Academic Curriculum Vitae

CONTACT DETAILS

Nian X. Sun
Professor, FInstP, FIET
Director, W.M. Keck Laboratory of Integrated Ferroics
Editor of IEEE Transactions on Magnetics
Electrical and Computer Engineering Department
Northeastern University
360 Huntington Avenue, 409 Dana
Boston, MA 02115, USA
Phone: +1 (617) 373 3351; Fax: +1 (617) 373 8970; Cell: +1 (781) 775 8878
Email: nian@ece.neu.edu
URL: www.neu.edu/sunlab; www.neu.edu/amml; www.northeastern.edu/kecklab.

EDUCATION

Stanford University, California, USA
Ph.D. Materials Science and Engineering, 2001
M.S. Electrical Engineering
Dissertation: High saturation magnetization soft magnetic FeCoN thin films for GHz applications; Advisor: Professor Shan X. Wang

Chinese Academy of Sciences (CAS), Institute of Metal Research, China
M.S. Materials Science and Engineering, 1996
Thesis: Fabrication, characterization and properties of nanostructured and amorphous materials; Advisor: Professor Ke Lu

Huazhong University of Science and Technology (HUST), China
B.S. Materials Science and Engineering, 1993
B.S. Minor Electrical Engineering, 1993

RESEARCH AREA OF INTEREST

Our research interests include novel integrated magnetic, ferroelectric and multiferroic materials and microsystems for sensing, memory, power, RF and microwave electronics. Specifically, we work on materials and microsystems for biomagnetic sensing, micromagnetic neural stimulation, room-temperature electro-magneto-encephalography, different tunable RF/microwave components, including multiferroic antennas, tunable inductors, filters, phase shifters, isolators, circulators, etc., integrated thermoelectric materials and devices, materials and devices for vibration energy harvesting applications, etc.

HIGHLIGHTS OF RESEARCH AND SCHOLARSHIP:

- One of the principal investigators of the NSF Nanosystems ERC for Translational Applications of Nanoscale Multiferroic Systems (TANMS, www.tanms-erc.org), 2013~present.
- Principal Investigator of the W.M. Keck Foundation Award, and Director of the W.M. Keck Laboratory for Integrated Ferroics.
- Demonstration of ultra-compact ultra-sensitive magnetoelectric antennas (10^{-2} ~ 10^{-3} λ_0) that rely on acoustic resonance, instead of electromagnetic resonance, in magnetoelectric RF nanoelectromechanical systems (NEMS) resonators. These magnetoelectric antennas are magnetic antennas, and are immune from ground plane effect.
- FemtoTesla RF magnetic field sensitivity in ultra-sensitive magnetoelectric RF NEMS resonator based multiferroic antennas.
- Novel voltage tunable RF magnetoelectric integrated inductors with 50~150% tunable inductance within 0.5~3.5GHz.
- The most sensitive nanoscale room temperature magnetic sensors - novel RF magnetoelectric sensors based on RF magnetoelectric nano-electromechanical systems resonators with DC magnetic field sensitivity of 200pTesla.
- Giant voltage tunable ferromagnetic resonance frequency range of 5820 MHz or f_{max}/f_{min}=4.3 in FeGaB based multiferroic composites.
- Record high electric field induced tunable magnetic field of 3500 Oe in Terfenol/PZN-PT multiferroic heterostructure.
- Demonstration of reversible E-field room-temperature control of exchange bias in AFM/FM/FE multiferroic heterostructures.
- Demonstrate a new class of non-reciprocal tunable bandpass filters with ultra-wideband isolation.
- Novel RF FeGaB films with record high piezomagnetic coefficient $d\lambda/dH$ of 12ppm/Oe.
- Demonstration of antennas with self-biased magnetodielectric substrates at GHz frequencies, which show significantly enhanced antenna performance.
- New electrostatically tunable inductors with record high tunable inductance range of L_{max}/L_{min} = 550% based on multiferroics.
- Novel wideband (~20%) vibration energy harvesters with high permeability magnetic materials.
- High power density of >20mW/cm^3 in vibration energy harvesters.
- FeCoN films with record high saturation magnetization, which have been widely used by the information storage industry.
- 10 most outstanding full papers in the past ten years (2001~2010) in *Advanced Functional Materials.*
- >200 peer-reviewed publications and >20 US patents and patent disclosures.
- H-index of 41 in Google Scholar, with total citations of >5000.
- >100 plenary, keynote and invited presentations and seminars.
- NSF CAREER Award.
- ONR Young Investigator Award.

- Editor, IEEE Transactions on Magnetics.
- Fellow, the Institute of Engineering and Technology.
- Fellow, the Institute of Physics.

EMPLOYMENT

2014 ~ Present: *Professor*, Department of Electrical and Computer Engineering, Northeastern University, Boston, MA, USA
2009 ~ 2014: *Associate Professor*, Department of Electrical and Computer Engineering, Northeastern University, Boston, MA, USA
2004 ~ 2009: *Assistant Professor* Department of Electrical and Computer Engineering, Northeastern University, Boston, MA, USA

Research interests include the processing, microstructures and properties relationship of novel magnetic, ferroelectric and magnetoelectric materials; RF/microwave devices design, fabrication and characterization; materials behaviors at RF/microwave frequency range; energy harvesting materials and devices, etc. Details available at: http://www.northeastern.edu/sunlab

2009 ~ present: *Founder*, *Winchester Technologies, LLC*, Winchester, MA, USA; Website: www.winchestertech.org

2013 ~ 2013 *Visiting Scientist*, Sabbatical at Research Laboratory of Electronics (RLE), EECS Dept., MIT

2001 ~ 2004: *Scientist/Advisory Development Engineer*, IBM (later with Hitachi Global Storage Technologies), San Jose, California.

- Leading the magnetic/non-magnetic thin films R&D activities for magnetic write heads at Hitachi/IBM. Won and executed multi-million-dollar funding for different projects. Purchased state of the art multi-module PVD systems for our R&D activities.
- Successfully developed several generations of high saturation magnetization soft magnetic thin films, including the Fe-Ni, Fe-Co-X and Fe-Co films for longitudinal write heads, and the high saturation magnetization laminated magnetic write poles for several generations of perpendicular recording heads.
- Successfully developed soft magnetic metal/insulator laminated films, and applied them to the magnetic write heads. Record high data transfer rate was achieved in the magnetic write heads.

1998 –2001: *Research Assistant*, Stanford University, Palo Alto, California

- Novel FeCoN soft magnetic thin films were developed with a saturation magnetization of 24 kG (2.4 Tesla), which was 15 ~ 20% higher than the B_s of the available soft magnetic films at that time. These results appeared in the journal *Nature*.

- The FeCoN films, which were first developed by us, have been taken as the standard write head materials by almost all the major magnetic recording companies worldwide.

1997-1998: *Research Associate*, Chinese Academy of Sciences, China

- Melting behavior of solids and its relation to the grain/phase boundaries and surfaces. For the first time, we reported on a 5°C superheating of a bulk polycrystalline material, the element selenium with a mean grain size of around 10μm. This superheating of the selenium polycrystals was associated with a nearly equilibrium state grain shape when viewed from the naturally fractured surface.

1993 –1996: *Research Assistant*, Chinese Academy of Sciences, China

- Synthesis, characterization, and properties of nanostructured / nanophase materials and amorphous materials, and the thermodynamics and kinetics of the phase transformation from the amorphous state to the nanostructured state.

MAJOR AWARDS & HONORS

06/2013	Fellow, the Institute of Engineering and Technology.
09/2012	Fellow, the Institute of Physics.
04/2012	Søren Buus Outstanding Research Award
11/2010	Ten Most Outstanding Papers in the Past Decade (2001~2010) in *Advanced Functional Materials*
05/2010	US Air Force SFFP Fellow
05/2009	US Air Force SFFP Fellow
01/2008	NSF CAREER Award
03/2007	ONR Young Investigator Award
08/2000	First Prize, IDEMA Fellowship $25,000
06/1996	President’s Fellowship, Chinese Academy of Sciences (CAS)
06/1996	Outstanding Graduate of the Institute of Metal Research, CAS
07/1993	Outstanding Graduate of Huazhong University of Science and Technology

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STUDENT AWARDS & HONORS

01/2016	Dr. Zhiyao Zhou was awarded the “1000 Young Talent Program” by the Chinese Government.
10/2015	Dr. Ziyao Zhou was awarded the Director's Postdoctoral Fellowship at Argonne National Laboratory
04/2015	Tianxiang Nan has been selected to receive the 2015 Chinese Government Award for Outstanding Self-Financed Students Abroad.
02/2015	Dr. Satoru Emori got named to Forbes' "30 Under 30 in Science" list

03/2014	Ziyao Zhou won the Outstanding Graduate Research Award, Northeastern University. He is one of the 2~3 best graduate students awarded every year within Northeastern University.
02/2014	Tianxiang Nan was selected as one of the 5 finalists in the IEEE Magnetics (Intermag) Conference 2014 in Dresden, Germany.
11/2013	Tianxiang Nan was selected one of the 6 finalists in the 58th Magnetism and Magnetic Materials (MMM) Annual Conference at Denver, Colorado
10/2013	Dr. Ming Liu was awarded the "1000 Young Talent Program" by the China Government.
04/2011	Xing Xing won the IEEE Graduate Student Travel Award to attend the Intermag (International Magnetics) Conference at Taipei
11/2010	Ming Liu's paper own the "Ten Most Outstanding Papers in the Past Decade (2001~2010) in *Advanced Functional Materials"*
08/2010	Ming Liu won the Director Postdoctoral Fellowship at Argonne National Laboratory
06/2010	Ming Liu won the Outstanding Student Research Award, Northeastern University. He is one of the 2~3 best graduate students awarded every year within Northeastern University.

TEACHING EXPERIENCE

1. Fall 2004: ECE U790 Capstone Design I (Overall rating 4.2/5.0, with 5.0 being the highest score)
2. Spring 2005: ECE U792 Capstone Design II (Overall rating 4.0/5.0)
3. Fall 2005: ECE U698 & ECE G398 Magnetism and Magnetic Materials (Overall rating 3.6/5.0)
4. Spring 2006: ECE U402, Electronics (Overall rating 4.3/5.0);
5. Fall 2006: ECE U698 Magnetism and Magnetic Materials (Overall rating 4.0/5.0)
6. Fall 2006: ECE G398 Magnetism and Magnetic Materials (Overall rating 5.0/5.0)
7. Spring 2007: ECE U402, Electronics (Overall rating 3.1/5.0)
8. Fall 2007: ECE U401, Introduction to ECE Labs (Overall rating 5.0/5.0 for section 1);
9. Fall 2007: ECE U401, Introduction to ECE Labs (Overall rating 4.2/5.0 for section 2);
10. Fall 2007: ECE U698 & G398, Magnetism and Magnetic Materials (Overall rating 4.2/5.0)
11. Spring and Fall, 2008: I was officially relieved of teaching load due to my increased teaching load in 2007 and planned for 2009.
12. Spring 2009: ECE U402, Electronics (two sessions, Overall rating 4.6/5.0 and 4.1/5.0)
13. Spring 2010: EECE2412 Electronics (Overall rating: 4.4/5); EECE 7398 Magnetism and Magnetic Materials (Overall rating 4.8/5)
14. Spring 2011: EECE2412 Electronics (Overall rating: 4.0/5); EECE 5698 Energy Harvesting Systems (Overall rating 4.0/5)
15. Fall 2011: EECE7398 Magnetic Materials (overall rating: 5.0/5.0)

16. Spring 2012: EECE2412 Electronics (Overall rating: 4.0 /5.0)
17. Fall 2012: EECE2411 Introduction to ECE Lab (Overall rating: 4.5/5.0)
18. Spring 2013: Sabbatical leave, no teaching load
19. Fall 2013: EECE2412 Electronics (Overall rating: 3.9/5.0)
20. Spring 2014: EECE7398 Magnetic Materials (Overall rating: 5.0/5.0)
21. Fall 2014: EECE2412 Electronics (Overall rating: 4.3/5.0)
22. Spring 2015: EECE7398 Magnetic Materials (Overall rating: 5.0/5.0)
23. Fall 2015: EECE7398 Advanced Magnetic Materials (Overall rating: 4.8/5.0)
24. Fall 2015: EECE7398 Introduction to Multiferroics (Overall rating: 4.8/5.0)
25. Spring 2016: EECE5698 36921 ST: Thin Film Technologies - Spring 2016 (Overall rating: 4.8/5.0)
26. Fall 2016: EECE7298 Magnetic Materials (4.9/5.0)

CURRENT GROUP MEMBERS

- Visiting Professors/Scientists/PhD Students
  - Guoliang Yu, Visiting PhD student
  - Bin Peng, Visiting professor
  - Mingmin Zhu, Visiting PhD student

- Postdoctoral Scientists
  - Dr. Menghui Li
  - Dr. Zhiguang (ZG) Wang
  - Dr. Xi Yang

- Ph.D. Students:
  - Jason Adams
  - Amine Belkessam
  - Huaihao Chen
  - Chunzheng Dong
  - Yifan He
  - Shadi Emam
  - Xianfeng Liang
  - Hwaider Lin
  - Alex Matyushov
  - Xinjun Wang
  - Yuyi Wei
  - Mohsen Zaim

- Master Students:
  - Wei Gong
  - Chengju Yu

SUN GROUP ALUM

- Ph.D. graduates (total 15 graduates), their current affiliation, PhD thesis title
  - Tianxiang Nan, 2015 (University of Wisconsin, Madison)
    Dissertation title: RF NEMS magnetoelectric sensors.
  - Yuan Gao, 2015 (Northeastern University)
    Dissertation title: Voltage tunable integrated RF inductors
  - Ziyao Zhou, 2014 (Argonne National Laboratory)
    Dissertation title: Voltage control of magnetism.
  - Ming Li, 2013 (Texas Instruments)
    Dissertation Title: Compact Planar Ultra-wideband Antennas for Ground Penetrating Radar.
  - Shawn Beguhn, 2013 (MIT Lincoln Laboratory)
    Dissertation Title: Substrate integrated waveguide isolators utilizing magnetic materials.
  - Xi Yang, 2013 (UCLA)
    Dissertation Title: Compact, Lightweight and Power Efficient Voltage Tunable Multiferroic RF/Microwave Components.
  - Qi Wang, 2013 (Bingham McCutchen LLP)
    Dissertation Title: Pavement assessment using a dynamic pressure sensor system. (Co-advised with Prof. M. Wang)
  - Young Lae Kim, 2012 (Intel)
    Dissertation Title: Single-wall carbon nanotube arrays for nanoscale electrical interconnects. (Co-advised with Prof. Y.J. Jung)
  - Jing Wu, 2012 (Boston Scientific)
    Dissertation Title: Planar tunable RF/Microwave devices with magnetic, ferroelectric and multiferroic materials.
  - Yunume Obi, 2011 (Northeastern University)
    Dissertation Title: Synthesis, characterization and application of novel RF ferrites by low-temperature spin spray deposition.
  - Xing Xing, 2011 (Analog Devices Inc.)
    Dissertation Title: Soft magnetic materials and devices on energy applications
  - Ming Liu, 2010 (Professor, Xi'an Jiaotong University)
    Dissertation Title: E-field tuning of magnetism in mulitferroic heterostructures.
  - Jing Lou, 2010 (Hitachi Global Storage Tech.)
    Dissertation Title: Electrostatically tunable microwave multiferroic heterostructures with novel magnetic materials.
  - Guomin Yang, 2010 (Associate Prof., Fudan University)
    Dissertation Title: Tunable miniaturized RF devices on magneto-dielectric substrates with enhanced performance.
  - Carl Pettiford, 2008 (Professor and Chair of Engineering Dept, Liberty University)
    Dissertation Title: Voltage tunable RF/microwave magnetic and multiferroic devices.

- Master graduates and their affiliation
  - Tianxiang Nan, 2014 (U. Wisconsin, Madison)
  - Carl Hansen, 2013 (Raytheon)
  - Sumeet Patil, 2012 (Northeastern University)
  - Andrew Czarnecki, 2012 (Draper Laboratory)
  - Yunume Obi, 2009 (Northeastern University)
  - Xing Xing, 2009 (Northeastern University)
  - Hassan Imrane, 2007 (EMC)
  - Jianwei Wang, 2007 (Northeastern University)
  - Alexander Shrabstein, 2007 (Rhythmia Medical)
  - Vikas Vatsa, 2006 (Northrop Grumman Corporation)
  - Jalal Lagdani, 2005 (Verari Systems)

- Visiting Professors / Scientists and their affiliation:
  - Dr. Wuyun Bao, 2015-2016, Visiting Research Scientist
  - Dr. Shuiyuan Chen, 2014-2015, Visiting Professor of Physics
  - Rongdi Guo, 2015-2016, Visiting PhD student
  - Dr. Weiwei Lin, 2014-2015, Visiting professor of Electrical Engineering
  - Dr. Furong Liu, 2015-2016, Visting Professor of Materials Science
  - Yidong Luo, 2015-2016, Visiting PhD student
  - Dr. Hua Su, 2015-2016, Visiting professor of Electrical Engineering
  - Shengjun Wei, 2015-2016, Visiting PhD student
  - Dr. Quanming Zhang, 2015-2016, Visiting Scientist
  - Satoru Emori, 2014-2015, Stanford University
  - Prof. Xiaoqin Chen, 2014-2015, Visiting Professor of Physics
  - Johnny Hu, 2013-2015, Staff Scientist at UES/AFRL
  - Prof. Bo Dai, 2015, Professor of Electrical Engineering
  - Prof. Wei Shi, 2014-2015, Visiting Professor of Mechatronics
  - Mr. Hongzhi Sun, 2013-2014, Visiting Senior Engineer
  - Prof. Dazhi Sun, 2013-2014, Professor of Chemistry
  - Prof. Gaojian Wu, 2013-2013, Professor of Physics
  - Prof. Li Qing, 2011-2012, Professor of Electrical Engineering
  - Prof. Shandong Li, 2010-2011, Professor of Physics
  - Dr. Jerry J. Green, 2009~2012, Winchester Technologies, LLC

- Undergraduate: ~40 undergraduate REU participants.

- High school students and teachers: ~40

SEMINARS, INVITED, KEYNOTE, AND PLENARY PRESENTATIONS (>100)

1. Nian Sun, invited talk entitled “Acoustically Actuated NEMS Magnetoelectric Antennas” at the 2016 RF Multiferroics Workshop, UCLA, Los Angeles, CA, November 11, 2016.

2. Nian Sun, invited talk entitled “Magnetic and Magnetoelectric Materials and Devices for Sensing, Power, RF and Microwave Electronics” at NAVAIR, Pax River, MD, November 7, 2016.
3. Nian Sun, invited talk entitled “Magnetic and Magnetoelectric Materials and Devices for Sensing, Power, RF and Microwave Electronics” at the Gordon Research Conference on Multiferroics and Magnetoelectrics, Bates College, Maine, August 11, 2016.
4. Nian Sun, invited talk entitled “Magnetic and Magnetoelectric Materials and Devices for Sensing, Power, RF and Microwave Electronics” at the 2016 ShanghaiTech Workshop on Emerging Devices, Circuits and Systems (SWEDCS’2016), July 1, 2016, Shanghai, China.
5. Nian Sun, invited talk entitled “Magnetic and Magnetoelectric Materials and Devices for Sensing, Power, RF and Microwave Electronics” at the 9th International Symposium on Metallic Multilayers (MML 2016), takes place at Uppsala University, Uppsala, Sweden, during June 19-23 2016.
6. Nian Sun, invited talk entitled “Magnetic and Magnetoelectric Materials and Devices for Sensing, Power, RF and Microwave Electronics” at the 5th International Conference on Microwave Magnetics (ICMM 2016) June 5~8, 2016, University of Alabama, Tuscaloosa.
7. Nian Sun, invited talk entitled “Ultra-Compact Voltage Reconfigurable Magnetoelectric Antennas” at the Reconfigurable Electronics Workshop 2016, May 17-18, 2016, Arlington, Virginia.
8. Nian Sun, invited talk entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" at MITRE Corporation, Bedford, MA, January 27, 2016.
9. Nian Sun, invited talk entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" at 2016 Joint MMM - Intermag Conference, San Diego, CA, January 11-15, 2016.
10. Nian Sun, invited talk entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" at Murata Manufacturing Corp, December 15, 2015, Boston MA.
11. Zhongqiang Hu, Nian Sun, invited talk entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" at the Annual MRS Meeting, Boston, MA, November 30, 2015.
12. Tianxiang Nan, Nian Sun, invited talk entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" at the RF Multiferroics Workshop, UCLA, Los Angeles, CA, Oct. 19~21, 2015.
13. Nian Sun, plenary talk entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" at the 6th Overseas Chinese Materials Science and Technology Workshop, October 17, 2015, Chongqing, China.
14. Nian Sun, invited talk entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" at the 10th Energy Harvesting Workshop, Virginia Tech, Sept. 17, 2015, Blacksburg, VA.
15. Nian Sun, invited presentation entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" on August 18, 2015 in the XXIV International Materials Research Congress, August 16-20, 2015, Cancun, Mexico.

16. Nian Sun, invited presentation entitled "Integrated RF Multiferroic Antennas" on August 17, 2015 in the XXIV International Materials Research Congress, August 16-20, 2015, Cancun, Mexico.
17. Nian Sun, plenary presentation entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" in the International Workshop on Thin-films for Electronics, Electro-Optics, Energy and Sensors organized by University of Dayton and University of Dayton China Institute at Suzhou, China, July 3-6, 2015.
18. Nian Sun, invited presentation entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" inEuro Intelligent Materials 2015, the 2nd European Symposium on Intelligent Materials, 10 - 12 June 2015 (Kiel, Germany).
19. Nian Sun, seminar in Beijing University of Technology entitled "Integrated Ferroics for Sensing, Memory, Power, RF and Microwave Electronics" May 9, 2015 at Beijing.
20. Nian Sun, seminars in Peking University entitled "Integrated Ferroics for Sensing, Memory, Power, RF and Microwave Electronics" May 13, 2015 at Beijing.
21. Nian Sun, two seminars in Tsinghua University entitled "Integrated Ferroics for Sensing, Memory, Power, RF and Microwave Electronics" May 13, and May 15, 2015 at Beijing.
22. Nian Sun, seminar in the IEEE Antennas and Propagation Society/Boston Chapter Lecture Series entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" in MIT Lincoln Laboratory, 4/23/2015.
23. Nian Sun, invited talk at Raytheon entitled "Integrated Ferroics for Sensing, Memory, Power, RF and Microwave Electronics" in Raytheon, Andover, MA, 3/11/2015.
24. Nian Sun, invited talk at Intel Labs, entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" online theough Teleconference, Jan 21, 2015.
25. Nian Sun, invited talk at the RF Multiferroics Workshop, UCLA (November 13, 2014) entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" in Los Angeles, CA.
26. Nian Sun, invited seminar at Argonne National Laboratory (November 14, 2014) entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" in Argonne, IL.
27. Nian Sun, invited talk at PIERS 2014 Guangzhou (August 25, 2014) entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" in Guangzhou, China.
28. Nian Sun, invited seminar at Huazhong University of Science and Technology (August 24, 2014), entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics".
29. Nian Sun, invited seminar at Nanjing University and Nanjing Technology University (August 22, 2014), entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics".
30. Nian Sun, invited seminar at the Shanghai Institute of Ceramics, Chinese Academy of Sciences (August 21, 2014) entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics".

31. Nian Sun, invited seminar at the Institute of Physics, Chinese Academy of Sciences (August 20, 2014), entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics".
32. Nian Sun, invited presentation at ICC-5 Beijing (5th International Ceramics Congress) (August 19, 2014) entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics".
33. Nian Sun, invited presentation at the Gordon Reserach Conference (GRC) on Multiferroics and Magnetoelectrics, entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" at Biddeford, ME, on August 12, 2014.
34. Nian Sun, invited presentation at the 2014 NSF Workshop on Noninvasive Imaging of Brain Function at Arlington, VA, entitled "Nanofabricated Magnetoelectric Sensor Arrays for Room-Temperature Magnetoencephalography" on July 23, 2014.
35. Nian Sun, invited presentation at WPAFB, Dayton OH, entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" on July 10, 2014.
36. Nian Sun, invited talk at the International Conference Microwave Magnetics (ICMM 2014) at Tohoku University, Japan entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" on June 30, 2014.
37. Nian Sun, seminar at Xi'an Jiaotong University entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" on June 18, 2014.
38. Nian Sun, seminar at Tsinghua University entitled "Integrated Magnetics and Multiferroics for Sensing, Memory, Power, RF and Microwave Electronics" on June 16, 2014.
39. Nian Sun, Invited Presentation entitled “Integrated Magnetics and Multiferroics for Sensing, Power, RF and Microwave Electronics" in Nian Sun, Invited Presentation entitled “Integrated Multiferroics for Sensing, Power, RF and Microwave Electronics" in at ISAF/IWATMD/PFM 2014 at The Penn State University, May 15, 2014.
40. Nian Sun, invited seminar co-sponsored by IEEE Boston GRS, AESS, PELS, MAG, IM, AP, which is entitled "Integrated Magnetics and Multiferroics for Sensing, Power, RF and Microwave Electronics" at the Kostas Research Institute for Homeland Security, Northeastern University, Burlington, MA, April 9, 2014.
41. Nian Sun, an invited presentation in the GRC Technology Transfer e-Workshop entitled "Integrated Magnetics and Multiferroics for Sensing, Power, RF and Microwave Electronics", April 9, 2014.
42. Nian Sun, invited department seminar entitled "Integrated Magnetics and Multiferroics for Sensing, Power, RF and Microwave Electronics" in Materials Science and Engineering Department, University of Connecticut, March 28, 2014.
43. Nian Sun, Invited Presentation entitled “Integrated Multiferroics for Sensing, Power, RF and Microwave Electronics" in NanoGiga Challenges, Arizona State University, Tempe, AZ, March 14, 2014.
44. Nian Sun, invited presentation entitled "Integrated Multiferroics for Sensing, Power, RF and Microwave Electronics" to The NSF Nanosystems Engineering Research Center for Translational Applications of Nanoscale Multiferroic Systems (TANMS) on March 7, 2014.

45. Nian Sun, invited presentation on "Integrated Multiferroic Heterostructures and Low-Power Devices for Sensing, Power, RF and Microwave Electronics" at US Army Research Laboratory, Adelphi, MD on February 28, 2014.
46. Nian Sun, Invited Presentation on "Strong Magnetoelectric Coupling in Multiferroic Heterostructures and Devices", in EMA 2014, Orlando, Jan 22~24, 2014.
47. Tianxiang Nan and Nian Sun on "Self-Biased 215MHz Magnetoelectric NEMS Resonator for Ultra-Sensitive DC Magnetic Field Detection", Invited presentation at the Materials Science & Technology Conference (MS&T 2013) at Montreal, Quebec, Canada, October 28~31, 2013.
48. Nian Sun on "Strong Magnetoelectric Coupling in Multiferroic Heterostructures and Devices" Invited presentation at the Materials Science & Technology Conference (MS&T 2013) at Montreal, Quebec, Canada, October 28~31, 2013.
49. Nian Sun, Invited Presentation in Rogers Corporation R&D Meeting, "RF/Microwave Magnetics and Multiferroics and Collaboration Opportunities with Rogers Corporation", Kostas Reserach Institute, Burlington, MA, September 19, 2013.
50. Nian Sun, "Strong Magnetoelectric Coupling in Multiferroic Heterostructures and Low-Power Devices", Invited presentation at PIERS 2013 Stockholm, Sweden, August 14, 2013.
51. Nian Sun, "Integrated Magnetics for Sensing, Power, RF and Microwave Electronics", Seminar at Kilby Labs, Texas Instruments, Dallas, Texas, August 2, 2013.
52. N. X. Sun, "Strong Magnetoelectric Coupling in Multiferroic Materials and Devices", invited seminar at Texas Instruments, Santa Clara, CA, June 19, 2013.
53. N. X. Sun, "Strong Magnetoelectric Coupling in Multiferroic Materials and Devices", invited seminar at University of Dayton, Dayton, OH, June 13, 2013.
54. N. X. Sun, "Strong Magnetoelectric Coupling in Multiferroic Materials and Devices", invited seminar at Wright Patterson Air Force Base, Dayton, OH, June 12, 2013.
55. N. X. Sun, Invited presentation "Strong Magnetoelectric Coupling in Multiferroic Materials and Devices", invited seminar at Tsinghua University, Beijing, China, May 31, 2013.
56. N. X. Sun, Invited presentation "Strong Magnetoelectric Coupling in Multiferroic Materials and Devices", invited seminar at Peking University, Beijing, China, May 30, 2013.
57. N. X. Sun, Invited presentation "Strong Magnetoelectric Coupling in Multiferroic Materials and Devices", invited seminar at Institute of Physics, Chinese Academy of Sciences, Beijing, China, May 29, 2013.
58. N. X. Sun, Invited presentation "Strong Magnetoelectric Coupling in Multiferroic Materials and Devices", invited seminar at University of Electronic Science and Technology of China, Chengdu, China, May 28, 2013.
59. N. X. Sun, Invited presentation "Strong Magnetoelectric Coupling in Multiferroic Materials and Devices", in the 5th APCTP Workshop on Multiferroics, Singapore, May 25, 2013.
60. N. X. Sun, Invited presentation "Strong Magnetoelectric Coupling in Multiferroic Materials and Devices", Seminar at The National University of Singapore, Singapore, May 21, 2013.

61. N.X. Sun, "Voltage Control of Magnetism in Multiferroic Heterostructures and Low Power Devices", Invited presentation in Electronic Materials and Applications (EMA) 2013, Orlando, Florida, January 25, 2013.
62. N. X. Sun, Invited presentation "Voltage Control of Magnetism in Multiferroic Heterostructures and Devices", INRS-EMT, Univ. du Quebec, Canada, November 9, 2012.
63. N. X. Sun, "Voltage Control of Magnetism in Multiferroic Heterostructures and Low Power Devices", Invited presentation at Queen Mary University of London, London, U.K., Sept. 28, 2012.
64. N. X. Sun, "Voltage Control of Magnetism in Multiferroic Heterostructures and Devices", Invited presentation in the workshop on Magnetoelectric Phenomena and Devices, The Royal Society, London, U.K., Sept. 24~25, 2012.
65. N.X. Sun, "Voltage Control of Magnetism in Multiferroic Heterostructures and Low-Power Tunable Devices", Intel Workshop on Tunable Devices and RF MEMS Status, Hillsboro OR, August 16, 2012.
66. N.X. Sun, "Voltage Control of Magnetism in Multiferroic Heterostructures and Low-Power Devices", 7th Multifunctional Materials Workshop (MFM-7), Gamboa, Panama, August 5~9, 2012.
67. N.X. Sun, "Strong Converse Magnetoelectric Coupling in Multiferroic Heterostructures and Devices" at ISIF 2012, Hong Kong, June 19, 2012.
68. N.X. Sun, "Voltage Control of Magnetism in Layered Multiferroic Heterostructures, a New Paradigm for Tunable RF/Microwave Components and Spintronics" at Wuhan University, June 14, 2012.
69. N. X. Sun, "Voltage Control of Magnetism in Layered Multiferroic Heterostructures, a New Paradigm for Tunable RF/Microwave Components and Spintronics" at Tsinghua University, June 8, 2012.
70. N.X. Sun, "Voltage Control of Magnetism in Layered Multiferroic Heterostructures, a New Paradigm for Tunable RF/Microwave Components and Spintronics" at Peking University, June 4, 2012.
71. N.X. Sun, "E-field Control of Magnetism in Layered Multiferroic Heterostructures, a New Paradigm for Tunable RF/Microwave Components and Spintronics", MIT S3TEC/ Mechanical Engineering Micro Nano Joint Seminar presentation on April 18th, 2012.
72. N.X. Sun, E-field Control of Magnetism in Layered Multiferroic Heterostructures and Devices, a New Paradigm for Tunable RF/Microwave Components and Spintronics, ARO Complex Oxides Materials Workshop, Tucson, January 25, 2012.
73. N.X. Sun, E-field tunable RF magnetic inductors and transformers, Intel, Hillsboro, OR. January 13, 2012.
74. N.X. Sun, E-field Control of Magnetism in Layered Multiferroic Heterostructures and Devices, a New Paradigm for Tunable RF/Microwave Components and Spintronics, Invited talk at the Materials Research Society (MRS) Fall Meeting, November 28, 2011.
75. N.X. Sun, E-field Control of Magnetism in Layered Multiferroic Heterostructures and Devices, a New Paradigm for Tunable RF/Microwave Components and Spintronics, Invited talk at The University of New Orleans on November 16, 2011.
76. N.X. Sun, E-field Control of Magnetism in Layered Multiferroic Heterostructures and Devices, a New Paradigm for Tunable RF/Microwave Components and Spintronics, Invited talk at the MS&T 2011 Conference at Columbus, OH on October 19, 2011.

77. N.X. Sun, E-field Control of Magnetism in Layered Multiferroic Heterostructures and Devices, a New Paradigm for Tunable RF/Microwave Components and Spintronics, August 18, 2011, Peking University, Beijing, China.
78. N.X. Sun, E-field Control of Magnetism in Layered Multiferroic Heterostructures and Devices, a New Paradigm for Tunable RF/Microwave Components and Spintronics, July 22, 2011, Intel, Hillsboro, OR.
79. N.X. Sun, E-field Control of Magnetism in Layered Multiferroic Heterostructures and Devices, a New Paradigm for Tunable RF/Microwave Components and Spintronics, March 1, 2011, UCLA, Los Angeles, CA, 2011.
80. N. X. Sun, "Multiferroic Metamaterials: A New Paradigm on Compact, Lightweight and Tunable RF Devices", Dec. 7, 2010, WPAFB, OH.
81. Jing Lou, Gerry Pellegrini and N. X. Sun, "Investigation on Direct and Converse Magnetoelectric Coupling and Their Relation", Rayheon, Sudbury, MA , Nov. 23, 2010.
82. N. X. Sun, "Novel Tunable RF/Microwave Multiferroic Heterostructures and Devices", NSF-SRC Initiative for Nanotechnology November 16, 2010, Dallas, TX.
83. N. X. Sun "Multiferroic Heterostructures with Giant Magnetoelectric Coupling", October 20, 2010, MS&T2010, Houston, TX, USA.
84. Xing Xing and N. X. Sun, "Integrated Magnetic Inductors and Transformers on Si", Analog Devices Inc. Limerick, Ireland, October 12, 2010.
85. N. X. Sun, "Multiferroic Heterostructures: Physics, Materials and Devices", Ferrosolutions, Inc. Oct. 5, 2010.
86. N. X. Sun, "RF Magnetic Films and Their Applications in Integrated Magnetic Devices", October 14, 2010, PWR'SoC10, Cork, Ireland.
87. Ming Liu, Jing Lou, Guomin Yang, Carl Pettiford, Yunume Obi, Xing Xing, N. X. Sun, "Microwave Multiferroic Heterostructures and Tunable RF/Microwave Devices", ICMM 2010, Boston, MA June 1~4, 2010.
88. N. X. Sun, "Microwave Magnetic and Multiferroic Films: A New Paradigm on RF/Microwave Devices", June 14, 2010, WPAFB, OH.
89. N. X. Sun, D. Oates, G. Dionne, "Multiferroic Heterostructures: A New Paradigm on Compact, Lightweight and Tunable RF/Microwave Devices", June 28, 2010, RXPSO, WPAFB, OH.
90. M. Liu, J. Lou and N. X. Sun, "Electric field control of magnetism", 2010 IEEE 7th International Symposium on Metallic Multilayers, Sept. 19~24, 2010, Berkeley, CA.
91. N. X. Sun, Novel Magnetic and Multiferroic Materials and Devices for Integrated Circuits, Analog Device Inc., Wilmington, MA. February 2, 2010.
92. N. X. Sun, Novel Microwave Multiferroic Materials and Their Applications in Tunable Filters with Large Tunable Range, MIT Lincoln Library, Lexington MA, March 8, 2010.
93. N. X. Sun, X. Xing, B.X. Chen, Integrated Magnetic Transformers and Inductors for Power Electronics, Analog Device Inc., Wilmington, MA, April 9, 2010.
94. N. X. Sun, "Multiferroic Heterostructures: A New Paradigm on Tunable RF/Microwave Devices", MIT Lincoln Library, Lexington MA, April 15, 2010.
95. Nian X. Sun, Jing Lou, Ming Liu, Guomin Yang, Carl Pettiford, Yunume Obi, Xing Xing, Andrew Daigle, Jianwei Wang, Hassan Imrane, "Multiferroic and Magnetodielectric Materials and Devices for Advanced RF/Microwave Components", Oakland University, Rochester, MI, Oct. 22, 2009.

96. Nian X. Sun, "Novel Multifunctional Materials and Devices for Advanced RF/Microwave Passive Components", Air Force research Laboratory, Dayton, OH, July 9, 2009.
97. Nian X. Sun, "Novel Multifunctional Materials and Devices for Monolithic Microwave Integrated Circuits", University of Dayton, June 19, 2009.
98. G. M. Yang, X. Xing, A. Daigle, O. Obi, S. Stoute, M. Liu, N. X. Sun, "Miniaturized Antennas with Improved Performance by Using Magneto-dielectric Substrate/Superstrate at GHz (Invited)", MRS Spring Meeting, San Francisco, April 13~17, 2009.
99. J. Lou, D. Reed, M. Liu and N. X. Sun, "Tunable Devices Based on Multiferroic Heterostructures (Invited)", MRS Spring Meeting, San Francisco, April 13~17, 2009.
100. N. X. Sun "Microwave Multiferroics: Physics, Materials and Devices (Invited Tutorial)", MRS Spring Meeting, San Francisco, April 13~17, 2009.
101. J. Lou, D. Reed, M. Liu, O. Obi, S. Stoute, N. Pwint, and Nian X. Sun "Giant Magnetoelectric Coupling in Multiferroic Heterostructures (Invited)", Intermag 2009, Sacramento, CA, May 5, 2009.
102. J. Lou, M. Liu, R. David, O. Obi, S. Stoute, C. Pettiford and Nian X. Sun, “Novel Multiferroic Materials with Giant Tunability”, 33rd International Conference and Exposition on Advanced Ceramics and Composites, Daytona Beach, Florida, USA, Jan 18~23, 2009.
103. N.X. Sun, “Novel Microwave Multiferroic Heterostructures and Devices”, Multifunctional Materials Workshop, January 4~8, 2009, Copper Canyon, Mexico.
104. N.X. Sun, “Novel Microwave Multiferroic Heterostructures and Devices”, MIT Lincoln Laboratory, Lexington, MA, December 19, 2008.
105. Jing Lou, David Reed, Carl Pettiford, Ming Liu, Nian X. Sun, “Novel FeGaB thin films and giant microwave tunability in FeGaB/PMN-PT multiferroic composites”, International Conference on Microwave Magnetics (ICMM), Fort Collins, Sept. 12~15, 2008.
106. G. M. Yang, X. Xing, A. Daigle, O. Obi, S. Stoute, J. Lou, M. Liu, N. X. Sun “Miniaturized Antennas with Improved Performance by Loading Self-Biased Ferrite Films at GHz”, International Conference on Microwave Magnetics (ICMM), Fort Collins, Sept. 12~15, 2008.
107. Nian X. Sun, “Magnetic and Multiferroic Materials and Their Applications in Novel RF/Microwave Devices”, Invited Seminar at Physics Department, University of Delaware, August 6, 2008.
108. Nian X. Sun, “Magnetic and Multiferroic Materials and Their Applications in Novel RF/Microwave Devices”, Invited Seminar at Department of Advanced Materials and Nanotechnology, Peking University, China, June 24, 2008.
109. Nian X. Sun, “Magnetic and Multiferroic Materials and Their Applications in Novel RF/Microwave Devices”, Invited Seminar at the Department of Materials Science and Engineering, Tsinghua University, Beijing, June 25, 2008.
110. Nian X. Sun, “Magnetic and Multiferroic Materials and Their Applications in Novel RF/Microwave Devices”, Invited Seminar at Department of Electronics Engineering, Huazhong University of Science and Engineering, China, July 1, 2008.

111. Nian X. Sun, “Magnetic and Multiferroic Materials and Their Applications in Novel RF/Microwave Devices”, Invited Seminar at Physics Department, Hunter College, New York City, May 28, 2008.
112. Nian X. Sun (invited speaker and session Chair) "Novel microwave magnetic thin films and devices ", ONR Review, Rensselaer Polytechnic Institute, Troy, NY, Aug 6 - Aug 10, 2007.
113. Nian X. Sun (Keynote speaker) "Advanced microwave magnetic thin films and devices for MMIC and RFIC", IMAPS New England 34th Symposium, Boxborough, MA, May 1st, 2007.
114. N. X. Sun “Frontier on magnetic write head materials” Chinese Academy of Sciences, China, 08/22/2006.
115. V. G. Harris,a Zhaohui Chen, Yajie Chen, Soack Yoon, Tomokuza Sakai, Anton Gieler, Aria Yang, and Yongxue He, K. S. Ziemer, Nian X. Sun and Carmine Vittoria “Self-biased Ba-hexaferrite films for next generation non-reciprocal u-wave and mm-wave devices”, The 50th Magnetism and Magnetic Materials (MMM) Conference/American Institute of Physics, 11/1/2005.
116. N. X. Sun, S. X. Wang, “Damping Criteria of Magnetization in Ferromagnetic Ellipsoids”, The Magnetic Recording Conference (TMRC) 2003, Santa Clara, California, USA, August 18~23, 2003.
117. S. X. Wang, N. X. Sun, A. M. Crawford, “Advanced soft magnetic materials for recording heads and integrated circuits”, Materials Research Society (MRS) Spring Conference, Section E6.3, San Francisco, April 4, 2002.
118. N. X. Sun, S. X. Wang, T. J. Silva and A. B. Kos, “High Saturation Magnetization Soft Magnetic Fe-Co-N Films for GHz Applications”, National Institute of Standards and Technology (NIST) Seminar, Boulder, CO, August 27, 2001.
119. N. X. Sun, S. X. Wang, and T. J. Silva, “Soft magnetism and high frequency behavior of Fe-Co-N thin films”, The Magnetic Recording Conference (TMRC) 2001, Minneapolis, MN, USA, August 20-24, 2001.
120. N. X. Sun and S. X. Wang, “High moment soft magnetic Fe-Co-N films for write head applications”, Headway Corporation, October 2000.
121. N. X. Sun and S. X. Wang, Chin-Ya Hung, Chester X. Chien and Hua-Ching Tong, “Microstructure and magnetic properties of high saturation magnetization Fe-Co-N thin films”, The Materials Research Society (MRS) Spring Conference, Section F9.2, 2000.
122. K. Lu, Y.H. Zhao, K. Zhang, N.X. Sun, and H.Y. Zhang, “Microstructure of nanocrystalline element selenium”, *The 8th International Symposium on Physics of Materials*, Hangzhou, China, October, 1996.

PROFESSIONAL SERVICES

1. Lead Organizer for the Symposium on Multiferroics and Magnetoelectrics in the Materials Research Society (MRS) Fall Meeting 2017.
2. International Advisory Board Member of the 6th Biannual International Conferences on Modern Materials and Technologies (CIMTEC), Symposium "Recent Advances

in Multiferroic and Magnetoelectric Materials and Applications" CIMTEC 2016, Italy.

3. International Advisory Committee, International Workshop on Thin-films for Electronics, Electro-Optics, Energy and Sensors, Suzhou, Peoples Republic of China, July 4-6, 2015.
4. Chair of the Program Committee, *Frontier of Magnetic NanoTech and Spintronics*, May 10, 2015, co-organized by IEEE, Stanford University and Peking University, Stanford Center at Peking University, China.
5. Lead Organizer for the Symposium on Multiferroics and Magnetoelectrics in the Materials Research Society (MRS) Fall Meeting 2015.
6. Advisory School Committee, Muraco Public School, Winchester, MA
7. 2016 International Conference on Advanced Material and Energy Sustainability [AMES2016]
8. Technical Program Committee, AES 2016, the 4th Advanced Electromagnetics Symposium, Spain.
9. Executive Committee of MIND, American Vacuum Society (AVS), since 2014.
10. Program Committee for Intermag 2015 (IEEE International Magnetics Conference, 2015).
11. Program Committee for Magnetism and Magnetic Materials (MMM) annual conference, 2014
12. *National Science Foundation* Panelist, 2014
13. Local host and co-organizer for the Power Supply on Chip International Workshop, 2014 (PwrSoC2014) at Northeastern University between Oct. 5~8, 2014.
14. Scientific Advisory Board Member, 2014, *NSF Nanosystems Engineering Research Center for Translational Applications of Nanoscale Multiferroic Systems (TANMS)*.
15. Guest editor, Advances in Condensed Matter Physics, 2014
16. Editor, IEEE Transactions on Magnetics, since 2012
17. Editorial board, AIMS Materials Science, since 2013
18. *National Science Foundation* Panelist, 2013
19. Program Committee, IEEE International Magnetics Conference, 2012
20. Program Organizer, Materials Science and Technology (MS&T) 2012
21. Graduate Admissions Committee, 2012
22. Program Committee, IEEE International Magnetics Conference, 2011
23. Program Organizer, Materials Science and Technology (MS&T) 2011
24. Graduate Admissions Committee, 2011
25. *National Science Foundation* Panelist 2005, 2006, 2008, 2009, 2010, 2011, 2012,
26. Proposal Reviewer for *National Science Foundation*, *Army Research Office*, *Department of Energy*, *Petroleum Fund*, *etc.*
27. Journal reviewer *for Nature Communications, Nano Letters, Applied Physics Letter, Journal of Applied Physics, IEEE Transactions on Magnetics, IEEE Transactions on Microwave Theory and Techniques, Philosophical Magazine Letters, Journal of Physics Condensed Matter, Nanotechnology, Journal of Magnetism and Magnetic Materials, Nanotechnology, Journal of Magnetism and Magnetic Materials, Journal of the American Ceramic Society, etc.*

28. Advisor for Research Experience for Undergraduates (REU), Research Experience for Teachers (RET), and Young Scholar Program (YSP) programs.
29. Program Committee Member, Magnetism and Magnetic Materials (MMM) Conferences, 2007, 2009, 2012
30. Session Chair, multiple times in Magnetism and Magnetic Materials (MMM) Conferences and International Magnetics (Intermag) Conferences.
31. Editor and Technical Committee, International Conference on Microwave Magnetics (ICMM), Fort Collins, Colorado, Sept. 11~15, 2008.
32. Symposium Organizer, MRS Spring 2009 Conference
33. Intern at the Museum of Science, Boston working on the design and creation of the *Magic of Magnetism* program.
34. Symposium Organizer: International Meeting on Ferroelectrics (IMF) and IEEE International Symposium on Applications of Ferroelectrics (ISAF 2009), Xi'an, China.
35. Guest editors for ~10 different journals.

UNIVERSITY SERVICES

1. Faculty Mentor for Prof. Yongmin Liu, Since 2014
2. Director, Joint 3+2 Educational Program between Northeastern University and Huszhong University of Science and Technology (HUST), China, since 2014
3. Graduate Admissions Committee, since 2014
4. COE T&P committee, 2015, 2016
5. COE Research Committee, 2014, 2015, 2016
6. COE Sabbatical Committee, 2014, 2015, 2016
7. Administrator Evaluation Committee for the Chair of the Department of Philosophy and Religion, 2014
8. EE Hiring Committee, 2014
9. Lead for Joint 3+2 Educational Program between Northeastern University and Huszhong University of Science and Technology (HUST), China, 2013
10. EE hiring committee, 2013
11. Graduate Admissions Committee, 2013
12. COE Sabbatical Committee, 2013
13. ECE Chair Hiring Committee, 2013
14. Administrator Evaluation Committee for the Chair of the Department of Psychology, 2012
15. ECE Chair Hiring Committee, 2012
16. Graduate Admissions Committee, 2012
17. Chair, EE Hire Committee, 2012
18. Graduate Admissions Committee, 2011
19. COE Tenure and Promotion Committee, 2011
20. Chair, EE Hire Committee, 2011
21. Chair, EE Hire Committee, 2010
22. COE Tenure and Promotion Committee, 2010
23. Graduate Admissions Committee, 2010

24. Graduate Admissions Committee, 2009
25. ECE Department Merit Committee, 2009
26. Gradate admissions committee, 2008
27. Chair, ECE Distinguished Lecture Series Committee, 2007 ~ 2012
28. ECE Department Merit Committee, 2006 ~ 2007
29. Graduate Admissions Committee, 2007
30. Undergraduate Study Committee, 2007
31. Graduate Committee, 2006

PROFESSIONAL MEMBERSHIPS:

Fellow, the Institute of Physics (IoP)
Fellow, the Institute of Engineering and Technology (IET)
Senior Member, IEEE
Member, Materials Research Society (MRS)
Member, American Ceramics Society
Member, the Minerals, Metals & Materials Society (TMS)

PATENTS, PATENT APPLICATIONS, AND PATENT DISCLOSURES

1. **US Patent 9,315,078**, Real-time wireless dynamic tire pressure sensor and energy harvesting system.
2. **WO 2014052913 A1, US20150255846**, Magnetostatic surface wave nonreciprocal tunable bandpass filters.
3. **International Patent No. 20,160,003,924** Systems and methods for magnetic field detection
4. **U.S. Application No: 61/576439**, A new E-field writable magnetic random access memory based on multiferroics
5. **U.S. Patent 8,816,540**, High energy density vibration energy harvesting device with high-mu materials
6. **U.S. Application No. 61/524,913,** Electrostatically tunable magnetoelectric inductors with large inductance tunability
7. **US Patent 7,009,812**: Magnetic transducer for perpendicular magnetic recording with single pole write head with trailing shield
8. **US Patent 7,120,988**: Method for forming a write head having air bearing surface
9. **US Patent 7,588,884**: Methods for enhancing wafer alignment marks
10. **US Patent 7,565,732**: Method of manufacturing a write pole
11. **US Patent 7,649,712**: Self aligned wrap around shield for perpendicular magnetic recording
12. **US Patent 7,656,611** Laminated high moment magnetic films antimagnetic coupling as write pole of perpendicular recording head.
13. **US Patent 7449790,** Methods and systems of enhancing stepper alignment signals and metrology

14. **US Patent 7464457,** Method for forming a write head having an air bearing surface (ABS)
15. **US Patent 11469132**: Write pole fabrication for perpendicular recording
16. **US Patent 10927875**: Laminated high moment magnetic films with anti-ferromagnetic coupling as write pole of perpendicular magnetic recording head
17. **US Patent 10931649:** Write pole and method of manufacturing the same
18. **US Patent 10928466:** Methods and systems of enhancing stepper alignment signals and metrology alignment target signals
19. **US Patent 10883327:** Magnetic head having a deposited second magnetic shield and fabrication method thereof
20. **US Patent 111167532:** Self aligned wrap around shield for perpendicular magnetic recording
21. **Disclosure HSJ8-2003-0546**: RIE enhanced 1st layer alignment marks defined by K3 layer
22. **Disclosure HSJ8-2004-0083**: Method to fabricate self-Aligning side/trailing shield by ALD or CVD variants for perpendicular recording.
23. **Disclosure HSJ8-2004-0087**: High saturation magnetization soft magnetic seed layer deposition after photolithography process.
24. **Disclosure HSJ8-2004-0112**: High moment laminated films with anti-ferromagnetic coupling as write pole of perpendicular magnetic recording head.
25. **Disclosure HSJ8-2004-0122**: A novel method to enhance stepper alignment/metrology signal on shallow marks.
26. **Disclosure HSJ8-2003-0434**: CMP assisted lift-off process for patterning deposited shield 2
27. **Disclosure HSJ8-2003-0128**: CMP assisted trailing shield write pole fabrication for perpendicular recording.
28. **Disclosure HSJ8-2003-0038**: Notched single pole writer with trailing shield (SPT) head and fabrication design for perpendicular magnetic recording.
29. **Disclosure SJO8-2002-0190**: Co-based amorphous alloy films laminated with insulator for GHz frequency applications in magnetic write heads and inductors, etc.
30. **Disclosure SJO8-2002-0145**: High moment sputtered Fe-rich thin films for recording head applications.
31. **Disclosure SJO8-2002-0140**: High moment soft magnetic CoFe films on thin NiFe underlayers.

JOURNALS PUBLICATIONS

1. Xinjun Wang, Huaihao Chen, Xiaoling Shi, Yuan Gao, Hwaider Lin, John G Jones, Brandon M Howe, Gail J Brown, Nian X Sun, "A novel NiZn ferrite integrated magnetic solenoid inductor with a high quality factor at 0.7–6 GHz", *AIP Advances*, 7, 056606, (2017).
2. Ru Yang, Xiaomin Liu, Honglei Du, Nian X Sun, Hwaider Lin, Shandong Li, "Self-biased microwave ferromagnetic performance of patterned Ni80Fe20 thin films", *AIP Advances*, 7, 056301 (2017).

3. H Su, X Tang, Y Gao, R Guo, H Zhang, X Wang, NX Sun, "Electric-field tuning of non-volatile magnetization modulation in NiZn ferrite/PZT multiferroic heterostructure", *Journal of Alloys and Compounds* 695, 3722-3726 (2017).
4. Qu Yang, Xinjun Wang, Bin Peng, Chunlei Li, Ziyao Zhou, Yuan Yan, Hongtao Zhou, Yijun Zhang, Shishun Zhao, Wei Ren, Zuo-Guang Ye, Nian X Sun, Ming Liu, "Spin-orbital coupling induced four-fold anisotropy distribution during spin reorientation in ultrathin Co/Pt multilayers", *Applied Physics Letter*, 110, 022403 (2017).
5. X Tang, H Su, H Zhang, NX Sun, "Voltage-impulse-induced dual-range nonvolatile magnetization modulation in metglas/PZT heterostructure", *Applied Physics Letters* 109 (20), 202903, (2016).
6. Zhiguang Wang, Xinjun Wang, Menghui Li, Yuan Gao, Zhongqiang Hu, Tianxiang Nan, Xianfeng Liang, Huaihao Chen, Jia Yang, Syd Cash, Nian‐Xiang Sun, "Highly Sensitive Flexible Magnetic Sensor Based on Anisotropic Magnetoresistance Effect" *Advanced Materials* 28 (42), 9370-9377, (2016).
7. Ming Liu, Tianxiang Nan, Jia-Mian Hu, Shi-Shun Zhao, Ziyao Zhou, Chen-ying Wang, Wei Ren, Zuo-guang Ye, Long-qing Chen, Nian X Sun, "Electrically controlled non-volatile switching of magnetism in multiferroic heterostructures via engineered ferroelastic domain states", *NPG Asia Materials* 8 (9), e316 (2016).
8. Z Zhu, FR Liu, JF Yang, ZK Fan, F Liu, NX Sun, "A cross sectional study on the crystallization of amorphous Ge 2 Sb 2 Te 5 films induced by a single-pulse ultraviolet laser", *Optics & Laser Technology* 81, 100-106, (2016).
9. Hwaider Lin, Yuan Gao, Xinjun Wang, Tianxiang Nan, Ming Liu, Jing Lou, Guomin Yang, Ziyao Zhou, Xi Yang, Jing Wu, Ming Li, Zhongqiang Hu, Nian Xiang Sun, "Integrated Magnetics and Multiferroics for Compact and Power-Efficient Sensing, Memory, Power, RF, and Microwave Electronics", *IEEE Transactions on Magnetics* 52 (7), 1-8 (2016).
10. H Su, X Tang, H Zhang, NX Sun, "Voltage-impulse-induced nonvolatile tunable magnetoelectric inductor based on multiferroic bilayer structure", *Applied Physics Express* 9 (7), 077301 (2016).
11. Y Gao, X Wang, L Xie, Z Hu, H Lin, Z Zhou, T Nan, X Yang, BM Howe, JG Jones, GJ Brown, NX Sun, "Giant electric field control of magnetism and narrow ferromagnetic resonance linewidth in FeCoSiB/Si/SiO2/PMN-PT multiferroic heterostructures", *Applied Physics Letters* 108 (23), 232903 (2016).
12. SY Chen, QY Ye, BL Hu, ZQ Hu, FJ Liu, ZG Huang, NX Sun, "Ferroelectric polarization induced nonvolatile modulation effect on magnetic properties in Bi 0.95 Ba 0.05 FeO 3 multiferroics", *Journal of Alloys and Compounds* 669, 141-145 (2016).
13. Satoru Emori, Tianxiang Nan, Amine M Belkessam, Xinjun Wang, Alexei D Matyushov, Christopher J Babroski, Yuan Gao, Hwaider Lin, Nian X Sun, "Interfacial spin-orbit torque without bulk spin-orbit coupling", *Physical Review* B 93 (18), 180402 (2016).
14. Ziyao Zhou, Garrett Grocke, Angel Yanguas-Gil, Xinjun Wang, Yuan Gao, Nianxiang Sun, Brandon Howe, Xing Chen, "CoFe2/Al2O3/PMNPT multiferroic heterostructures by atomic layer deposition", *Applied Physics Letters* 108 (18), 182907 (2016).

15. Tianxiang Nan, Satoru Emori, Bin Peng, Xinjun Wang, Zhongqiang Hu, Li Xie, Yuan Gao, Hwaider Lin, Jie Jiao, Haosu Luo, David Budil, John G Jones, Brandon M Howe, Gail J Brown, Ming Liu, Nian Sun, " Control of magnetic relaxation by electric-field-induced ferroelectric phase transition and inhomogeneous domain switching", *Applied Physics Letters* 108 (1), 012406 (2016).
16. Zhongqiang Hu, Xinjun Wang, Tianxiang Nan, Ziyao Zhou, Beihai Ma, Xiaoqin Chen, John G Jones, Brandon M Howe, Gail J Brown, Yuan Gao, Hwaider Lin, Zhiguang Wang, Rongdi Guo, Shuiyuan Chen, Xiaoling Shi, Wei Shi, Hongzhi Sun, David Budil, Ming Liu, Nian X Sun, " Non-Volatile Ferroelectric Switching of Ferromagnetic Resonance in NiFe/PLZT Multiferroic Thin Film Heterostructures", *Scientific Reports* 6, 32408 (2016).
17. Z Zhou, S Zhao, Y Gao, X Wang, T Nan, NX Sun, X Yang, M Liu, "The memory effect of magnetoelectric coupling in FeGaB/NiTi/PMN-PT multiferroic heterostructure", *Scientific reports* 6, 3 (2016).
18. M Li, R Birken, NX Sun, ML Wang, "Compact Slot Antenna With Low Dispersion for Ground Penetrating Radar Application", IEEE Antennas and Wireless Propagation Letters 15, 638-641 (2016).
19. T Nan, S Emori, B Peng, X Wang, Z Hu, L Xie, Y Gao, H Lin, J Jiao, H Luo, David Budil, John G Jones, Brandon M Howe, Gail J Brown, Ming Liu, Nian Sun, "Control of magnetic relaxation by electric-field-induced ferroelectric phase transition and inhomogeneous domain switching", *Applied Physics Letters* 108, 012406 (2016).
20. X Yang, Z Zhou, T Nan, Y Gao, GM Yang, M Liu, NX Sun, "Recent advances in multiferroic oxide heterostructures and devices", *Journal of Materials Chemistry C* 4 , 234-243, (2016).
21. SY Chen, HQ Zhang, QY Ye, ZQ Hu, ZG Huang, NX Sun, "Ferroelectric polarizing-induced non-volatile modulation effect on magnetic properties and its Raman detection in Ni/PMN-PT heterostructure" *Journal of Alloys and Compounds* 656, 871-875 (2016).
22. Brandon. M. Howe, Satoru Emori, Hyung-Min Jeon, Trevor M. Oxholm, John G. Jones, Krishnamurthy Mahalingam, Yan Zhuang, Nian X. Sun, Gail. J. Brown, "Pseudomorphic Yttrium Iron Garnet Thin Films With Low Damping and Inhomogeneous Linewidth Broadening", *IEEE Magnetics Letters*, 6, 3500504 (2015).
23. N Bai, FR Liu, XX Han, Z Zhu, F Liu, X Lin, NX Sun, "Effect of the Sn dopant on the crystallization of amorphous Ge2Sb2 Te5 films induced by an excimer laser" *Optics & Laser Technology* 74, 11-15 (2015).
24. H Zhang, Q Ye, L Tang, S Chen, Z Huang, N Sun,, "Non-volatile modulation effects of electric field on the magnetic and electric properties in La-Ca-MnO3/PMN-PT heterostructures" *IEEE Trans. Magn*. 51, 2505004 (2015).
25. X Yang, M Liu, B Peng, ZY Zhou, TX Nan, HJ Sun, NX Sun, "A wide-band magnetic tunable bandstop filter prototype with FeGaB/Al2O3 multilayer films" *Applied Physics Letters* 107 (12), 122408 (2015).
26. JM Hu, T Nan, NX Sun, LQ Chen, "Multiferroic magnetoelectric nanostructures for novel device applications" *MRS Bulletin* 40 (09), 728-735 (2015).

27. Z. Zhu, F.R. Liu, Z.M. Wang, Z.K. Fan, F. Liu, N.X. Sun, “Comparative study on crystallization characteristics of amorphous Ge2Sb2Te5 films by an ultraviolet laser radiation and isothermal annealing”, *Applied Surface Science* 335, 184 (2015).
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