

XUEYING LU

Assistant Professor (Joint position)

Northern Illinois University

Department of Physics
(with guest appointment in Electrical Engineering)

1425 Lincoln Hwy, LaTourette Hall, Rm. 216
DeKalb, IL 60115
Email: xylu@niu.edu

Argonne National Laboratory

Accelerator Systems Division
& Argonne Wakefield Accelerator

9700 S Cass Ave, Bldg. 360, Rm. L108
Lemont, IL 60439
Email: xylu@anl.gov

Group website: <https://www.xueyinglu.org/>

EDUCATION

Massachusetts Institute of Technology (MIT), Cambridge, MA Sep 2012– Nov 2018

Ph.D. in Physics

Doctoral dissertation: “Metamaterial Structures for High Power Microwaves and Accelerator Applications”

Thesis supervisor: Dr. Richard J. Temkin

Tsinghua University, Beijing, China Sep 2008– Jul 2012

B.S. in Engineering Physics

GPA: 91.34 /100

Bachelor dissertation: “Simulations on MeV Ultrafast Electron Diffraction”

PROFESSIONAL EXPERIENCE

Northern Illinois University, DeKalb, IL & **Argonne National Laboratory**, Lemont, IL Aug 2020 – Present

Assistant Professor of Physics (with guest appointment in Electrical Engineering 2022- present)

- Advanced accelerator concept
- Novel radiofrequency structures
- Terahertz wakefield acceleration
- Physics of beam-wave interaction
- Applications of compact accelerators

SLAC National Accelerator Laboratory, Menlo Park, CA Jan 2019 – Aug 2020

Postdoctoral Research Associate at Technology Innovation Directorate (TID)

Supervisors: Emilio A. Nanni, Sami G. Tantawi

- Accelerator structures for proton cancer therapy
- Compact, high rep-rate, high-efficiency X-band klystrons
- Fabry-Perot superconducting resonator for quantum applications

MIT, Plasma Science and Fusion Center, Cambridge, MA Sep 2012 – Dec 2018

Graduate Research Assistant

Supervisors: Richard J. Temkin, Michael A. Shapiro

- Metamaterial structures for high-gradient wakefield acceleration
- A metamaterial-based high-power backward wave oscillator

- Theoretical characterization of beam-wave interaction in advanced structures

Tsinghua University, Lab of Particle Accelerators, Beijing, China Sep 2011 – Jun 2012

Undergraduate Research Assistant

Supervisor: Dr. Wenhui Huang

- Simulations for a mega-electron-volts (MeV) Ultrafast Electron Diffraction (UED) beamline

Shanghai Synchrotron Radiation Facility (SSRF), Shanghai, China Jul 2011–Aug 2011

Undergraduate Summer Intern

Supervisor: Dr. Yongbin Leng

- Radiation-induced damage in light extraction windows

Tsinghua University, Lab of Nuclear Electronics, Beijing, China Oct 2009 – May 2011

Undergraduate Research Assistant

Supervisor: Dr. Cui Meng

- Radiofrequency energy dissipation calculation with FDTD algorithm

SUPERVISING

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| Brendan Leung (Aug 2021 – present) | PhD student, NIU Physics |
| Dillon Merenich (Aug 2021 – present) | Master’s student, Chicagoland Accelerator Science Traineeship (CAST) program & NIU Physics |
| Marc Crowell (Aug 2022 – present) | Master’s student, NIU Physics |
| Morgan Turner (Spring 2022) | Master’s student, NIU Physics |
| Bart Frey (Summer 2021) | Participant in NIU Research Experience for Teachers (RET) |

TEACHING

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|---|-----------------------------------|
| NIU Physics Graduate Course | Fall 2021, Spring 2022, Fall 2022 |
| “Special Problems in Physics” PHYS659 | |
| US Particle Accelerator School (USPAS) | June 2022 |
| “Fundamentals of Accelerator Physics and Technology with Simulations and Measurements Lab” | |
| Co-instructors: Pavel Snopok (IIT), Diktys Stratakis (Fermilab) | |
| NIU Physics Graduate/Undergraduate Course | Spring 2022 |
| “Introduction to Plasma Physics” PHYS459/790 | |
| Invited Lecture, Chicagoland Accelerator Science Traineeship (CAST) lecture series | 2021 |
| “Accelerator Cavities” | |
| Association of College and University Educators (ACUE) Effective Teaching Practices Program | 2020 |
| MIT Kaufman Teaching Certificate | 2018 |

HONORS AND AWARDS

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| Department of Energy, Early Career Award | 2021-2026 |
| Featured headline, Department of Energy Office of Science University Research News | 2021 |
| Outstanding Self-financed Students Aborad, Chinese Department of Education | 2019 |
| CST University Publication Award, Dassault Systèmes | 2018 |
| Outstanding Student Poster, 2018 IEEE Advanced Accelerator Concepts Workshop (AAC’18) | 2018 |
| Finalist for Best Student Paper, 19 th International Vacuum Electronics Conference (IVEC’18) | 2018 |
| MIT Energy Initiative Fellowship | 2012 – 2013 |

Before PhD

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| Beijing Outstanding College Graduate | 2012 |
| Tsinghua University Exceptional Graduate | 2012 |
| 1 st Prize of Academic Excellence in Tsinghua University | 2011 |
| 2 nd Prize of Student Research Training in Tsinghua University | 2011 |
| Nuclear Power of China Scholarship | 2010 |
| Exceptional Volunteer Service Award of Tsinghua University | 2010 |
| National Scholarship, with highest honor | 2009 |
| Provincial-level Outstanding High School Graduate, Henan Province, China | 2008 |
| Provincial-level Outstanding High School Student, Henan Province, China | 2007 |
| 2 nd Prize in National Mathematics Olympics Competition, Henan Province, China | 2007 |
| 2 nd Prize in National Physics Olympics Competition, Henan Province, China | 2007 |
| 2 nd Prize in National Mathematics Olympics Competition, Henan Province, China | 2006 |

RESEARCH GRANTS

- Funding Source:** DOE Early Career Research Program (Office of Science, HEP)
Project Title: Innovative High-Frequency Structures for High-Gradient Wakefield Acceleration
Funding period: 08/01/2021 – 07/31/2026
Role: PI
- Funding Source:** DOE Research Opportunities in High Energy Physics
Project Title: Enabling High-Gradients Efficient Wakefield Accelerators with High-Quality Shaped Electron Bunches
Funding period: 06/01/2021 – 05/31/2024
Role: co-PI
Team members: Philippe Piot (PI, NIU), Linda Spentzouris (IIT), and Eric Wisniewski (IIT)
- Funding Source:** DOE Office of High Energy Physics
Project Title: Chicagoland Accelerator Science Traineeship (IIT and NIU)
Funding period: 09/25/2019 – 09/24/2024
Role: Faculty participant since 2020, co-PI since 2022
Team members: Yagmur Torun (IIT), Mike Syphers (NIU, retired), Philippe Piot (NIU)

PEER-REVIEWED JOURNAL ARTICLES

- W. H. Tan, S. Antipov, D. S. Doran, G. Ha, C. Jing, E. Knight, S. Kuzikov, W. Liu, **X. Lu**, P. Piot, J. G. Power, J. Shao, C. Whiteford, and E. E. Wisniewski, “Demonstration of sub-GV/m accelerating field in a photoemission electron gun powered by nanosecond X-band radiofrequency pulses”, *Physical Review Accelerators and Beams*, accepted.
- Francois Lemery, Gerard Andonian, Steffen Doebert, Gwanghui Ha, **Xueying Lu**, John Power and Eric Wisniewski, “Drive beam sources and longitudinal shaping techniques for beam driven accelerators”, *Journal of Instrumentation* **17**, P05036 (2022).
- Julian Picard, Ivan Mastovsky, Michael A. Shapiro, Richard J. Temkin, **Xueying Lu**, Manoel Conde, D. Scott Doran, Gwanghui Ha, John G. Power, Jiahang Shao, Eric E. Wisniewski, and Chunguang Jing, “Generation of 565 MW of X -band power using a metamaterial power extractor for structure-based wakefield acceleration”, *Physical Review Accelerators and Beams* **25**, 051301 (2022).

4. **Xueying Lu**, Zenghai Li, Valery Dolgashev, Gordon Bowden, Ann Sy, Sami Tantawi and Emilio Nanni, “A proton beam energy Modulator for rapid proton therapy”, *Review of Scientific Instruments* **92**, 024705 (2021).
5. **Xueying Lu**, Julian F Picard, Michael A Shapiro, Ivan Mastovsky, Richard J Temkin, Manoel Conde, John G Power, Jiahang Shao, Eric E Wisniewski, Maomao Peng, Gwanghui Ha, Jimin Seok, Scott Doran, and Chunguang Jing, “Coherent high-power RF wakefield generation by electron bunch trains in a metamaterial structure”, *Applied Physics Letters* **116**, 264102 (2020).
6. **Xueying Lu**, Michael A. Shapiro, Ivan Mastovsky, Richard J. Temkin, Manoel Conde, John G. Power, Jiahang Shao, Eric E. Wisniewski, and Chunguang Jing, “Generation of high-power, reversed-Cherenkov wakefield radiation in a metamaterial structure”, *Physical Review Letters* **122**, 014801 (2019).
 - Editor’s Suggestion
 - Featured in *Physics*, “Viewpoint: A Metamaterial for Next Generation Particle Accelerators”, written by Dr. Patric Muggli
 - Media report in *Physics World*: “Metamaterial boosts performance of wakefield accelerator”
7. **Xueying Lu**, Michael A. Shapiro, and Richard J. Temkin, “Linear theory of instabilities generated by an electron beam in a metamaterial-loaded waveguide”, *Physics of Plasmas* **26**, 033104 (2019).
8. **Xueying Lu**, Jacob C. Stephens, Ivan Mastovsky, Michael A. Shapiro, and Richard J. Temkin, “High power long pulse microwave generation from a metamaterial structure with reverse symmetry”, *Physics of Plasmas* **25**, 023102 (2018).
 - Featured article
 - Cover article of *Physics of Plasmas* February 2018 issue
9. Jason S. Hummelt, **Xueying Lu**, Haoran Xu, Ivan Mastovsky, Michael A. Shapiro, and Richard J. Temkin, "Coherent Cherenkov-cyclotron radiation excited by an electron beam in a metamaterial waveguide", *Physical Review Letters* **117**, 237701 (2016).
 - Featured in *Physics*, “Focus: Better Microwaves from a Metamaterial”
10. **Xueying Lu**, Michael A. Shapiro, and Richard J. Temkin, "Modeling of the interaction of a volumetric metallic metamaterial structure with a relativistic electron beam", *Physical Review Special Topics-Accelerators and Beams* **18**, 081303 (2015).
 - Editor’s Suggestion

BOOK CHAPTERS

1. Michael A. Shapiro, Jason S. Hummelt, **Xueying Lu**, and Richard J. Temkin, “Experimental Hot Test of Beam/Wave Interactions with Metamaterial Slow Wave Structures”, Chapter 10, in Book “High Power Microwave Sources and Technologies Using Metamaterials”, edited by John W. Luginsland, Jason A. Marshall, Arje Nachman, and Edl Schamilglu, ISBN: 978-1119384441, Wiley-IEEE Press; 1st edition (November 23, 2021)

CONFERENCE PROCEEDINGS

1. B. Leung, **X. Lu**, C. Phillips, P. Piot, D.S. Doran, J.G. Power, “Design of a W-Band Corrugated Waveguide for Structure Wakefield Acceleration”, Proceedings of *NAPAC2022*, Albuquerque, NM, MOPA74
2. D. C. Merenich, **X. Lu**, J.G. Power, D.S. Scott, “Design and Fabrication of a Metamaterial Wakefield Accelerating Structure”, Proceedings of *NAPAC2022*, Albuquerque, NM, WEYD4
3. W. Liu, G. Chen, D.S. Doran, S.Y. Kim, **X. Lu**, P. Piot, J.G. Power, C. Whiteford, E.E. Wisniewski, “Update on the Development of a Low-Cost Button BPM Signal Detector at AWA”, Proceedings of *NAPAC2022*,

Albuquerque, NM, TUPA28

4. C. Phillips, B. Leung, **X. Lu**, P. Piot, “Wakefield Modeling in Sub-Thz Dielectric-Lined Waveguides”, Proceedings of *NAPAC2022*, Albuquerque, NM
5. G. Chen, D.S. Doran, C. Jing, S.Y. Kim, W. Liu, **X. Lu**, P. Piot, J.G. Power, C. Whiteford, E.E. Wisniewski, E.W. Knight, S.V. Kuzikov, “An X-band Short-Pulse Ultra-High Gradient Photoinjector”, Proceedings of *NAPAC2022*, Albuquerque, NM, MOZE5
6. E.E. Wisniewski, G. Chen, D.S. Doran, S.Kim, W. Liu, J.G. Power, C.Whiteford, **X. Lu**, D. Merenich, F. Stulle, “High-Charge Transmission Diagnostics for Beam-Driven RF Structures”, Proceedings of *IPAC2022*, Bangkok, Thailand
7. W.H. Tan, **X. Lu**, P. Piot, S.P. Antipov, C.-J. Jing, E.W. Knight, S.V. Kuzikov, D.S. Doran, G. Ha, C. Jing, W. Liu, J.G. Power, J. Shao, C. Whiteford, E.E. Wisniewski, “Commissioning of a High-Gradient X-Band RF Gun Powered by Short RF Pulses from a Wakefield Accelerator”, Proceedings of *IPAC2022*, Bangkok, Thailand
8. E.A. Frame, P. Piot S.Y. Kim, **X. Lu**, J.G. Power, D.S. Scott, E.E. Wisniewski, “Simulations of the Upgraded Drive-Beam Photoinjector at the Argonne Wakefield Accelerator”, Proceedings of *IPAC2022*, Bangkok, Thailand
9. Julian Picard, **Xueying Lu**, Manoel Conde, D. Scott Doran, Gwanghui Ha, ChanguangChunguang Jing, Ivan Mastovsky, John G. Power, Jiahang Shao, Michael A. Shapiro, Richard J. Temkin and Eric E. Wisniewski, “Generation of 565 MW of X-Band Power for Structure-Based Wakefield Acceleration Using a Metamaterial-Based Power Extractor”, Proceedings of *2022 IEEE International Vacuum Electronics Conference (IVEC)*.
10. Sergey Kuzikov, Sergey Antipov, Pavel Avrakhov, Edward Dosov, Chunguang Jing, Ernie Knight, Gwanghui Ha, Wanming Liu, Philippe Piot^{2,3}, John G. Power, Doran Scott, Jiahang Shao, Eric Wisniewski, Wei Hou Tan, **Xueying Lu**, “An X-band Ultra-High Gradient Photoinjector”, Proceedings of *IPAC 2021*, online, 2021.
11. E. I. Simakov, R. L. Fleming, D. V. Gorelov, M. Kirshner, J. W. Lewellen, M. E. Middendorf, M. E. Schneider, T. Tajima, **Xueying Lu**, E. A. Nanni, S. Tantawi, “First C-Band High Gradient Cavity Testing Results at LANL”, Proceedings of *IPAC 2021*, online, 2021.
12. J. Shao, S. Kuzikov, C. Jing, P. Piot, W.H. Tan, **Xueying Lu**, S. Doran, W. Liu, J. Power, C. Whiteford, E. Wisniewski, “High-Power Test of a Highly Over-Coupled X-Band RF Gun Driven by Short RF Pulses”, Proceedings of *IPAC 2021*, online, 2021.
13. J. Shao, R. Agustsson, S. Kutsaev, A. Smirnov, **Xueying Lu**, J. Power, “Development of a Pair of 182 GHz Two-Half Power Extractor and Accelerator for Short Pulse RF Breakdown Study”, Proceedings of *IPAC 2021*, online, 2021.
14. J. Picard, I. Mastovsky, M. A. Shapiro, R. J. Temkin, **Xueying Lu**, M. Conde, D. S. Doran, J. G. Power, J. Shao, E. E. Wisniewski, C. Jing, “Generating 510 MW of X-Band Power for Structure-Based Wakefield Acceleration Using a Metamaterial-Based Power Extractor”, Proceedings of *IPAC 2021*, online, 2021.
15. Brandon Weatherford, Mark Kemp, **Xueying Lu**, Julian Merrick, Emilio Nanni, Jeffrey Neilson, Ann Sy, Sami Tantawi, “Modular High Power RF Sources for Compact Linear Accelerator Systems”, Proceeding in the *2020 IEEE 21st International Conference on Vacuum Electronics (IVEC)*, online, 2021.
16. Danny Liu, Jiahang Shao, John Power, Scott Doran, **Xueying Lu**, Holly Garich, Stephen Snyder, Timothy Hall, Maria Inman and E. Jennings Taylor, “Precision Electrochemical Fabrication of Corrugated

Waveguides”, Electrochemical Society (ECS) Meeting Abstracts, online, 2021

17. **Xueying Lu**, Julian F. Picard, Michael A. Shapiro, Ivan Mastovsky, Richard J. Temkin, Manoel Conde, John G. Power, Jiahang Shao, Eric E. Wisniewski, Chunguang Jing, Maomao Peng, Gwanghui Ha, Jimin Seok, Scott Doran, “Experiments with Metamaterial-Based Metallic Accelerating Structures”, Proceedings of *North American Particle Accelerator Conf. (NAPAC'19)*, Lansing, MI, USA, 2019 (in pre-press).
18. **Xueying Lu**, Emilio Nanni, Zenghai Li, Valery Dolgashev, Gordon Bowden, Ann Sy, Sami Tantawi, “Rapid Radio-Frequency Beam Energy Modulator for Proton Therapy”, Proceedings of *North American Particle Accelerator Conf. (NAPAC'19)*, Lansing, MI, USA, 2019 (in pre-press).
19. **Xueying Lu**, Michael A. Shapiro, Ivan Mastovsky, Richard J. Temkin, Manoel Conde, John G. Power, Jiahang Shao, Eric E. Wisniewski, Chunguang Jing, “A metamaterial wagon wheel structure for wakefield acceleration by reversed Cherenkov radiation”, *Proceedings of IPAC 2018*, Vancouver, BC, Canada, 2018.
20. **Xueying Lu**, Jacob C. Stephens, Ivan Mastovsky, Michael A. Shapiro, Richard J. Temkin, “High power microwave generation by Cherenkov-cyclotron instability in a metamaterial structure with negative group velocity”, *2018 IEEE International Vacuum Electronics Conference (IVEC)*, Monterey, CA, 2018.
21. **Xueying Lu**, Jason S. Hummelt, Michael A. Shapiro, Richard J. Temkin, “Long pulse operation of a high power microwaves source with a metamaterial loaded waveguide”, *2017 IEEE International Vacuum Electronics Conference (IVEC)*, London, UK, 2017.
22. Jason S. Hummelt, **Xueying Lu**, Haoran Xu, Michael A. Shapiro, Richard J. Temkin, "High power microwave generation from a metamaterial waveguide", *2016 IEEE International Vacuum Electronics Conference (IVEC)*, Monterey, CA, 2016.
23. **Xueying Lu**, Michael A. Shapiro, Richard J. Temkin, “Novel metallic structures for wakefield acceleration”, *North American Particle Accelerator Conf. (NAPAC'16)*, Chicago, IL, USA, 2016. JACOW, Geneva, Switzerland, 2017.
24. **Xueying Lu**, Michael A. Shapiro, Richard J. Temkin, "Interaction of a volumetric metamaterial structure with an electron beam", *Proceedings of IPAC 2015*, Richmond, VA, 2015.

NON-PEER-REVIEWED ARTICLES (For Snowmass Community Summer Study 2021)

1. X. Lu, *et al.*, "Advanced RF Structures for Wakefield Acceleration and High-Gradient Research", Snowmass 2021 White Paper, <https://arxiv.org/abs/2203.08374>
2. C. Jing, *et al.*, "Continuous and Coordinated Efforts of Structure Wakefield Acceleration (SWFA) Development for an Energy Frontier Machine", Snowmass 2021 White Paper, <https://arxiv.org/abs/2203.08275>
3. E. Nanni, *et al.*, “C³ Demonstration Research and Development Plan”, Snowmass 2021 White Paper, <https://arxiv.org/abs/2203.09076>
4. M. Bai, *et al.*, "Strategies in Education, Outreach, and Inclusion to Enhance the US Workforce in Accelerator Science and Engineering", Snowmass 2021 White Paper, <https://arxiv.org/abs/2203.08919>
5. C. Benedetti, *et al.*, "Advanced accelerator linear collider demonstration facility at intermediate energy", Snowmass 2021 White Paper, <https://arxiv.org/abs/2203.08425>
6. John Power, *et al.*, “Research and Educational Opportunities at the Argonne Wakefield Accelerator (AWA) Facility”, Letter of Interest, submitted to Snowmass 2021
7. Jiahang Shao, *et al.*, “Short-pulse wakefield structure R&D for high gradient and high efficiency acceleration in future large-scale machines”, Letter of Interest, submitted to Snowmass 2021
8. Jiahang Shao, *et al.*, “SWFA demonstrators with integrated technologies for future largescale machines”, Letter of Interest, submitted to Snowmass 2021
9. Nathan Cook, *et al.*, “Modeling Needs for Structure Wakefield Accelerators”, Letter of Interest, submitted to Snowmass 2021
10. G. C. Blazey, *et al.*, “At Risk: University-based Accelerator Science and Education”, Letter of Interest,

CONFERENCE AND WORKSHOP PRESENTATIONS

1. **Working group leader**, 2022 IEEE Advanced Accelerator Concepts Workshop (AAC'22) | Hauppauge, NY Nov 2022
2. **Contributed oral + Poster**, Community Summer Study (Snowmass Summer Meeting 2022) | Seattle, WA July 2022
3. **Travel grant**, 2022 PIC Math Interdisciplinary Data Science Workshop | Provo, UT June 2022
4. **Invited oral**, International Workshop on Breakdown Science and High Gradient Technology (HG2022) | Online May 2022
5. **Invited plenary**, 2020 IEEE Advanced Accelerator Concepts Workshop (AAC'20) | Online Jan 2021
6. **Invited plenary**, 2020 APS Prairie Section Fall Meeting | Online Nov 2020
7. **Invited oral**, 2019 North America Particle Accelerator Conf. (NAPAC'19) | Lansing, MI Sep 2019
8. **Contributed oral**, 2019 North America Particle Accelerator Conf. (NAPAC'19) | Lansing, MI (Presented by Emilio A. Nanni) Sep 2019
9. **Invited oral**, 2019 APS Division of Particles and Fields Meeting (DPF'19) | Boston, MA Aug 2019
10. **Invited oral**, 2019 Advanced Linear Collider Study Group Workshop (ALEGRO'19) | CERN (Presented by Dr. John G. Power due to travel restrictions) Mar 2019
11. **Invited oral**, Compact Linear Collider Workshop 2019 (CLIC'19) | CERN (Presented by Dr. Manoel Conde due to travel restrictions) Jan 2019
12. **Plenary oral & Poster**, 2018 IEEE Advanced Accelerator Concepts Workshop (AAC'18) | Breckenridge, CO Aug 2018
13. **Poster**, 9th International Particle Accelerator Conf. (IPAC'18) | Vancouver, BC, Canada May 2018
14. **Oral**, 19th International Vacuum Electronics Conference (IVEC'18) | Monterey, CA Apr 2018
15. **Poster**, 59th Meeting of APS Division of Plasma Physics (APS DPP'17) | Milwaukee, WI Oct 2017
16. **Oral**, 44th International Conference on Plasma Science (ICOPS'17) | Atlantic City, NJ May 2017
17. **Keynote oral**, 18th International Vacuum Electronics Conf. (IVEC'17) | London, UK (Presented by Dr. Richard J. Temkin) Apr 2017
18. **Poster**, 2016 North American Particle Accelerator Conf. (NAPAC'16) | Chicago, IL Oct 2016
19. **Oral**, Breakdown Science and High Gradient Accelerator Technology (HG'16) | Lemont, IL Jun 2016
20. **Oral**, 2015 IEEE Pulsed Power Conference (PPC'15) | Austin, TX Jun 2015
21. **Poster**, 6th International Particle Accelerator Conf. (IPAC'15) | Richmond, VA May 2015
22. **Oral**, 2014 IEEE Advanced Accelerator Concepts Workshop (AAC'14) | San Jose, CA Jul 2014

STUDENTS' CONFERENCE PRESENTATIONS

1. **Oral**, by Dillon Merenich, 2022 North America Particle Accelerator Conf. (NAPAC'22) | Albuquerque, NM Aug 2022
2. **Poster**, by Brendan Leung, 2022 North America Particle Accelerator Conf. (NAPAC'22) | Albuquerque, NM Aug 2022

SEMINAR TALKS

1. **Seminar**, the University of Chicago, Department of Physics | Virtual Dec 2021
2. **Seminar**, Physics Colloquium at Northern Illinois University | DeKalb, IL Nov 2021
3. **Talk + Poster**, US Department of Energy (DOE) review at ANL | Virtual Aug 2021
4. **Talk**, DOE management meeting, ANL monthly highlights | Virtual May 2021
5. **Seminar**, Physics Colloquium at Bard College | Virtual Mar 2021
6. **Seminar**, Physics Colloquium at Northern Illinois University | DeKalb, IL Mar 2020

7. **Seminar**, Argonne National Laboratory (ANL), Advanced Photon Source Seminar | Lemont, IL Dec 2019
8. **Seminar**, Argonne National Laboratory (ANL), HEP Seminar | Lemont, IL May 2019
9. **Seminar**, Tsinghua Univ., Department of Engineering Physics | Beijing, China Dec 2018
10. **Seminar**, Peking Univ., School of Electronics Engineering & Computer Science | Beijing, China Dec 2018
11. **Seminar**, Lawrence Berkeley National Laboratory (LBNL), Division of Accelerator Technology & Applied Physics (ATAP) | Berkeley, CA Jul 2018
12. **Seminar**, SLAC National Accelerator Laboratory, Technology Innovation Directorate | Menlo Park, CA Jul 2018
13. **Seminar**, Zhengzhou University, Department of Physics | Zhengzhou, China Jan 2018
14. **Seminar**, Tsinghua University, Department of Engineering Physics | Beijing, China Dec 2017
15. **Seminar**, Peking Univ., School of Electronics Engineering & Computer Science | Beijing, China Dec 2017
16. **Seminar**, Huazhong Univ. Science and Technology, Dep. Electrical Engineering | Wuhan, China Dec 2017
17. **Workshop**, MIT Path of Professorship Workshop | Cambridge, MA Nov 2017
18. **Seminar**, Multidisciplinary University Research Initiatives (MURI) Program Teleseminar Sep 2017
19. **Seminar**, MIT Plasma Science and Fusion Center Student Seminar Apr 2017
20. **Seminar**, Multidisciplinary University Research Initiatives (MURI) Program Teleseminar Feb 2017
21. **Seminar**, Multidisciplinary University Research Initiatives (MURI) Program Teleseminar Sep 2016
22. **Seminar**, MIT Plasma Science and Fusion Center Student Seminar Apr 2016
23. **Seminar**, MIT Plasma Science and Fusion Center Student Seminar Apr 2015

ACADEMIC SERVICES AND ORGANIZATIONS

Journal Referee

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|---|----------------|
| Referee for <i>IEEE Transactions on Electron Devices</i> | 2017 – Present |
| Referee for <i>Review of Scientific Instruments</i> | 2018 – Present |
| Referee for <i>Physics of Plasmas</i> | 2019 – Present |
| Referee for <i>Journal of Applied Physics</i> | 2019 – Present |
| Referee for <i>Applied Physics Letters</i> | 2020 – Present |
| Referee for <i>Matter and Radiation at Extremes</i> | 2020 – Present |
| Referee for <i>Journal of Instrumentation</i> | 2021 – Present |
| Referee for <i>Nuclear Instruments and Methods in Physics Research A</i> | 2022 – Present |
| Referee for <i>Proceedings of International Particle Accelerator Conference</i> (light peer review) | Multiple years |

Proposal Reviewer

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| Department of Energy FY22 HEP US-Japan Science and Technology Cooperation Program | 2022 |
| Department of Energy SBIR/STTR Program | 2022 |

Service at NIU and ANL

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| Graduate student admission committee, NIU Department of Physics | 2021, 2022 |
| Chair of NIU Physics Colloquium series | 2021-present |
| Search committee for accelerator faculty at NIU Department of Physics | 2021-2022 |
| Search committee for high energy physics faculty at NIU Department of Physics | 2022 |
| Argonne Accelerator Institute Steering Committee | 2021-present |

Outreach Activities

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| Panelist for the NIU Building Engagement in Laboratories, Networking and Peer Groups (BELONG) in STEM Scholars Program | Sep 2021 |
| Mentor, NIU Research Experience for Undergraduates and Teachers (REU/RET) | Summer 2021 |

Panelist, Women in Science and Engineering (WiSE) panel discussion, at 2019 North America Particle
Accelerator Conf. (NAPAC'19)

Sep 2019

Professional Membership

IEEE Student Member (2015-2019), Member (2019– Present)

American Physical Society Member, Div. Physics of Beams, Div. Plasma Physics

2017– Present