

Feng Yan

The University of Alabama
Department of Metallurgical & Materials Engineering
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Education

Harvard University 2013	Postdoctoral Fellow School of Engineering and Applied Science	Cambridge, MA
Northwestern University 2012	Postdoctoral Fellow Materials Science and Engineering	Evanston, IL
National University of Singapore 2011	Ph.D. in Materials Science	Singapore
Zhejiang University, 2007	M.S. in Materials Science & Engineering	Hangzhou, China
Xi'an University of Technology 2005	B.S. in Materials Science & Engineering	Xi'an, China

Professional Appointments

The University of Alabama, 2017 - present:	Assistant Professor, Department of Metallurgical and Materials Engineering (MTE)	Tuscaloosa, AL
First Solar, Inc. 2014 - 2017:	Senior Development Engineer, First Solar Ohio manufacturing factory and R&D Center	Perrysburg, OH
Harvard University 2013 - 2014:	Post-Doctoral Fellow, School of Engineering and Applied Sciences	Cambridge, MA
Northwestern University 2012 - 2013:	Post-Doctoral Fellow, Department of Materials Science and Engineering	Evanston, IL
Drexel University 2011 - 2012,	Research Associate, Department of Materials Science and Engineering	Philadelphia, PA

Awards & Honors:

- 2020 NSF Faculty Early Career Development Award (CAREER)
- 2020 Air force faculty summer fellowship
- 2019 UA Service-Learning Faculty Fellow
- 2018 Ralph E. Powe Junior Faculty Enhancement Award, Oak Ridge Associated Universities
- 2018 SEC Faculty Travel Grant

Research Topics

- Photovoltaics and photoelectrochemical, eg., CdTe, Sb₂Se₃, and Perovskite solar cells
- Ferroelectric and multiferroics
- Metallic materials
- Nanostructured materials for energy harvest including quantum dots and colloids.
- Nanoscale scanning probe microscopy for nanoelectronics and photonics

Research Grants

“A New Low-Temperature Approach for Efficient and Low-Cost Group V Doping in CdTe Thin Film Solar Cells”

Funding Agency: Department of Energy
Award Dates: 01/01/2021-12/31/2021
Leadership: PI: **Feng Yan**
Amount: \$375,000

“CAREER: Photovoltaics Devices with Earth Abundant Low Dimensional Chalcogenides”

Funding Agency: National Science Foundation
Award Dates: 07/01/2020-06/30/2025
Leadership: PI: **Feng Yan**
Amount: \$500,000

“Collaborative Research: Photomechanical Behaviors in Photovoltaic Semiconductors”

Funding Agency: National Science Foundation
Award Dates: 10/01/2020-09/30/2023
Leadership: PI: **Feng Yan**, coPI Lin Li (UA) PI Qi An (UNR)
Amount: \$494200 (UA share\$228,148)

“I-Corps: Printable Carbon-based Perovskite Thin Film Solar Cells”

Funding Agency: National Science Foundation
Award Dates: 9/01/2020-01/31/2021
Leadership: PI: **Feng Yan**
Amount: \$50,000

“I-Corps: Earth Abundant Antimony Chalcogenides for High Efficiency and Sustainable Thin Films Solar Cells”

Funding Agency: National Science Foundation
Award Dates: 8/01/2018-03/31/2021
Leadership: PI **Feng Yan**
Amount: \$50,000

“In-Space Manufacturing of Assembled Lightweight Flexible Carbon-based Perovskite Thin Film Solar Cells with Radiation Stability in ISS”

Funding Agency: University of Alabama in Huntsville, National Aeronautics and Space Administration (NASA)

Award Dates: 10/01/2020-09/30/2023

Leadership: PI: L.Dale Thomas, Science PI: **Feng Yan**

Amount: \$100,000 (UA Share \$79944)

“Photoactive Nanoparticle-Decorated Bio-Nanofibers for Solar Energy Conversion”

Funding Agency: United States Department of Agriculture (USDA)

Award Dates: 6/01/2020-05/31/2022

Leadership: PI: **Feng Yan**, coPI Lingyan Kong

Amount: \$199,990

“Grain Boundary Complexion Engineering in Thin-film Photovoltaics”

Funding Agency: Oak Ridge Associated Universities (ORAU)

Award Dates: 5/01/2018-03/31/2021

Leadership: PI: **Feng Yan**

Amount: \$5000 (UA matches additional \$5000)

“NSF EPSCoR Track II- Feeding and Powering the World-Capturing Sunlight to Split Water and Generate Fertilizer and Fuels”

Funding Agency: University of Mississippi (NSF)

Award Dates: 9/15/2018-07/31/2020

Role: Subawardee: **Feng Yan**

Amount: Total 6M, (subawardee \$10000)

“SUBTASK 8.7: RAPID MCPI- Energy Efficient Technology for Metals Separation”

Funding Agency: American Institute of Chemical Engineers (AIChE)

Award Dates: 1/01/2018-12/31/2020

Leadership: PI: Reddy G. Ramana, coPIs: Su Gupta, Mark Weaver, Luke N. Brewer, Laurentiu Nastac, Ruigang Wang, Lin Li, **Feng Yan**, Christopher S. Brazel

Amount: \$6247,640 (coPI Share ~\$312,382)

“Probing of the Photocatalytic Activity for Solar Water Splitting Application”

Funding Agency: Alabama Water Institute, The University of Alabama

Award Dates: 5/01/2019-05/31/2020

Leadership: PI **Feng Yan**

Amount: \$20093

“Stable and highly efficient all-inorganic perovskite solar cells”

Funding Agency: Alabama Power, Inc.

Award Dates: 04/10/2019

Leadership: PI: **Feng Yan** (Jacob Wall as the sponsored undergraduate student)

Amount: \$5000

“Lead-free double perovskite for thin film solar cells application”

Funding Agency: The University of Alabama, Research Grants Committee (RGC)

Award date: 05/15/2018-05/14/2019

Leadership: PI: **Feng Yan**

Amount: \$6000

“Machine Learning Accelerated Search of Multiphase and Multicomponent Alloys with Enhanced Strength-Ductility Synergy”

Funding Agency: The University of Alabama, Cyber Institute

Award date: 04/22/2020

Leadership: PI: Lin Li, coPI: **Feng Yan**

Amount: \$28000

Synergistic Activities

- Dr. Yan is a member of the Materials Research Society (**MRS**), The Minerals, Metals and Materials (**TMS**) membership, **IEEE Photonics Society member**.
- Dr. Yan serves as a reviewer for more than 30 journals: Nature Communications, Advanced Materials, Advanced Functional Materials, Small, Journal of Materials Chemistry A, Applied Physics Letters, Physical Chemistry Chemical Physics, Journal of Applied Physics, Journal of Physics: D, Applied Physics A, Materials Letters, Journal of Electronic Materials, Functional Materials Letters, Thin solid films, Nanoscale Research Letters, Journal of Magnetism and Magnetic Materials, Ferroelectrics, Superlattice and Microstructures, Journal of Sol-gel Science and Technology, Journal of Physics, Chemistry of Solids, Nanotechnology, Composites Science and Technology, etc.
- Dr. Yan is a faculty member in Materials Science Ph.D. Program at the University of Alabama (<http://materialsscience.ua.edu>). This program is an interdisciplinary, interdepartmental, and intercampus doctoral program linking the three universities that comprise the University of Alabama System.
- Dr. Yan is a Grant Proposal Reviewer for the NSF proposal panel review for ECCS and PFI.
- Dr. Yan is a director and mentor for Research and Engineering Apprenticeship Program (REAP) in the Army Educational Outreach Program (AEOP, <http://www.usaeop.com>)

Postdoctoral and Ph.D. Advisor:

- Prof. Shriram Ramanathan, Harvard University (Purdue University now) (Postdoctoral Advisor)
- Prof. Thomas. O. Mason, Northwestern University(Postdoctoral Advisor)
- Prof. Johnathan. Spanier, Drexel University. (Postdoctoral Advisor)
- Prof. Li Lu, National University of Singapore (Ph.D. Advisor)

Mentoring and Advising

Graduate Advisees:

Ph.D.

Liping Guo, Metallurgical & Materials Engineering, University of Alabama, 2017-present
 A. Montgomery, Metallurgical & Materials Engineering, University of Alabama. 2018-Dec.2019
 Vijayaraghavan S.N., Metallurgical & Materials Engineering, University of Alabama, 2019-present
 Xiaomeng Duan, Metallurgical & Materials Engineering, University of Alabama, 2020-present
 Harigovind G. M, Metallurgical & Materials Engineering, University of Alabama, 2020-present

Ph.D. as co-Advisor:

Xiao Han, Metallurgical & Materials Engineering, University of Alabama, 2018-present (Dr. Lin Li)
 Yi Yao, Metallurgical & Materials Engineering, University of Alabama, 2019-present (Dr. Lin Li)

M.S

Ms. Liping Guo, Metallurgical & Materials Engineering, University of Alabama, 2017-Aug.2020

Undergraduate Researchers:

Melissa Mathews, Chemical Engineering, University of Alabama, 2018
 Jonathan Johnson, Metallurgical and Materials Engineering, University of Alabama, 2017-2018
 Henry Abrams, Electrical Engineering, University of Alabama, 2018
 Makayla Stowell, Metallurgical and Materials Engineering, University of Alabama, 2018
 Jarod Robinson, Metallurgical and Materials Engineering, University of Alabama, 2018
 Chenghao Shi, Mechanical Engineering, University of Alabama. 2018-2019
 John Michael Hibbard, Chemical Engineering, University of Alabama, 2019
 John Korjenek, Mechanical Engineering, University of Alabama, 2019
 Jacob Wall, Metallurgical and Materials Engineering, University of Alabama. 2019, 2020
 Nicole Angel, Mechanical Engineering, University of Alabama, 2020
 Nikolas Hayes, Metallurgical and Materials Engineering, University of Alabama, 2020

REU

Jovani Ocomy, Mechanical Engineering, University of Alabama in Huntsville. Summer 2018
 Mr. Jose Cruz Ayala, Electrical Engineering, University of Puerto Rico, Summer 2018
 Mr. John McDonough, Mechanical Engineering, University of Alabama, Summer, 2019

High school researchers

Joshua, Myeongchan Kim, North Ridge Highschool, Tuscaloosa, Summer 2018
 Caleb, Myeongjin Kim, North Ridge Highschool, Tuscaloosa, Summer 2018

Student Awards:

Liping Guo, 1st place Materials Science Symposium, Materials Science Program at UA. 2019
 A. Montgomery, 3rd place Materials Science Symposium, Materials Science Program at UA. 2019
 Jacob Wall, Alabama Power Innovation Grant, 2019
 Melissa Mathews, Barry Goldwater Scholarship, 2017
 Jovani Ocomy, 1st place for the summer REU presentation competition 2018

Teaching:

MTE271 Engineering Materials, Spring 2018, 2019, 2020, (Best Student Evaluation 4.6/5.0 from 114 students)
 MTE380: Synthesis, Processing, and Manufacturing of Materials, Fall 2017, 2018, 2019, 2020 (Best Student Evaluation 4.9/5.0)
 MTE591: Fundamental of Photovoltaics, Fall 2018, 2019. (Best Student Evaluation 4.8/5.0)
 MTE491: Solar Energy and Solar Cells, Fall 2019

Publications:

At UA.

1. X. Han, H. Won, M. Choi, S. N. Vijayaraghavan, Z. Liu, R. Wang, L. Li, Y. Hong, **F. Yan**, Interdiffusion induced high coercivity of rare earth free Alnico/Pt thin films, *Journal of Alloys and Compounds*, Accepted, 2020.
2. Nicole Angel, S. N. Vijayaraghavan, **Feng Yan** *, Lingyan Kong *, Electrospun Cadmium Selenide Nanoparticles-Loaded Cellulose Acetate Fibers for Solar Thermal Application, *Nanomaterials*, 2020, 10, 1329, 2020
3. Yao, Yi; Wang, Kaiwen; Wang, Xiaoqing; Li, Lin; Cai, Wenjun; Kelly, Samuel ; Esparragoza, Natalia ; Rosser, Matthew; **Feng Yan**, Microstructural heterogeneity and mechanical anisotropy of 18Ni-330 maraging steel fabricated by selective laser melting: the effect of build orientation and height, *Journal of Materials Research*, 2020, 35, 2065.
4. D. Li, Z. Song, S. Bista, F. Alfadhili, R. Awni, N. Shrestha, D. Rhiannon, A. Phillips, M. Heben, R. Ellingson, **F. Yan**, Y. Yan, CuSCN as the back contact for efficient ZMO/CdTe Solar Cells. *Materials*, 2020, 12(8), 1991.
5. S. N. Vijayaraghavan, J. Wall, L. Li, G. Xing, Q. Zhang, **F. Yan**, Low Temperature Processed Highly Efficient Hole-Transport-Layer Free Carbon-based Planar Perovskite Solar Cells with SnO₂ Quantum Dot Electron-Transport-Layer, *Materials Today Physics*, 2020, 13, 100204, 2020 [pdf]
6. P. Du, L. Luo, W. Li, **F. Yan**, G. Xiong, Multi-site occupancies and photoluminescence characteristics in developed Eu²⁺-activated Ba₅SiO₄Cl₆ bifunctional platform: Towards manufacturable optical thermometer and indoor illumination, *Journal of Alloys and Compounds*, 154233, 2020.[PDF]
7. N. Angel, L. Guo, **F. Yan**, H. Wang, L. Kong, Effect of processing parameters on the electrospinning of cellulose acetate studied by response surface methodology, *Journal of Agriculture and Food Research*, 2, 100015, 2020
8. Y. Lv, Z. Huang, H. Chi, X. Zheng, H. Qin, **F. Yan**, Preparation of manganese oxide/graphene oxide hydrogel for capacitive energy storage, *Electrochimica Acta*, 135330, 2019
9. Z. Lu, G. Zhou, M. Song, X. Liu, H. Tang, H. Dong, P. Huo, **F. Yan**, P. Du, G. Xing, Development of magnetic imprinted PEDOT/CdS heterojunction photocatalytic nanoreactors: 3-dimensional specific recognition for selectively photocatalyzing danofloxacin mesylate, *Applied. Catalysis B: Environmental*, 118433, 2019.
10. L. Guo, P. S. Shinde, Y. Ma, L. Li, S. Pan, **F. Yan**, Scalable Core–Shell MoS₂/Sb₂Se₃ Nanorod Array Photocathodes for Enhanced Photoelectrochemical Water Splitting, *Solar RRL*, 201900442, 2019.
11. Jie Qiu, Xiaohui Guo, Ran Chu, Siliang Wang, Wei Zeng, Lei Qu, Yunong Zhao, **Feng Yan**, Guozhong Xing, Rapid-Response, Low Detection Limit, and High-Sensitivity Capacitive Flexible Tactile Sensor Based on Three-Dimensional Porous Dielectric Layer for Wearable Electronic Skin, *ACS Applied Materials and Interface*, 11, 40716, 2019
12. Yu Kang Shen, You Yin Lv, Zhaojie Huang, Hongzhong Chi, **F. Yan**, Xing Duan, Electrocrystallization process of manganese oxide in graphene hydrogel, *Electrochimica Acta*, 134661, 2019.
13. M. Mathews†, L. Guo†, X. Han†, S. Saurav, G. Xing, L. Li, and **F. Yan***, Local Mechanical and Electrical Behavior in CdTe Thin Film Solar Cells Revealed by Scanning Probe Microscopy, *AIP Advance*, 085108 2019.
14. L. Guo†, B. Zhang, S. Li, Q. Zhang, L. Li, X. Qian, **F. Yan***, “Interfacial Engineering of Oxygenated Chemical Bath Deposited CdS Window Layer for Highly Efficient Sb₂Se₃ Thin Film Solar Cell, *Materials Today Physics*, 100125, 2019
15. L. Guo†, A. Montgomery†, **F. Yan***, Application Of Solution-Processed Cuscn And AgSCN For Highly Efficient CdTe Solar Cells, *IEEE Photovoltaic Specialists Conference (PVSC 46)*, 2019.
16. L. Guo†, B. Zhang, S. Li, Q. Zhang, L. Li, X. Qian, **F. Yan***, Scalable and Efficient Sb₂S₃ Thin Film Solar Cells Fabricated by Close Space Sublimation, *APL Materials*, 7, 041105, 2019.
17. Ziyang Lu, Guosheng Zhou, Minshan Song, Dandan Wang, Pengwei Huo, Weiqiang Fan, Hongjun Dong, Hua Tang, **F. Yan** and Scott Guozhong Xing, Magnetic Functional Heterojunction Reactors with 3D Specific Recognition: Towards Selective Photocatalysis and Synergistic Photodegradation in Binary Antibiotic Solution, *Journal of Materials Chemistry A*, 7, 13986, 2019.

18. A. Montgomery†, L. Guo†, G. Crice, R. A. Awni, S. Saurav, L. Li, Y. Yan, **F. Yan***, Solution Processed CuSCN for Highly Efficient CdSe/CdTe Thin Film Solar Cells, *Progress in Photovoltaics: Research and Applications*, **1-8, 2019**
19. Liping Guo, Corey Grice, Baiyu Zhang, Scott Xing, Lin Li, Xiaofeng Qian, **Feng Yan***, Improved Stability and Efficiency of CdSe/Sb₂Se₃ Thin Films Solar Cells, *Solar Energy*, 188, 586-592, 2019,[PDF]
20. Liping Guo, Baiyu Zhang, Shan Li, Qian Zhang, Lin Li, Scott Guozhong Xing, Xiaofeng Qian, **Feng Yan***, Interfacial Engineering of Oxygenated Chemical Bath Deposited CdS Window Layer for Highly Efficient Sb₂Se₃ Thin Film Solar Cells, *Materials Today Physics* 2019, 100125
21. M. Zhang, H. Wang, Z. Su, C. Tian, J. Zhang, Y. Wang, **F. Yan**, Z. Mai, S. Xing, Enhanced Thermal Conductivity and Lower Density Composites with Brick Wall Microstructure based on Highly Oriented Graphite Nanoplatelet: Towards Manufacturable Cooling Substrates for High Power Density Electronic Devices, *Nanotechnology*, **30, 245204, 2019.**
22. J. Wu, Z. Ma, Z. Hao, J. Zhang, P. Sun, M. Zhang, Y. Liu, Y. Cheng, Y. Li, B. Zhong, T. Zhang, L. Xia, W. Yao, X. Huang, H. Liu, **F. Yan**, C. Hsu, and G. Xing, Sheath-core fiber strain sensors driven by in-situ crack and elastic effects in Graphite Nanoplate Composites, *ACS Applied Nano Materials*, **2, 750, 2019.**
23. Z. Zhou, S. Shoieb, Z. Ouyang, **F. Yan**, D. Li, Rapid crystallization and controllable growth of perovskite thin films via a seeded approach, *Journal of Vacuum Science and Technology*, **37, 021201, 2019.**
24. S. Holland, X. Wang, J. Chen, W. Cai, **F. Yan**, L. Li, Multiscale microstructure and mechanical properties of Inconel 718 fabricated by selective laser melting and heat treatment, *Journal of Alloys and Compounds*, **784, 182, 2019**
25. Neng Wang, Jun Ding, Peng Luo, Yanhui Liu, Lin Li, **F. Yan***, Chemical Variation Induced Nanoscale Spatial Heterogeneity in Metallic Glasses, *Materials Research Letters*, 6, 655, **2018**
26. Liping Guo†, Baiyu Zhang, Ying Qin, Dawen Li, Lin Li, Xiaofeng Qian, **F. Yan***, Tunable Quasi-One-Dimensional Ribbon Enhanced Light Absorption in Sb₂Se₃ Thin-film Solar Cells Grown by Close-Space Sublimation, *Solar RRL*, 1800128, **2018.**
27. Holland, Sharniece, Xiaoqing Wang, Xiaoying Fang, Yuebin Guo, **F. Yan**, and Lin Li. "Grain Boundary Network Evolution in Inconel 718 from Selective Laser Melting to Heat Treatment." *Materials Science and Engineering: A* (2018).
28. Wang, N, J Ding, **F. Yan**, Mark Asta, Robert O. Ritchie, and Lin Li. "Spatial correlation of elastic heterogeneity tunes the deformation behavior of metallic glasses." *npj Computational Materials* 4, no. 1 (2018): 19

Prior to UA.

29. **F. Yan**, X. Zhang, Y. G. Yu, L. Yu, A. Nagaraja, T. O. Mason, A. Zunger Design and discovery of a novel half-Heusler transparent hole conductor made of all-metallic heavy elements, *Nature Communications* (2015, 6, 7308)
30. **F. Yan**, G. Z. Xing, S. Li, L.Li. Magnetic phase transition of Mn-doped BiFeO₃. *Scientific Reports*. 2015, 5, 9128.
31. **F. Yan**, F. Schoofs, J. Shi, S. D. Ha, R. Jaramillo, S. Ramanathan, *Local charge writing in epitaxial SmNiO₃ thin films*, *J. Mater. Chem. C* 2, 3805, (2014).
32. **F. Yan**, G. Chen, L. Lu, and J. E. Spanier, *Dynamics of photo-generated surface charge on BiFeO₃ films*. *ACS Nano*, 6, 2353, (2012)
33. **F. Yan**, M. O Lai, L. Lu and T. J. Zhu. *Enhanced multiferroic properties and valence effect of Ru-doped BiFeO₃ thin films*. *J. Phys. Chem. C*, 114, 6994 (2010).
34. **F. Yan**, G. Z. Xing, L. Li, *Low temperature dependent ferroelectric resistive switching in epitaxial BiFeO₃ films*. *Appl. Phys. Lett.* 104, 132904, (2014)
35. **F. Yan**, G. Chen, L. Lu, P. Finkel, and J. E. Spanier. *Local probing of magnetoelectric coupling and magnetoelastic control of switching in BiFeO₃-CoFe₂O₄ thin-film nanocomposite*. *Appl. Phys. Lett.* 103, 042906, (2013).

36. **F. Yan**, G. Z. Xing, M. Islam, S. Li, and L. Lu. *Orientation-dependent surface potential behavior in Nb-doped BiFeO₃*. **Appl. Phys. Lett.**, 100, 172901, (2012).
37. **F. Yan***, M. Shu, T. J. Zhu, M. O Lai, and L. Lu. *Strain effect on the surface potential and nanoscale switching characteristics of multiferroic BiFeO₃ thin films*. **Appl. Phys. Lett.** 100, 132907, (2012).
38. **F. Yan**, M. O Lai, and L. Lu. *Domain structure and piezoelectric response in rare earth-substituted multiferroic BiFeO₃ thin films*. **J. Phys. D: Appl. Phys.**, 45, 325001, (2012)
39. **F. Yan**, T. J. Zhu, M. O Lai, and L. Lu. *Influence of La and Ru dopants on multiferroic properties of polycrystalline BiFeO₃ thin films*, **Appl. Phys. Express.**, 4, 111502 (2011)
40. **F. Yan**, M. O Lai, L. Lu and T. J. Zhu. *Role of Pb(Zr_{0.52}Ti_{0.48})O₃ substitution in multiferroic properties of polycrystalline BiFeO₃ thin films*. **J. Appl. Phys.**, 110, 114116, (2011)
41. **F. Yan**, M. O Lai, L. Lu and T. J. Zhu. *Variation of leakage mechanism and potential barrier in La and Ru co-doped BiFeO₃ thin films*. **J. Phys. D: Appl. Phys.**, 44, 435302 (2011)
42. **F. Yan**, T. J. Zhu, M. O Lai, and L. Lu. *Effect of bottom electrodes on nanoscale switching characteristics and piezoelectric response in polycrystalline BiFeO₃ thin films*. **J. Appl. Phys.**, 110, 084102 (2011)
43. **F. Yan**, S. Miao, I. Sterianou, I. M. Reaney, M. O. Lai, L. Lu, and W. D. Song. *Multiferroic properties and temperature-dependent leakage mechanism of Sc-substituted bismuth ferrite–lead titanate thin films*. **Scr. Mater.**, 64, 458 (2011).
44. **F. Yan**, M. O Lai, L. Lu, and T. J. Zhu. *Enhanced multiferroic properties and domain structure of La doped BiFeO₃ thin films*. **Scr. Mater.**, 63, 780 (2010).
45. **F. Yan**, T. J. Zhu, M. O. Lai, L. Lu. *Influence of oxygen pressure on the ferroelectric properties of BiFeO₃ thin films on LaNiO₃/Si substrates via laser ablation*. **Appl. Phys. A.**, 101, 651 (2010).
46. **F. Yan**, I. Sterianou, S. Miao, I. M. Reaney, M. O. Lai, and L. Lu. *Multiferroic properties of Bi(Fe_{0.5}Sc_{0.5})O₃-PbTiO₃ thin films*. **Phys. Scr.**, T139. 014003, (2010).
47. **F. Yan**, I. Sterianou, S. Miao, I. M. Reaney, M. O. Lai, and L. Lu. *Magnetic, ferroelectric, and dielectric properties of Bi(Sc_{0.5}Fe_{0.5})O₃-PbTiO₃ thin films*. **J. Appl. Phys.**, 105, 074101 (2009).
48. **F. Yan**, T. J. Zhu, XB Zhao, and SR Dong. *Microstructures and thermoelectric properties of GeSbTe based layered compounds*. **Appl. Phys. A.**, 88, 425 (2007).
49. **F. Yan**, T. J. Zhu, S. N. Zhang, and X. B. Zhao, *Microstructure and thermoelectric properties of cubic AgPb₁₈Sb_{1-x}Te₂₀ (x = 0.1, 0.3, 0.5) compounds*, **Phys. Scr.**, T129 116 (2007).
50. **F. Yan**, T. J. Zhu, X. B. Zhao, and S. R. Dong, *A study of the crystallization kinetics of Ge-Te amorphous system*, **J. Univ. Sci. Techn. Beijing**, S1, 64, (2007).
51. **F. Yan**, T. J. Zhu, and X. B. Zhao, *Progress in study on phase-change-materials*, **J. Funct. Mater.**, 37, 329, (2006).
52. G. Z. Xing, J. B. Yi, **F. Yan**, T. Wu and S. Li, *Positive magnetoresistance in ferromagnetic Nd doped In₂O₃ thin films grown by pulse laser deposition*. **Appl. Phys. Lett.** 104, 202411, (2014).
53. D.D. Wang, G. Z. Xing, **F. Yan**, Y.S. Yan, S. Li, *Ferromagnetic (Mn, N)-codoped ZnO nanopillars array Experimental and computational insights*. **Appl. Phys. Lett.** 104, 022412, (2014)
54. L. Li, N. Wang, **F. Yan**, *Transient response in metallic glass deformation: A study based on shear transformation zone dynamics simulations*. **Scripta Mater.** 80, 25, 2014.
55. H. Xia, Y. Wan, **F. Yan**, L. Lu, *Manganese oxide thin films prepared by pulsed laser deposition for thin film microbatteries*, **Materials Chemistry and Physics**, in press (2013).
56. A. Kumar, **F. Yan**, K. Y. Zeng, and L. Lu. *Electric, magnetic and mechanical coupling effects on ferroelectric properties and surface potential of BiFeO₃ thin film*. **Funct. Mater. Lett.**, 4, 91 (2011)
57. H. Xia, **F. Yan**, M. O. Lai and L. Lu. *Electrochemical properties of BiFeO₃ thin films prepared by pulsed laser deposition*. **Funct. Mater. Lett.**, 2, 163 (2009).
58. T. J. Zhu, **F. Yan**, X. B. Zhao, *Preparation and thermoelectric properties of bulk nanocomposite with amorphous/nanocrystal in-situ hybrid structure*, **J. Phys. D: Appl. Phys.**, 40 6094 (2007).
59. T. J. Zhu, **F. Yan**, S. N. Zhang, and X. B. Zhao, *Microstructure and electrical properties of quenched AgPb₁₈Sb_{1-x}Te₂₀ thermoelectric materials*, **J. Phys. D: Appl. Phys.**, 40, 3537 (2007).

60. T. J. Zhu, Y. Q. Cao, F. Yan, and X. B. Zhao, Nanostructuring and thermoelectric properties of semiconductor tellurides, Conference Proceedings ICT 07: 26th International Conference on Thermoelectrics 2007, Jeju, Korea.

Patent

1. F. Yan, etc. Diffusion based ex-situ group V doping in polycrystalline CdTe thin film solar cells, US Patent Application No. 62/984583.2020
2. F. Yan, etc. Thin Film Solar Cells and Methods of Making Thereof, US. Patent Application No. 62/645977, 2018
3. F. Yan, etc. A process for making powder alloys containing cadmium and selenium, US, WO 2016133973 A1
4. F. Yan, etc. Devices and methods for making polycrystalline alloys, US, filed 2015
5. F. Yan, etc, A novel thermoelectric nanocomposites with amorphous/nanocrystals in-situ hybrid structure, China patent, CN 1937272A.

Conference, Talk & Presentation

14. F. Yan, Emerging Thin film photovoltaic device, 2020, University of Nevada, Reno, (Invited talk)
13. **F. Yan**, Antimony Chalcogenide Thin Film Solar Cells, 2020, University of Alabama, Birmingham, (Invited Talk)
12. **F. Yan**, From cubic to noncubic photovoltaics, Oct. 2019, University of Maine. (Invited Talk)
11. **F. Yan**, Alnico permanent magnet thin film, MMM 2019, Las Vegas, NV, 2019 (Talk)
10. **F. Yan**, CdTe with CuSCN and AgSCN, IEEE PVSC, 2019, Chicago, IL, 2019 (Talk)
9. **F. Yan**, Sb₂Se₃ solar cells, MRS Spring 2019, Phoenix, AZ, 2019 (Talk)
8. **F. Yan**, Double perovskite solar cell, TMS Conference, Phoenix, AZ, 2018 (Invited Talk)
7. **F. Yan**, Z. Zhao, CdTe thin film solar cells, Electronic Materials and Applications, Orlando, FL, 2017 (Invited Talk)
6. **F. Yan**, G. Chen, L. Lu, J. E. Spanier. Dynamics of photo-generated surface charge on BiFeO₃ films. Materials Research Society (MRS) fall meeting, Boston, USA, Nov. 2011
5. **F. Yan**, T. J. Zhu, M. O. Lai, and L. Lu, Influence of oxygen pressure on the ferroelectric properties of BiFeO₃ thin films on LaNiO₃/Si substrates via laser ablation. The 10th Conference of Laser Ablation, Singapore, Nov. 2009.
4. **F. Yan**, I. Sterianou, S. Miao, I. M. Reaney, M. O. Lai, and L. Lu. Multiferroic properties of Bi(Fe_{0.5}Sc_{0.5})O₃-PbTiO₃ thin films. The 3rd international Symposium on Functional Materials (ISFM). Jinju, Korea, Jun. 2009.
3. **F. Yan**, T. J. Zhu, S. N. Zhang, and X. B. Zhao, Microstructure and thermoelectric properties of cubic AgPb₁₈Sb_{1-x}Te₂₀ (x = 0.1, 0.3, 0.5) compounds. The 2nd international Symposium on Functional Materials (ISFM). Hangzhou, China, May 2007.
2. X. Zhang, L. Yu, A. Zunger, **F. Yan**, Arpun R. Nagaraja, R. Gautier, T. O. Mason, K. R. Poeppelmeier, A. Zakutayev, D. Ginley, Discovery of missing functional ABX compounds. Materials Research Society (MRS) fall meeting, Boston, USA, Dec. 2013
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Conference Symposium Organization.

2020 Fall, Materials Science Society (MRS) Symposium EL03. Emerging Low-Dimensional Chalcogenides for Electronics and Photonics, Chair.

Service in Department

Undergraduate student Committee member.
New Faculty search committee, 2018
Department head search committee, 2018