Haiyan Wang, Ph. D.
Turner Chair Professor of Engineering
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Degrees Held

Ph.D.	Dec. 2002	Mater. Sci. Eng.	North Carolina State University
M.S.	Dec. 1999	Mater. Sci. Eng.	Institute of Metal Research (China)
B.S.	Aug. 1998	Mater. Sci. Eng.	Nanchang University (China)

Employment History

August 2016-Present	Professor (Turner Chair)	Purdue University
August 2016-August 2017	Adjunct Professor	Texas A & M University
2014- 2016	Professor	Texas A & M University
Aug. 2013-Aug. 2015	Program Director (Electronic and Photonic Materials, Division of Materials Research)	U.S. National Science Foundation
Aug. 2010-2014	Associate Professor	Texas A & M University
Jan. 2006-Aug. 2010	Assistant Professor	Texas A & M University
Jan. 06–Dec. 2010	Long Term Visiting Staff Member	Los Alamos National Laboratory
Jan. 05–Dec. 05	Technical Staff Member	Los Alamos National Laboratory
Jan. 03–Dec. 04	Director Funded Postdoctoral Fellow	Los Alamos National Laboratory

Honors

- Fellow, Materials Research Society, 2019
- DOE CINT User Recognition Award, (Inaugural Award, one per year), 2019
- Richard Grace Best Faculty Research Award, Purdue University, 2018.
- Fellow, American Physical Society, APS, 2017
- Alumni Hall of Fame, Materials Science Engineering, NC State University, 2017
- Fellow, AAAS, 2016
- Fellow, ACerS, 2015
- The O'Donnell Award in Engineering Category 2015, TAMEST (The Academy of Medicine, Engineering and Science of Texas, one per year)
- Distinguished Research Achievement Award, Association of Former Students (AFS) Texas A&M, 2015.
- Fellow, ASM International, Class of 2014
- TEES Senior Fellow 2014
- TEES Fellow 2013
- ASM Silver Medal Award for Outstanding Materials Scientist in Mid Career, 2011
- US Frontier of Engineering Selected Attendee (NAE FOE), 2011
- Charles H. Barclay Jr. Fellow--College of Engineering Faculty Fellow Award 2011
- TEES Selected Young Fellow Award 2010
- NSF CAREER Award 2009.
- Presidential Early Career Awards for Scientists and Engineers 2007 (PECASE awarded in Dec. 2008).
- ONR Young Investigator Program Award, ONR-YIP 2008.

- Featured as one of the Rising Stars of Texas at the NANO Summit, Texas 2007.
- Air Force Young Investigator Research Program Award, AFOSR-YIP 2007.
- Air Force Summer Faculty Fellowship, AFOSR, 2007 and 2008.
- TMS Young Leader representing the Electronic, Magnetic and Photonic Materials Division. (Minerals, Metals and Materials Society, TMS 2005)
- Lab Director Funded Postdoctoral Fellow, Los Alamos National Laboratory (2002-2004).
- Materials Research Society Graduate Student Award (Fall 2001, Boston)

Synergistic Activities

Program Director at NSF (August 2013-August 2015)
Section Editor (BMC Materials--- Functional Materials, 2019-present)
Associate Editor (Science Advances, 2018-present; Vacuum, 2015-present)
Guest Editor (J of Materials Research, J of Electronic Materials, Acta Materialia)
Committee Member /Secretary/Chair-in-elect /Chair of the Electronic, Magnetic and Photonic Materials Division. (Minerals, Metals and Materials Society, TMS, 2005-2010) and American Ceramic Society (ACerS, 2010-2017)
Committee Member/Award Committee of the ASM International (2011-2014, 2016-present)
Fellow of ASM International, Class of 2014
Fellow of ACerS, Class of 2015
Fellow of AAAS, Class of 2016
Fellow of APS, 2017
Fellow of MRS, 2019
Member of Materials Research Society (MRS), American Society of Metals (ASM), Minerals, Metals and Materials Society (TMS), American Ceramic Society (ACerS), American Association for the Advancement of Science (AAAS) and American Physical Society (APS).
Panel list for NSF Graduate Fellowship (2007-present), NSF proposal panels (2009-present), NSF Center site visit reviews (2010, 2012, 2013, 2016, 2017, 2018)
Reviewers for proposals from DOE-BES, DOE-SBIR and NSF (2007-present).
Reviewers for various journals (2003-present)

Students Involvements at Purdue and TAMU

1. Developed new classes, one graduate course ELEN 640 Thin Film Science and Technology and one undergraduate course ELEN440 Introduction of Thin Film Science and Technology. A teaching model called ***"The Art of Laying Apples"*** isdevelopped for explaining the concept of thin film growth for the courses.
2. Currently mentoring 15 Ph.D. students, 2 M.S. students, and 2 undergraduate students, (7 female students). A total of 25 Ph.D. graduated, 5 M.S. graduated and more than 20 undergraduates involved in research in the past 15 years.
3. Actively involved in outreach activities including the Woman Student Mentor Program, the Woman Engineering Forum and Nanodays events at Purdue, and the E3 Summer Research Program for High School Teachers at Texas A & M University, Los Alamos Summer School (at the University of New Mexico) and the Texas Junior Science and Humanities Symposium (Key note speaker, TAMU)

Conferences Organized

1. TMS Annual Meeting 2005 (Mechanical Behavior of Thin Films and Small Structures),
2. TMS Annual Meeting 2007 (Mechanical Behavior of Nanostructured Materials),
3. MRS 2010, 2011, 2013 (Nanomaterials Workshop at the MRS meeting)
4. MS&T Fall Meeting 2008, 2010, 2011
5. TMS Annual Meeting 2014
6. EMA 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020 and lead meeting organizer of EMA 2014, 2016

Research Interests

- (01/00-present) Nanostructured nitride and oxide thin film heterostructures for structural applications, radiation tolerant materials, microelectronics, optoelectronics, ferroelectric, multiferroics, and ferromagnetic materials, photonics and plasmonics, high temperature superconductors, solid oxide fuel cells, batteries and solar cells.
- (12/02-present) Coated superconductor materials scale-up and architectures; Flux-pinning mechanisms of nanoparticles and defects in high temperature superconductors;
- (01/00-present) Microstructural characterizations with transmission electron microscopy (TEM), high resolution TEM, Scanning transmission electron microscopy (STEM) and XRD; *in situ* TEM (in situ nanoindentation, in situ STM and heating, in situ AFM); Materials property-microstructure correlations.

Patents (9 patents in the areas of thin film growth and architectures)

1. Buffer Layer for Thin Film Structures, 06/15/2010 (Issued, U.S. No. 7,736,761).
2. Structure for improved high critical current densities in YBCO coatings, 02/08/2007, (US20070032384A1).
3. Method for improving performance of high-temperature superconductors in a magnetic field, 01/05/2010, (US Patent 7, 642,222).
4. Segmented Superconducting tape having reduced AC losses and method of making, 09/22/ 2009 (Issued, US patent No. 7,593,758).
5. Architecture for coated conductors 06/01/2010 (Issued 7,727,934).
6. Coated Conductors, 06/15/2010, (US Patent 7737,085).
7. Buffer Layer for Thin Film Structures, 10/31/2006 (Issued, U.S. No. 7,129,196).
8. Method for Producing High Stacking Fault Energy (SFE) Metal Films, Foils, and Coatings with High-Density Nanoscale Twin Boundaries, 08/20/2015, (US20150233019A1).
9. High-strength nanotwinned aluminum alloy coatings, deformation layers and methods of making the same, (US No. 10,023,977)

Recent Collaborators

Collaborators at current and prior institutions

Los Alamos National lab: Chen, Aiping; Chen, Houtong; Foltyn, Steve; Swandener, Greg; Zhu, Jianxing.
Purdue: Bahr, Dave; Blendell, John; Boltasseva, Alexandra; Garcia, Edwin; Marinero, Ernesto; Ye, Peide; Zhang, Xinghang.
Texas A&M: Matt. Sheldon, Cagin, Tahir; Lin, Paotai; Qian, Xiaofeng; Shao, Lin.
Collaborators from other institutions: Alu, Andrea, U. Texas Austin; Bao, Jiming, U. of Houston; Blamire, Mark, Cambridge U.; Driscoll, Judith, Cambridge U.; Durrell, John, Cambridge U.; Gibbons, Brady, Oregon State U.; Haugan, Tim, Air Force Research Lab; Jacobson, Allan, U. of Houston; Jia, Quanxi, SUNY Bufflo; Koch, Carl, North Carolina State University; Laverinia, Enrique, UC at Irvine; Li, Xiaoqing (Elaine) , U. Texas Austin; Manthiram, Arumugam, U. Texas Austin; Mukherjee, Amiya, U. C. at Davis; Ramesh, Ramamoorthy, U.C., at Berkeley; Yang, Hao, NUAA, China.

Invited Talks and Seminars (60+ invited talks)

1. H. Wang, Novel two phase nanocomposite designs, oxide-oxide, oxide-metal, nitride-metal and beyond, Argonne National Lab, May 2019.
2. H. Wang, Novel metal-ceramic nanocomposite for multifunctionalities, Indiana University, January, 2019.
3. H. Wang, Novel metal-ceramic nanocomposite for multifunctionalities, Argonne National Lab, November, 2018
4. H. Wang, Microstructural characterization using TEM for the exploration of fundamentals in flash sintering materials; Gordon Conference on Ceramics, August 2018;
5. H.Wang, In situ TEM/SEM study for advanced ceramics processed by field-assisted sintering, Dec. 2018 MRS fall meeting;

6. H.Wang, Novel nanocomposite designs and their functionalities; Dec. 2018, MRS fall meeting.
7. H.Wang, Novel oxide-oxide nanocomposites and beyond, Rutgers University, fall 2017.
8. H. Wang, Flash sintering phenomena probed by in situ TEM and SEM techniques, Carnegie Mellon University, spring 2017.
9. H. Wang, Novel oxide-oxide nanocomposites and beyond, NCSU, spring 2017.
10. H. Wang, Layered oxide thin films enabled by strain, EMA meeting Florida, spring 2017.
11. H. Wang Novel oxide-oxide nanocomposites with multifunctionalities, MST, 2016.
12. H. Wang, Novel functionalities by materials design, University of Southern California, 2014.
13. H. Wang, Opportunities in oxide nanocomposites with new functionalities, ICC5 meeting, 2014.
14. H. Wang, Novel Interface designs in oxide systems, MS&T, 2014.
15. H. Wang, Interfacial strain in ceramic nanocomposites with integrated functionalities, invited speaker at ISIF (International Symposium of Integrated Functionalities), August 2013.
16. H. Wang, Effects of grain boundaries and phase boundaries in vertical aligned nanocomposites, invited speaker at Electronic Materials and Applications, Orlando, January 2013.
17. H. Wang, invited speaker at MS&T conference, Montreal, Canada, October 2013.
18. H. Wang, invited speaker at Center for Integrated Nanotechnology Review, September, 2013.
19. H. Wang, Nanostructured ceramic thin films for high temperature superconductors, SOFCs, and solar cells, MS&T 2010, Houston.
20. H. Wang, Microstructure and properties of nanostructured functional oxides, Invited speaker at MS& T 2009, Pittsburgh.
21. H. Wang, Microstructure and properties of nanostructured functional oxides, Invited speaker at Electronic Materials and Application 2010, Orlando Fl.
22. H. Wang, J.Yoon, R.Araujo, et al, *Probing the interfacial Defects in YBa2Cu3O7-? Thin Films* (Invited), MS& T 2007, Detroit.
23. H. Wang, *Invited speaker The Rising Stars in Texas, Nano Summit, August 2007.*
24. H.Wang, R. Araujo, J.G. Swadener, Y. Wang, X. Zhang, T.Cagin, Ion Irradiation Effects in Nanostructured Nitride Coatings, CAARI 2006, Fort Worth, Texas.
25. H. Wang., *Key note speaker for* the Texas Junior Science and Humanities Symposium, January 2007.
26. H. Wang, *Microstructure revolution of YBCO and its effects on transport properties*, MRS, Spring 2006, San Francisco.
27. H. Wang, *Nitride-based thin films processed by pulsed laser deposition*, TMS, Spring 2005, San Francisco.
28. H. Wang, *Nitride-based thin films and superconductor thin films processed by pulsed laser deposition*, Institute of Metal Research, Shenyang, China, Dec. 14th, 2004.
29. S.R. Foltyn, H.Wang, *Overcome the Overcoming the barrier to 1000 A/cm-width coated conductors, MRS, Spring 2005, San Francisco.*
30. H. Wang, *Nanocrystalline and Single Crystalline TiN and Applications*, MRS Meeting, April 18, 2002, Raleigh.

31-60. More than 15 invited university seminars at the University of Connecticut (November 2003), Intel Corporation (March 2004), Texas A & M University (3 times in 2005), the University of Houston (May 2006 and August 2009, 2017), North Carolina State University (March 2010 and March 2017), Sam Houston State University (March 2010), Texas Tech University (November 2009). University of North Texas 2011, University of Southern California, Purdue University, Argonne National Lab 2018.

Invited book Chapters

Jijie Huang#, Xingyao Gao#, Judith L. MacManus-Driscoll and Haiyan Wang, Ferroelectric thin films and nanostructures: current and future, Published, 2019. Nanostructures in Ferroelectric Films for Energy Applications (ISBN: 978-0-12-813856-4).

Journal Publications (total **530+**journal articles with a total citation of **18200** times (**H factor=65, i10-index=344**) and **280** conference presentations and proceedings as of Jan 2020) (***paper from graduate students and postdocs mentored**)

(26 published or in press, 26 submitted in 2020)

539. *Xuejing Wang, Xuedan Ma, Enzheng Shi, Ping Lu, Letian Dou, Xinghang Zhang1, Haiyan Wang, Large-scale Plasmonic Hybrid Framework with Built-in Nanohole Arrays as Multifunctional Optical Sensing Platforms, ***Small,*** doi.org/10.1002/smll.201906459, 2020.

538. *S. Misra, L. Li, X. Gao, J. Jian, Z. Qi, D. Zemlyanov, H. Wang, Tunable physical properties in BAMO thin films with novel layered supercell structures, ***Nanoscale Advances,*** 2020, 2, 315-322, 2020. DOI: 10.1039/C9NA00566H.

537. *Xin Li Phuah, Han Wang, Zhimin Qi, Shikhar Misra, Matias Kalaswad and Haiyan Wang, Flash sintering of Gd-doped ceria thin film, ***Journal of America Ceramic Society***, 2020. DOI: 10.1111/jace.16949.

536. *Zhimin Qi, Jialiang Tang, Shikhar Misra, Cuncai Fan, Ping Lu, Jie Jian, Vilas G. Pol, Xinghang Zhang, Haiyan Wang, Enhancing electrochemical performance of thin film lithium ion battery via introducing tilted metal nanopillars as effective current collectors, **Nanoenergy,** Volume 69, March 2020, 104381. https://doi.org/10.1016/j.nanoen.2019.104381.

535. *Xing Sun, Judith MacManus-Driscoll, and Haiyan Wang, Spontaneous ordering of oxide-oxide epitaxial vertically aligned nanocomposite thin films, ***Annual Review***, accepted, 2020.

534. Bae, Hagyoul; Charnas, Adam; Sun, Xing; Noh, Jinhyun; Si, Mengwei; Chung, Wonil; Qiu, Gang; Lyu, Xiao; Alghamdi, Sami; Wang, Haiyan; Zemlyanov, Dmitry; Ye, Peide, Solar-blind UV photodetector based on atomic layer deposited Cu₂O and nano-membrane β-Ga₂O₃ pn oxide heterojunction, ***ACS Omega***, 2020. DOI: 10.1021/acsomega.9b03149.

533. Yisong Lin, Eun-Mi Choi, Ping Lu, Xing Sun, Rui Wu, Chao Yun, Bonan Zhu, Haiyan Wang, Weiwei Li, Tuhin Maity, Judith MacManus-Driscoll, Vertical Strain-Driven Antiferromagnetic to Ferromagnetic Phase Transition in EuTiO3 Nanocomposite Thin Films, ***ACS Appl. Mater. Interfaces*** 2020, 12, 7, 8513-8521

532. Eun-Mi Choi, Bonan Zhu, Ping Lu, John Feighan, Xing Sun, Haiyan Wang and Judith L. MacManus-Driscoll, Magnetic signatures of 120 K superconductivity at interfaces in La2CuO4, Nanoscale, 2020, 12, 3157-3165.

531 Chao Yun, Eun-mi Choi, Weiwei Li, Xing Sun, Tuhin Maity, Rui Wu, Jie Jian, Sichuang Xue, Seungho Cho, Haiyan Wang and Judith L. MacManus-Driscoll, Achieving Ferromagnetic Insulating Properties in La0.9Ba0.1MnO3 Thin Films Through Nanoengineering, ***Nanoscale,*** accepted, 2020.

530. Jing-Kai Qin , Pai-Ying Liao , Dr. Mengwei Si , Shi-Yuan Gao , Mr. Gang Qiu , Jie Jian , Qingxiao Wang , Si-Qi Zhang , Shouyuan Huang , Adam Charnas , Dr. Yixiu Wang , Prof. Moon Kim , Wenzhuo Wu , Xianfan Xu , Haiyan Wang , Li Yang , Yoke Khin Yap, Peide Ye, From Bulk Nanowire to Single Atomic Chain: Raman Response and Transport Property of 1D van der Waals Tellurium, ***Nature Electronics,*** in press, 2020. arXiv preprint arXiv:2001.05539, 2020.

529. Jassiel R. Rodriguez, Zhimin Qi,Haiyan Wang, Mikhail Y. Shalaginov, Claudia Goncalves, Myungkoo Kang, Kathleen A. Richardson, J. Guerrero-Sanchez, Ma Guadalupe Moreno Armenta, Vilas G. Pol, Ge2Sb2Se5 Glass as High-Capacity Promising Lithium-ion Battery Anode, ***Nanoenergy***, Volume 68, February 2020, 104326. https://doi.org/10.1016/j.nanoen.2019.104326.

528. G. Patranoiu, Jassiel R. Rodriguez, Yifan Wang, R. Birjega, Zhimin Qi, Haiyan Wang, S. Somacescu, A.M. Musuc, S. Preda, Jose Maria Calderon-Moreno, Vilas G. Pol, O. Carp, Versatile by design: alternative green Pechini method toward hollow Co3O4 structures with high performance as lithium-ion battery anodes, Applied Surface Science, https://doi.org/10.1016/j.apsusc.2020.145431, 2020.

527. *Zhimin Qi, Haiyan Wang, Advanced thin film cathodes for lithium ion batteries, Invited review, ***NPJ Research***, 2020. https://doi.org/10.34133/2020/2969510.

526. X. Sun, M. Kalaswad, R. Paldi, Q. Li, J. Huang, Han Wang, X. Zhang, H. Wang, Role of lateral interlayer in the 3D frameworks with tunable magnetotransport properties, ***Advanced Materials Interfaces***, in press, 2020.

525. Xingyao Gao, Leigang Li, Di Zhang, Xuejing Wang, Jie Jian, Zihao He, and Haiyan Wang, Novel layered Bi3MoMTO9 (MT = Mn, Fe, Co and Ni) thin films with tunable multifunctionalities, ***Nanoscale, in press,*** 2020.

524. *Di Zhang, Zhimin Qi, Jie Jian, Jijie Huang, Xin Li Phuah, Xinghang Zhang, Haiyan Wang, *Thermally Stable Au-BaTiO3 Nanoscale Hybrid Metamaterial for High Temperature Plasmonic Applications,* ***ACS Applied Nanomaterials***, DOI: 10.1021/acsanm.9b02271, 2020.

523. *Paldi, Robynne; Sun, Xing; Wang, Xuejing; Zhang, Xinghang; Wang, Haiyan, Strain-driven in-plane ordering in vertically-aligned ZnO-Au nanocomposites with highly correlated metamaterial properties, ***ACS Omega,*** 2020, 5, 5, 2234-2241. https://doi.org/10.1021/acsomega.9b03356.

522. *Jijie Huang, Xuejing Wang, Dongfang Li, Tiening Jin, Ping Lu, Pao-Tai Lin, Hou-Tong Chen, Jagdish Narayan, Xinghang Zhang, and Haiyan Wang, 3D Hybrid Plasmonic Framework with Au Nanowires Embedded in Nitride Multilayers for Si-based Integrated Nanophotonics, ***Advanced Materials Interfaces,*** 2020.

521 *Jijie Huang, Han Wang, Xingyao Gao, Juncheng Liu and Haiyan Wang, Exchange Bias in La0.67Sr0.33MnO3:NiO Heterointerface Integrated on Flexible Mica Substrate, ***ACS Applied Materials and Interfaces***, under revision, 2020.

520. Lin, Yisong; Choi, Eun Mi; Lu, Ping; Sun, Xing; Wu, Rui; Yun, Chao; Zhu, Bonan; Wang, Haiyan; Li, Weiwei; Maity, Tuhin; MacManus-Driscoll, Judith, *Vertical Strain-Driven Antiferromagnetic to Ferromagnetic Phase Transition in EuTiO3 Nanocomposite Thin Films*, ***ACS Applied Materials and Interfaces***, in press, 2020.

519. K. S. N. Vikrant, H. Wang, A. Jana, H. Wang, and R. E. García, Flash sintering incubation kinetics, ***Nature Partner Journal: Computational Materials***, Accepted, 2020.

518. *F. Khatkhatay, W. Zhang, M. Fan, and H. Wang, Growth and Characterization of BaTiO3-ZnO Vertically Aligned Nanocomposites, ***ACS Applied Materials and Interfaces***, under revisions, 2020.

517. *F. Khatkhatay, J. Jian, A. Chen, S.V. Verkhoturov, and H. Wang, In-situ Thermally Oxidized TiN Thin Films Towards Forming-Free Resistive Switching , ***Surface and Interfaces***, under revisions, 2020.

516. J.Basbus, M.Arce, H.Troiani, Q.Su, H.Wangc A.Caneirod, L.Mogni, Study of BaCe0.4Zr0.4Y0.2O3-δ/BaCe0.8Pr0.2O3-δ (BCZY/BCP) bilayer membrane for Protonic Conductor Solid Oxide Fuel Cells (PC-SOFC), International Journal of Hydrogen Energy, Volume 45, Issue 8, Pages 5481-5490, 2020.

515 Jie Ding, Z. Shang, Y. Zhang, R. Su, Jin Li, H. Wang, b , X. Zhang, Tailoring the thermal stability of nanocrystalline Ni alloy by thick grain boundaries, ***Scripta Mat,*** in press, 2020. https://doi.org/10.1016/j.scriptamat.2020.02.032.

514. Robynne L. Paldi, Xuejing Wang, Xing Sun, Zihao He, Xinghang Zhang, Haiyan Wang, Vertically aligned AgxAu1-x Alloyed Nanopillars embedded in ZnO as nanoengineered low-loss hybrid plasmonic metamaterials, submitted, 2020.

513 Q. Yi, Y. Zhu, P. Zhai, Y. Sun, Y. Lou, J. Zhao, B. Sun, M. Jain, W. Zhang, L. Jiao, H. Wang, G. Zou , Polymer-Deposited Molybdenum Oxide Films as a Hole Selective Layer for Organic Solar Cells, submitted, 2020.

512. *Han Wang, Jijie Huang, Jie Jian, Xing Sun, Haiyan Wang, Effective doping control in Sm doped BiFeO3 thin films via deposition temperature control, submitted, 2020.

511. Xiyuan Zhang, Ruixing Xu, Xingyao Gao, Min Li, Xinna Shi, Yanda Ji, Fengjiao Qian, Jiyu Fan, Haiyan Wang, Weiwei Li, Hao Yang, Achieving Ohmic Conduction Behavior at High Electric Filed via Interface Manipulation, submitted, 2020.

510. Chen, S. Xue, H. Wang, L. Stanciu, A Mechanism for Volatile Organic Compounds Detection with Gold Nanoparticle Functionalized Molybdenum Disulfide, submitted, 2020.

509 Bethany X. Rutherford, Bruce Zhang, Xuejing Wang, Xing Sun, Han Wang, and Haiyan Wang, Strain Tuning of La0.7Sr0.3MnO3 (LSMO)-NiO Nanocomposite Thin Film Growth via Substrate Control, submitted, 2020.

508. Yifei Sun, Zhen Zhang, Xuejing Wang, Xing Sun, Jiazhi He, Dawgen Lim, Chengzi Huang, Qi Wang, Jianguo Mei, Haiyan Wang, Shriram Ramanathan, Electrochromic properties of perovskite $NdNiO_3$ thin films, ***Ceramic International***, under revision, 2020.

507. * Li, Qiang; Xue, Sichuang; Price, Patrick ; Sun, Xing; Ding, Jie; Shang, Zhongxia; Fan, Zhe; Wang, Han; Zhang, Yifan; Chen, Youxing ; Wang, Haiyan; Hattar, Khalid; Zhang, Xinghang, Hierarchical nanotwins in single-crystal-like Nickel with high strength and corrosion resistance produced via a hybrid technique, ***Nanoscale,*** 2020, 12, 1356-1365.

506. *K. S. N. Vikrant, Han Wang, Jaehun Cho, Xinghang Zhang, Haiyan Wang, and R. Edwin Garc´ıa, Charged Grain Boundary Transitions in Ionic Ceramics for Energy Applications, submitted, 2020.

505. Cho SH. Yun C, Wang H, Jian J, Zhang W, Huang J, Wang X, Wang H, and MacManus-Driscoll JL, I Improved Crystalline Perfection in Lead-Free Perovskite Titanate-Based Ferroelectric Thin Films by Alloying with BiFeO3 to Give Strongly Enhanced Ferroelectric Properties Up to 500°C, Submitted 2020.

504. Wonjun Park, Han Wang, Siyuan Zhang, Xiangyu Li, Young-Joon Kim, Nirajan Mandal, Xiulin Ruan, Christina A. Hacker, Haiyan Wang, and Yong P. Chen, Highly sensitive non-enzymatic glucose sensors based on nanocrystalline copper oxide and graphene foam hybrid structures, submitted, 2020.

503. Run Zhao, Hua Wu, Weiwei Li, Li Chen, Shipeng Shen, Eun Mi Choi, Le Wang, Bin Chen, Yanda Ji, Jiyu Fan, Jindong Liu, Run-Wei Li, Kuijuan Jin, Stanislav Kamba, Yang Sun, Haiyan Wang, Yinzhong Wu, Ju Gao, Judith L. MacManus-Driscoll, Darrell G. Schlom, and Hao Yang, Strain-induced magnetoelectric coupling in EuTiO3:MgO nanocomposite thin films, SUBMITED, 2020.

502. Tiening Jin, Junchao Zhou, Hao-Yu Greg Lin, Jijie Huang, Haiyan Wang, Pao Tai Lin, Mid-Infrared Reconfigurable Photonic Circuits Using Titanium Dioxide on Ferroelectric Lithium Niobate Optical Waveguides, submitted, 2020.

501. Ghosh, Sourav; Makeev, Maxim ; Qi, Zhimin ; Wang, Haiyan; Rajput, Nav Nidhi; Martha, Surendra; Pol, Vilas Rapid Upcycling of Waste Polyethylene Terephthalate (PET) to Energy Storing Disodium Terephthalate Flowers with DFT Calculations", ***ACS Sustainable Chemistry & Engineering***, under revisions, 2020.

500. Jijie Huang,, Xin Li Phuah, K. S. N. Vikrant, Han Wang, Haohan Wang, Ping Lu, Xingyao Gao, Di Zhang, Xing Sun, Xiaoshan Xu, R. Edwin García, Xinghang Zhang and Haiyan Wang, Core-shell metallic alloy nanopillars-in-dielectric hybrid metamaterials with pronounced magneto-optic coupling, submitted, 2020.

499. Eun-Mi Choi, Tuhin Maity, Ahmed Kursumovic, Ping Lu, Oon Jew Lee, Zenxhing Bi, Yoonsang Park, Bonan Zhu, Rui Wu, Venkatraman Gopalan, Haiyan Wang, and Judith L. MacManus-Driscoll , Nanoengineering Giant Room Temperature Ferroelectricity into Orthorhombic SmMnO3 Films, submitted, 2020.

498. Pei Su, Hang Hu, Daisy Unsihuay, Di Zhang Dr. Tiziano Dainese Dr. Rosa E. Diaz Jongsu Lee Dr. Don K. Gunaratne Prof. Haiyan Wang Prof. Flavio Maran, Prof. Jianguo Mei, Prof. Julia Laskin, ***Angewandte Chemie,*** 28 February 2020, https://doi.org/10.1002/ange.202000065.

497.

496. Mengwei Si, Atanu K. Saha,, Pai-Ying Liao, Shengjie Gao, Sabine M. Neumayer, Jie Jian, Jingkai Qin, Nina Balke, Haiyan Wang, Petro Maksymovych, Wenzhuo Wu, Sumeet K. Gupta1 and Peide D. Ye, Room Temperature Electrocaloric Effect in 2D Ferroelectric CuInP2S6 for Nano-refrigerators, submitted, 2020. (arXiv preprint arXiv:1901.06616, 2019)

495. Sourav Ghosh, Maxim Makeev, Zhimin Qi, Haiyan Wang, Nav Nidhi Rajput, Surendra K. Martha and Vilas G. Pol, Rapid Upcycling of Waste Polyethylene Terephthalate (PET) to Energy Storing Disodium Terephthalate Flowers with DFT Calculations, submitted, 2020.

494. Laisuo Su; Shikhar K Jha; Xin L Phuah; Jiang Xu; Nathan Nakamura; Haiyan Wang; John S Okasinski, B. Reeja Jayan, Engineering Lithium Ion Battery Cathodes for High Voltage Applications Using Electromagnetic Excitation, submitted, 2020.

493. Nathan Nakamura, Laisuo Su, Han Wang, Noam Bernstein, Shikhar Jha, Elizabeth Culbertson, Haiyan Wang, Simon J. L. Billinge, C. Stephen Hellberg, and B. Reeja Jayan, Defect-Mediated Phase Transitions in ZrO2 under Electromagnetic Excitation, submitted, 2020.

492. Xin Li Phuah, Jaehun Cho, Akriti, Letian Dou, Wolfgang Rheinheimer, R. Edwin Garcia, Xinghang Zhang, Haiyan Wang, Growth of ZnO nanostructures with high density defects by a non-equilibrium flash sintering method, submitted, 2020.

491. Shikhar Misra, Matias Kalaswad, Di Zhang, Haiyan Wang, Dynamic measurement of electrically tunable dielectric permittivity in BaTiO3 using spectroscopic ellipsometer, submitted, 2020.

490. Xin Li Phuah, Han Wang, Bruce Zhang, Jaehun Cho, Xinghang Zhang and Haiyan Wang, Ceramic material processing towards future space habitat: Microstructure and properties of electric current-assisted sintering of lunar regolith simulant (JSC-1A), submitted, 2020.

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C. Presentations at Professional Conferences (137 total + 10 invited talks)

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