

The Center for Integrated Nanotechnologies (CINT) CY16 publications

Note: CINT Scientist authors are indicated in *red*; CINT User authors are indicated in *green* (external) and *orange* (internal). **Blue highlight**= High Impact Publication

Total: 214

CINT Science (23)

CINT User Science - Internal (68)

CINT User Science - External (122)

High Impact Publications (56)

CINT Science (23)

1. Ahmed, A., Wen, H., **Ohta, T.**, Pinchuk, I., Zhu, T., Beechem, T., Kawakami, R. (2016) "Molecular beam epitaxy growth of SrO buffer layers on graphite and graphene for the integration of complex oxides" Journal of Crystal Growth: 447, 5
2. Ahmed, T., **Chen, A.P.**, McFarland, B., Wang, Q., Ohldag, H., Sandberg, R., **Jia, Q.X.**, **Yarotski, D.A.**, **Zhu, J.X.** (2016) "Site mixing on the XMCD spectrum in double perovskite Bi₂FeMnO₆" **Applied Physics Letters**: 108, 242907
3. Beechem, T.E., Shaffer, R.A., **Nogan, J.**, **Ohta, T.**, Hamilton, A.B., McDonald, A.E., Howell, S.W. (2016) "Self-heating and failure in scalable graphene" Scientific Reports: 6, 26457
4. **Chen, A.P.**, Chu, Y.-H., Li, R.-W., Fix, T., Hu, J.-M. (2016) "Functional Oxide Thin Films and Nanostructures: Growth, Interface, and Applications" Journal of Nanomaterials: 7198726.
5. **Chen, A.P.**, **Jia, Q.X.** (2016) Book Chapter 7 "Multiferroic oxide nanocomposite thin films" in Multiferroic Materials: Properties, Techniques, and Applications. Taylor & Francis Group.
6. **Efimov, A.** (2016) "Gigabit per second modulation and transmission of a partially coherent beam through laboratory turbulence" Proceedings of SPIE: 9739. 9739L-1-6
7. Erickson, J.D., Mednikov, E.G., **Ivanov, S.A.**, Dahl, L.F. (2016) "Isolation and Structural Characterization of a Mackay 55-Metal-Atom Two-Shell Icosahedron of Pseudo-I_h Symmetry, Pd₅₅L₁₂(m₃-CO)₂₀ (L = PR₃, R = Isopropyl): Comparative Analysis with Interior Two-Shell Icosahedral Geometries in Capped Three-Shell Pd₁₄₅, Pt-Centered Four-Shell Pd-Pt M₁₆₅, and Four-Shell Au₁₃₃ Nanoclusters" **J. Am. Chem. Soc.**: 138(5), 1502-1505.
8. **Grest, G.S.** (2016) "Communication: Polymer entanglement dynamics: Role of attractive interactions" The Journal of Chemical Physics: 145, 141101.
9. Houston, K.D., Mack, N.H., **Doorn, S.K.**, Park, M.S. (2016) "Macrophage Cells Secrete Specific Cytokines and Accumulate Activated Interferon Regulatory 1 Factor 3 after Multi-Walled Carbon Nanotube Exposure" Journal of Nanotechnology and Nanomaterials: 5, 1000203.
10. Jungjohann, K.L., Carter, C.B. (2016) "Transmission Electron Microscopy: A Companion" Springer International Publishing: 10.1007

11. Leroy, F., Passanante, T., Chynis, F., Curiotto, S., **Bussmann, E.B.**, Muller, P. (2016) "Catalytically enhanced thermal decomposition of chemically grown silicon oxide layers of Si (001)" [Applied Physics Letters](#): 108, 111601
12. Liu, S., Keeler, G.A., **Reno, J.L.**, Sinclair, M.B., **Brener, I.** (2016) "III-V semiconductor nanoresonators- A new strategy for passive, active, and nonlinear all-dielectric metamaterials" [Advanced Optical Materials](#): 10.1002
13. Neupane, M., Alidoust, N., Hosen, M.M., **Zhu, J.-X.**, Dimitri, K., Xu, S.-Y., Dhakal, N., Sankar, R., Belopolski, I., Sanchez, D.S., Chang, T.-R., Jeng, H.-T., Miyamoto, K., Okuda, T., Lin, H., Bansil, A., Kaczorowski, D., Chou, F., Hasan, M.Z., Durakiewicz, T. (2016) "Observation of the spin-polarized surface state in a noncentrosymmetric superconductor BiPd" [Nature Communications](#): 7:13315
14. **Phipps, M.L.**, Lillo, A.M., Shou Y., Schmidt, E.N., Paavola, C.D., Swanson, B.I., Bradbury, A.R.M., **Martinez, J.S.** (2016) "Affinity Ligands from "Helper Cell" Peptide Libraries" [PLOS One](#): 11 (9)
15. Quintero, N.R., Merten, F.G., **Efimov, A.**, Bishop, A.R. (2016) "Soliton dynamics in optical fibers using the generalized traveling-wave method" [Physical Review E](#): 93, 042214
16. Salerno, K.M., **Frischknecht, A.L.**, **Stevens, M.J.** (2016) "Charged Nanoparticle Attraction in Multivalent Salt Solution: A Classical-Fluids Density Functional Theory and Molecular Dynamics Study" [Journal of Physical Chemistry B](#): 120, 5927–5937.
17. Seo, M.A., Yamaguchi, H., Mohite, A.D., Boubanga-Tombet, S., Blancon, J.C., Najmaei, S., Ajayan, P.M., Lou, J., Taylor, A.J., **Prasankumar, R.P.** (2016) "Ultrafast optical microscopy of single monolayer molybdenum disulfide flakes" [Scientific Reports](#): 6, 21601
18. Ting, C.L., Sorensen-Unruh, K.E., **Stevens, M.J.**, **Frischknecht, A.L.** (2016) "Nonequilibrium simulations of model ionomers in an oscillating electric field" [The Journal of Chemical Physics](#) 145, 044902.
19. White, A.J., **Tretiak, S.**, Mozyrsky, D. (2016) "Coupled wave-packets for non-adiabatic molecular dynamics: a generalization of Gaussian wave-packet dynamics to multiple potential energy surfaces" [Chemical Science](#): 7, 4905
20. **Yoo, J.**, Yi, G.C., Chon, B., Joo, T., Wang, Z. (2016) "Luminescence dynamics of bound exciton of hydrogen doped ZnO nanowires" [Journal of Luminescence](#): 176, 278
21. Zhang, P., **Phipps, M.E.**, **Goodwin, P.M.**, **Werner, J.H.** (2016) "Light-sheet microscopy by confocal line scanning of dual-Bessel beams" [Journal of Biomedical Optics](#): Vol. 21(10) doi: 10.1117/1.JBO.21.10.100502.
22. **Zhu, J.X.** (2016) "First-principles simulations for transition metal oxide multiferroics" [Multiferroic Materials: Properties, Techniques, and Applications](#):
23. Zhu, J.X., Janoschek, M., Chaves, D.S., Cezar, J.C., Durakiewicz, T., Ronning, F., Sassa, Y., Mansson, M., Scott, B.L., Wakeham, N., Bauer, E.D., Thompson, J.D. (2016) "Electronic correlation and magnetism in the ferromagnetic metal Fe₃GeTe₂" [Physics Review B](#): 93, 144404

CINT User Science – Internal (68)

1. Abraham, J.B.S., Aguirre, B.A., Pacheco, J.L., Vizkelethy, G., Bielejec, E. (2016) "Fabrication and characterization of a co-planar detector in diamond for low energy single ion implantation" [Applied Physics Letters](#): 109, 063502; doi: <http://dx.doi.org/10.1063/1.4960968>. U2013A0008
2. Ahmed, T., Chen, A.P., Yarotski, D.A., Trugman, S.A., Jia, Q., Zhu, J.X. (2016) "Magnetic, electronic and optical properties of double perovskite Bi₂FeMnO₆" [APL Material](#): 5, 035601
3. Appelhans, L.N., Finnegan, P.S., Massey, L.T., Luk, T.S., Rodriguez, M.A., Brumbach, M.T., McKenzie, B., Craven, J.M. (2016) "Transformation of amorphous TiO₂ to a hydronium oxofluorotitanate and applications as an HF sensor" [Sensors and Actuators B](#): 228, 117-123
4. Azad, K., Kort-Kamp, W.J.M., Sykora, M., Weisse-Bernstein, N.R., Luk, T.S., Taylor, A.J., Dalvit, D.A.R., Chen, H.-T. (2016) "Metasurface Broadband Solar Absorber" [Scientific Reports](#): 6, 20347. U2015B0109
5. Balog, E.R.M., Ghosh, K., Park, Y.-I., Hartung, V., Sista, P., Rocha, R.C., Wang, H.-L., Martinez, J.S. (2016) "Optical properties of a pH-sensitive and thermoresponsive hydrogel made from a genetically engineered polymer and phenylene vinylene oligomer" [ACS Biomater. Sci. & Eng](#): 2 (7), 1135-1142
6. Bjorgaard, J.A., Sifain, A.E., Nelson, T., Myers, T.W., Veauthier, J.M., Chavez, D.E., Scharff, J., Tretiak, S. (2016) "Two-photon absorption in conjugated energetic molecules" [Journal of Physical Chemistry A](#): 120, 4455
7. Bjorgaard, J.A., Velizhanin, K.A., Tretiak, S. (2016) "Nonequilibrium solvent effects in Born-Oppenheimer molecular dynamics for ground and excited electronic states" [Journal of Chemical Physics](#): 144, 154104
8. Blancon, J.C., Nie, W., Neukirch, A.J., Gupta, G., Tretiak, S., Mohite, A.D., Crochet, J. (2016) "The effects of electronic impurities and electron-hole recombination dynamics on large-grain organic-inorganic perovskite photovoltaic efficiencies" [Advanced Functional Materials](#): 26, 4283
9. Boubanga-Tombet, S., Wright, J.B., Lu, P., Williams, M.R.C., Li, C., Wang, G.T., Prasankumar, R.P. (2016) "Ultrafast carrier capture and Auger recombination in single InGaN/GaN multiple quantum well nanowires" [ACS Photonics](#): 3, 2237 2016AC0012
10. Bowlan, P., Trugman, S.A., Wang, X., Dai, Y.M., Cheong, S.W., Bauer, E.D., Taylor, A.J., Yarotski, D.A., Prasankumar, R.P. (2016) "Directly probing spin dynamics in insulating antiferromagnets using ultrashort terahertz pulses," [Physical Review B](#): 94, 184429
11. Bowlan, P., Trugman, S.A., Bowlan, J., Zhu, J.X., Hur, N.J., Taylor, A.J., Yarotski, D.A., Prasankumar, R.P. (2016) "Probing ultrafast spin dynamics in the antiferromagnetic multiferroic HoMnO₃ through a magnon resonance," [Physical Review B](#): 94, 100400
12. Bufford, D., Stauffer, D., Mook, W.M., Syed Asif, S.A., Boyce, B.L., Hattar, K. (2016) "High cycle fatigue in the transmission electron microscope" [Nano Letters](#): 16, 85
13. Campione, S., Kim, I., de Ceglia, D., Keeler, G.A., Luk, T.S. (2016) "Experimental verification of epsilon-near-zero plasmon polariton modes in degenerately doped semiconductor nanolayers" [Optics Express](#): 24(16) 18782-18789.

14. **Campione, S.**, Liu, S., Basilio, L.I., Warne, L.K., Langston, W.L., Luk, T.S., Wendt, J.R., **Reno, J.L.**, Keeler, G.A., **Brener, I.**, **Sinclair, M.B.** (2016) "Broken Symmetry dielectric resonators for high quality factor fano metasurfaces" ACS Photonics: 10.1021
15. **Campione, S.**, Wendt, J.R., **Keeler, G.A.**, **Luk, T.S.** (2016) "Near-Infrared Strong Coupling between Metamaterials and Epsilon-Near-Zero Modes in Degenerately Doped Semiconductor Nanolayers" ACS Photonics: 3 (2), 293-297. U2014B0083
16. Chakraborty, S., Rocha, R.C., Desireddy, A., **Artyushkova, K.**, Sanchez, T.C., **Perry, A.T.**, **Atanassov, P.**, **Martinez, J.S.** (2016) "Gold nanocluster formation using morpholino oligomer as template and assembly agent within hybrid bio-nanomaterials" RSC Advances: 6 (93)
17. Chaudhari, M.I., Nair, J.R., Pratt, L.R., Soto, F.A., Balbuena, P.B., **Rempe, S.B.** (2016) "Scaling Atomic Partial Charges of Carbonate Solvents for Lithium Ion Solvation and Diffusion" Journal of Chemical Theory and Computation 12 5709
18. **Chen, Y.**, **Li, N.**, Bufford, D.C., Li, J., **Hattar, K.**, Wang, H., Zhang, X., (2016) "In situ study of heavy ion irradiation response of immiscible Cu/Fe multilayers" Journal of Nuclear Materials: 475, 274.
19. Cheng G.M., Xu W.Z., **Wang Y.Q.**, **Misra A.**, Zhu Y.T. (2016) "Grain size effect on radiation tolerance of nanocrystalline Mo", Scripta Materialia, 123 90-94.
20. Choi, B., Torrezan, A.C., Strachan, J.P., **Kotula, P.G.**, Lohn, A.J., **Marinella, M.J.**, Li, Z., Williams, R.S., Yang, J.J. (2016) "High-speed and low-energy nitride memristors" Advanced Functional Materials: 26, 29.
21. Ghosh, A., **Ahmed, T.**, **Yarotski, D.A.**, Nakhmanson, S.M., **Zhu, J.X.** (2016) "Oxygen vacancy effects on double perovskite Bi₂FeMnO₆: A first-principles study" Europhysics Letters: 116, 57002
22. **Greene, A.C.**, **Henderson, I.M.**, **Gomez, A.**, **Paxton, W.F.**, **VanDelinder, V.**, and **Bachand, G.D.** (2016) "The role of membrane fluidization on the gel-assisted formation of giant polymersomes" PLoS One: 11(7)
23. **Greene, A.C.**, **Sasaki, D.Y.**, and **Bachand G.D.** (2016) "Forming giant-sized polymersomes using gel-assisted rehydration" J. Vis. Exp.: 111
24. Grubjesic, S., **Ringstrand, B.S.**, **Jungjohann, K.L.**, Brombosz, S.M., Seifert, S., **Firestone, M.A.** (2016) "Cascade synthesis of a gold nanoparticle-network polymer composite" Nanoscale: 8, 2601.
25. **Harper, J.C.**, Andrews, J.M., Ben, C., Hunt, A.C., Murton, J.K., Carson, B.D., **Bachand, G.D.**, Lovchik, J.A., Arndt, W.D., Finley, M.R., and Edwards, T.L. (2016) "Magnetic-adhesive based valves for microfluidic devices used in low-resource settings" Lab Chip: 16, 4142
26. **Hartmann, N.F.**, **Pramanik, R.**, **Dowgiallo, A.-M.**, **Ihly, R.**, **Blackburn, J.L.**, **Doorn, S.K.** (2016) "Photoluminescence Imaging of Polyfluorene Surface Structures on Semiconducting Carbon Nanotubes: Implications for Thin Film Exciton Transport" ACS Nano: 10, 11449.
27. **Kim, M.**, **Adamska, L.**, **Hartmann, N.F.**, **Kwon, H.**, **Velizhanin, K.A.**, **Piao, Y.**, **Powell, L.R.**, **Meany, B.**, **Doorn, S.K.**, **Tretiak, S.**, **Wang, Y.** (2016) "Fluorescent Carbon Nanotube Defects Manifest Substantial Vibrational Reorganization" Journal of Physical Chemistry C:120, 11268

28. Kuo, C.Y., Liu, Y., Yarotski, D., Li, H., Xu, P., Hu, H.J., Tretiak, S., Wang, H.L. (2016) "Synthesis, electrochemistry, STM investigation of oligothiophene self-assemblies with superior structural order and electronic properties" *Chemical Physics*: 481-191
29. Laroche, D., Huang, S.H., Chuang, Y., Li, J.Y., Liu, C.W., Lu, T.M. (2016) "Magneto-transport analysis of an ultra-low density two-dimensional hole gas in an undoped strained Ge/SiGe heterostructure" *Applied Physics Letters*: 108, 233504
30. Lawrence, D., Tran, C., Mallajosyula, A.T., Doorn, S.K., Mohite, A., Gupta, G., Kalra, V., (2016) "High-Energy Density Nanofiber-Based Solid State Supercapacitors" *Journal of Material Chemistry A*: 4, 160.
31. Leenheer, A., Jungjohann, K.L., Zavadil, K., Harris, C.T. (2016) "Phase Boundary Propagation in Li-alloying battery electrodes revealed by liquid-cell TEM" *ACS Nano*: 10(6), 5670.
32. Li, C., Liu, S., Luk, T.S., Figiel, J.J., Brener, I., Brueck, S.R.J., Wang, G.T. (2016) "Intrinsic polarization control in rectangular GaN nanowire lasers" *Nanoscale*: 8, 5682
33. Li, N., Demkowicz, M., Mara, N.A., Wang, Y., Misra, A., (2016) "Hardening due to Interfacial He Bubbles in Nanolayered Composites" *Materials Research Letters* 4 (2), 75
34. Li, N., Wang, J.W., Mao, S., Wang, H., (2016) "In situ nanomechanical testing of twinned metals in a transmission electron microscope" *MRS Bulletin*: 41, 305
35. Li, Y., Zhou, W., Xin, S., Li, S., Zhu, J., Lü, X., Cui, Z., Jia, Q. X., Zhou, J., Zhao, Y., and Goodenough, J. B., (2016) "Fluorine-Doped Antiperovskite Electrolyte for All-Solid-State Lithium-Ion Batteries" *Angewandte Chemie International Edition*: 55, 9965–9968.
36. Li, Y., Zhou, W., Chen, X., Lü, X., Cui, Z., Xin, S., Xue, L., Jia, Q.X., Goodenough, J. B., (2016) "Mastering the Interface for Advanced All-Solid-State Lithium Rechargeable Batteries" *Proceedings of the National Academy of Sciences*: 113, 13313–13317.
37. Liu, S., Sinclair, M.B., Keeler, G.A., Reno, J.L., Brener, I. (2016) "All-dielectric metamaterials using III-V semiconductors" *Optics and Photonics News*: 12/2016
38. Liu, Y., Li, N., Shao, S., Gong, M., Wang, J., McCabe, R.J., Jiang, Y., Tomé, C.N., (2016) "Characterizing the boundary lateral to the shear direction of deformation twins in magnesium" *Nature Communications*: 7, 11577
39. Lu, T.M., Gamble, J.K., Muller, R.P., Nielsen, E., Bethke, D., Ten Eyck, G.A., Pluym, T., Wendt, J.R., Dominguez, J., Lilly, M.P., Carroll, M.S., Wanke, M.C. (2016) "Fabrication of quantum dots in Si/SiGe heterostructures using a single metal-gate layer" *Applied Physics Letters*: 109, 093102
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44. Mallajosyula, A.T., Gupta, G., Blackburn, J.L., Doorn, S.K., Mohite, A.D. (2016) "Role of Wrapping Polymer in Determining the Performance of Single Walled Carbon Nanotube Based Solar Cells", *ACS Nano*: 10, 10808.
45. Mara, N.A., Li, N., Misra, A., Wang, J., (2016) "Interface-Driven Plasticity in Metal–Ceramic Nanolayered Composites: Direct Validation of Multiscale Deformation Modeling via In Situ Indentation in TEM" *JOM*: 68, 143.
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47. McKeown, J.T., Zwiack, K., Liu, C., Coughlin, D.R., Clarke, A.J., Baldwin, J.K., Gibbs, J.W., Roehling, J.D., Imhoff, S.D., Gibbs, P.J., Tourret, D., Wiezorek, J.M.K., Campbell, G.H. (2016) "Time-Resolved In Situ Measurements During Rapid Alloy Solidification: Experimental Insight for Additive Manufacturing" *The Journal of The Minerals, Metals & Materials Society*: Vol. 68, No. 3. RA2015A0008
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52. Sarobol, P., Chandross, M., Carroll, J.D., Mook, W.M., Bufford, D.C., Boyce, B.L., Hattar, K., Kotula, P.G., Hall, A.C. (2016) "Room temperature deformation mechanisms of alumina particles observed from in situ micro-compression and atomistic simulations" *Journal of Thermal Spray Technology*: 25, 1
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CINT User Science – External (122)

1. Adams, P.G., Swingle, K.L., Paxton, W.F., Firestone, M.A., Mukundan, H., & Montañó, G.A. (2016) "Exploiting lipopolysaccharide-induced deformation of lipid bilayers to modify membrane composition and generate two-dimensional geometric membrane array patterns" Sci. Report: 5, 10331
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