), 2018, pp. 1185-1191. 10.1021/acsami.8b15396
106. Pulvirenti, F., Wegner, B., Noel, N. K., Mazzotta, G., Hill, R., Patel, J. B., Herz, L. M., Johnston, M. B., Riede, M. K., Snaith, H. J., Koch, N., Barlow, S. and Marder, S. R. "Modification of the fluorinated tin oxide/electron-transporting material interface by a strong reductant and its effect on perovskite solar cell efficiency," *Molecular Systems Design & Engineering* (3:5), 2018, pp. 741-747. 10.1039/c8me00031j
107. Wong-Stringer, M., Game, O. S., Smith, J. A., Routledge, T. J., Alqurashy, B. A., Freestone, B. G., Parnell, A. J., Vaenas, N., Kumar, V., Alawad, M. O. A., Iraqi, A., Rodenburg, C. and Lidzey, D. G. "High-Performance Multilayer Encapsulation for Perovskite Photovoltaics," *Advanced Energy Materials* (8:24), 2018. 10.1002/aenm.201801234
108. Bishop, J. E., Mohamad, D. K., Wong-Stringer, M., Smith, A. and Lidzey, D. G. "Spray-cast multilayer perovskite solar cells with an active-area of 1.5 cm²," *Scientific Reports* (7:1), 2017. 10.1038/s41598-017-08642-2
109. Booker, E. P., Thomas, T. H., Quarti, C., Stanton, M. R., Dashwood, C. D., Gillett, A. J., Richter, J. M., Pearson, A. J., Davis, N. J. L. K., Siringhaus, H., Price, M. B., Greenham, N. C., Beljonne, D., Dutton, S. E. and Deschler, F. "Formation of Long-Lived Color Centers for Broadband Visible Light Emission in Low-Dimensional Layered Perovskites," *Journal of the American Chemical Society* (139:51), 2017, pp. 18632-18639. 10.1021/jacs.7b10223
110. Borchert, J., Milot, R. L., Patel, J. B., Davies, C. L., Wright, A. D., Martínez Maestro, L., Snaith, H. J., Herz, L. M. and Johnston, M. B. "Large-Area, Highly Uniform Evaporated Formamidinium Lead Triiodide Thin Films for Solar Cells," *ACS Energy Letters* (2:12), 2017, pp. 2799-2804. 10.1021/acsenergylett.7b00967
111. Crothers, T. W., Milot, R. L., Patel, J. B., Parrott, E. S., Schlipf, J., Müller-Buschbaum, P., Johnston, M. B. and Herz, L. M. "Photon Reabsorption Masks Intrinsic Bimolecular Charge-Carrier Recombination in CH₃NH₃PbI₃ Perovskite," *Nano Letters* (17:9), 2017, pp. 5782-5789. 10.1021/acs.nanolett.7b02834
112. Frost, J. M., Whalley, L. D. and Walsh, A. "Slow Cooling of Hot Polarons in Halide Perovskite Solar Cells," *ACS Energy Letters* (2:12), 2017, pp. 2647-2652. 10.1021/acsenergylett.7b00862

113. Hoye, R. L. Z., Lee, L. C., Kurchin, R. C., Huq, T. N., Zhang, K. H. L., Sponseller, M., Nienhaus, L., Brandt, R. E., Jean, J., Polizzotti, J. A., Kursumović, A., Bawendi, M. G., Bulović, V., Stevanović, V., Buonassisi, T. and MacManus-Driscoll, J. L. "Strongly Enhanced Photovoltaic Performance and Defect Physics of Air-Stable Bismuth Oxyiodide (BiOI)," *Advanced Materials* (29:36), 2017. 10.1002/adma.201702176
114. Kumar, V., Schmidt, W. L., Schileo, G., Masters, R. C., Wong-Stringer, M., Sinclair, D. C., Reaney, I. M., Lidzey, D. and Rodenburg, C. "Nanoscale Mapping of Bromide Segregation on the Cross Sections of Complex Hybrid Perovskite Photovoltaic Films Using Secondary Electron Hyperspectral Imaging in a Scanning Electron Microscope," *ACS Omega* (2:5), 2017, pp. 2126-2133. 10.1021/acsomega.7b00265
115. Mohamad, D. K., Freestone, B. G., Masters, R., Reinhardt, M., Canning, S., Rodenburg, C. and Lidzey, D. G. "Optimized organometal halide perovskite solar cell fabrication through control of nanoparticle crystal patterning," *Journal of Materials Chemistry C* (5:9), 2017, pp. 2352-2359. 10.1039/c6tc05189h
116. O'Kane, S. E. J., Richardson, G., Pockett, A., Niemann, R. G., Cave, J. M., Sakai, N., Eperon, G. E., Snaith, H. J., Foster, J. M., Cameron, P. J. and Walker, A. B. "Measurement and modelling of dark current decay transients in perovskite solar cells," *Journal of Materials Chemistry C* (5:2), 2017, pp. 452-462. 10.1039/c6tc04964h
117. Pering, S. R., Deng, W., Troughton, J. R., Kubiak, P. S., Ghosh, D., Niemann, R. G., Brivio, F., Jeffrey, F. E., Walker, A. B., Islam, M. S., Watson, T. M., Raithby, P. R., Johnson, A. L., Lewis, S. E. and Cameron, P. J. "Azetidinium lead iodide for perovskite solar cells," *Journal of Materials Chemistry A* (5:39), 2017, pp. 20658-20665. 10.1039/c7ta07545f
118. Swallow, J. E. N., Williamson, B. A. D., Whittles, T. J., Birkett, M., Featherstone, T. J., Peng, N., Abbott, A., Farnworth, M., Cheetham, K. J., Warren, P., Scanlon, D. O., Dhanak, V. R. and Veal, T. D. "Self-Compensation in Transparent Conducting F-Doped SnO₂," *Advanced Functional Materials* (28:4), 2017. 10.1002/adfm.201701900
119. Whalley, L. D., Crespo-Otero, R. and Walsh, A. "H-Center and V-Center Defects in Hybrid Halide Perovskites," *ACS Energy Letters* (2:12), 2017, pp. 2713-2714. 10.1021/acsenergylett.7b00995
120. Whalley, L. D., Frost, J. M., Jung, Y.-K. and Walsh, A. "Perspective: Theory and simulation of hybrid halide perovskites," *The Journal of Chemical Physics* (146:22), 2017. 10.1063/1.4984964
121. Womack, G., Kaminski, P. M., Abbas, A., Isbilir, K., Gottschalg, R. and Walls, J. M. "Performance and durability of broadband antireflection coatings for thin film CdTe solar cells," *Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films* (35:2), 2017. 10.1116/1.4973909
122. Wong-Stringer, M., Bishop, J. E., Smith, J. A., Mohamad, D. K., Parnell, A. J., Kumar, V., Rodenburg, C. and Lidzey, D. G. "Efficient perovskite photovoltaic devices using chemically doped PCDTBT as a hole-transport material," *Journal of Materials Chemistry A* (5:30), 2017, pp. 15714-15723. 10.1039/c7ta03103c
123. Feron, K., Cave, J. M., Thameel, M. N., O'Sullivan, C., Kroon, R., Andersson, M. R., Zhou, X., Fell, C. J., Belcher, W. J., Walker, A. B. and Dastoor, P. C. "Utilizing Energy Transfer in Binary and Ternary Bulk Heterojunction Organic Solar Cells," *ACS Applied Materials & Interfaces* (8:32), 2016, pp. 20928-20937. 10.1021/acsaami.6b05474

124. Kwak, C. K., Pérez, G. E., Freestone, B. G., Al-Isaee, S. A., Iraqi, A., Lidzey, D. G. and Dunbar, A. D. F. "Improved efficiency in organic solar cells via conjugated polyelectrolyte additive in the hole transporting layer," *Journal of Materials Chemistry C* (4:45), 2016, pp. 10722-10730.
10.1039/c6tc03771b
125. Patel, J. B., Wong-Leung, J., Van Reenen, S., Sakai, N., Wang, J. T. W., Parrott, E. S., Liu, M., Snaith, H. J., Herz, L. M. and Johnston, M. B. "Influence of Interface Morphology on Hysteresis in Vapor-Deposited Perovskite Solar Cells," *Advanced Electronic Materials* (3:2), 2016.
10.1002/aelm.201600470
126. Whalley, L. D., Skelton, J. M., Frost, J. M. and Walsh, A. "Phonon anharmonicity, lifetimes, and thermal transport in from many-body perturbation theory," *Physical Review B* (94:22), 2016.
10.1103/physrevb.94.220301