

# John Y. Yoritomo

Acoustics Division | Naval Research Laboratory  
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## Education

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**Doctor of Philosophy in Physics** Jan. 2020

University of Illinois at Urbana-Champaign, Urbana, IL

**Dissertation:** Topics in Diffuse Field Ultrasonics

**Advisor:** Richard L. Weaver

**Bachelor of Science in Physics, *summa cum laude*** May 2013

The Catholic University of America, Washington, DC

## Professional Appointments

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Research Physicist, Karles Fellow 2020 - Present

Acoustics Division, U.S. Naval Research Laboratory, Washington, DC

## Research

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Graduate Research Assistant 2013 - 2020

Department of Physics, University of Illinois, Urbana, IL

- **Slow Dynamics:** Experimental work to provide insight into the mechanisms behind the poorly understood, creep-like phenomena that occurs in composite materials (2017 - Present)
  - \* Diffuse field techniques employed include coda wave interferometry & Larsen monitoring
- **Green's Function Retrieval:** Theoretical and numerical work on quantifying how well the cross-correlation retrieves Green's function in a non-fully diffuse wave field (2013 - Present)
- **Energy Transport and Localization in Ultrasound:** Experimental work on verifying the transport of energy amongst angular momentum modes of a nearly axisymmetric body and deviations from simple predictions due to dynamical localization (2015 - 2017)
- **Acoustic Metamaterials:** Theoretical work on predicting the band gaps of a multiresonant metamaterial on plates (2014 - 2015)

Research Experience for Undergraduates Intern Summer 2012

Smithsonian Astrophysical Observatory, Cambridge, MA

Undergraduate Research Assistant 2011 - 2012

The Vitreous State Laboratory, Washington, DC

## Teaching

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Graduate Teaching Assistant 2014 - 2019  
Department of Physics, University of Illinois, Urbana, IL

- **Advanced composition courses:** PHYS/GLBL 280, PHYS 419/420, PHYS 496
  - \* Provided formative and summative assessment of student writing
  - \* Led discussion sections on improving writing skills
- **Introductory courses:** PHYS 211, PHYS 213/214, PHYS 110
  - \* Led discussion sections, where group dialogue and problem-solving was encouraged
  - \* Provided 10-minute mini-lectures to enhance student understanding
  - \* Assessed weekly quizzes
- **Intermediate Courses:** PHYS 326
  - \* Led discussion sections, where group dialogue and problem-solving was encouraged
  - \* Provided 10-minute mini-lectures to enhance student understanding

Undergraduate Teaching Assistant 2012  
Department of Physics, Catholic University, Washington, DC

## Curriculum Development

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Department of Physics, University of Illinois 2018 - 2019

- **PHYS/GLBL 280 Nuclear Weapons and Arms:** Improved the writing component in collaboration with Writing Studies scholars (2018 - Present)
  - \* Created new rubrics for every writing assignment
  - \* Planned activities for weekly writing labs
  - \* Revised assignment prompts to better articulate learning goals
  - \* Created a new course website
- **PHYS 496 Introduction to Physics Research:** Created grading rubrics for multiple writing assignments (Fall 2018)
- **PHYS 110 Physics Careers:** Assisted in adding a writing component to the course and creating a grading rubric for short writing assignments (Fall 2018)

## University Service

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- **College of Engineering Strategic Instructional Innovations Program (SIIP) project:** "Improving the writing skills of undergraduate engineering students: Empowering engineering faculty and teaching assistants" (2017-2019)
  - Led three weekly meetings of a longitudinal Writing-Across-the-Curriculum workshop, tailored to faculty in the Physics Department (Writing Across Engineering)
  - Mentored course staff to improve the TA response to student writing (Writing Across Engineering)

- **College of Engineering SIIP Start-up project:** "Improving the writing skills of undergraduate engineering students: Identifying common challenges and scalable solutions" (2016-2017)
  - Conducted a needs analysis of the College of Engineering current practices and perceptions with regard to writing instruction
- **Physics Department Thesis/Prelim Writing Group:** Founder (2018 - 2019)
- **Physics Department Guidance for Physics Students program:** Mentor of undergraduate physics majors (2015 - 2017)
- **Physics Department Graduate Peer Mentoring program:** Mentor of first-year physics graduate student (2016 - 2017)

## Awards and Honors

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Dissertation Completion Fellowship - Scott Award, University of Illinois, 2019

Scott Anderson Award, University of Illinois, 2019

Ranked Excellent Teaching Assistant, University of Illinois, multiple semesters

Clyde Cowan Award for Excellence in Physics, The Catholic University of America, 2013

Undergraduate honors in ancient philosophy, The Catholic University of America, 2013

Phi Beta Kappa, The Catholic University of America, 2013

## Peer-reviewed Publications

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1. **Yoritomo, J.Y.**, R.L. Weaver. Slow dynamic elastic recovery in unconsolidated metal structures (R). *Physical Review E*. 102: 012901. 2020.
2. Li, J., R.L. Weaver, **J.Y. Yoritomo**, X. Song. Application of temporal re-weighting to ambient noise cross-correlation for improved seismic Green's function. *Geophysical Journal International*. 221(1): 265-272. 2020.
3. Gallagher, J.R., N. Turnipseed, **J.Y. Yoritomo**, C.M. Elliot, S.L. Cooper, J.S. Popovics, P. Prior, J.L. Zilles. A Longitudinal Design for Supporting Writing Pedagogies of STEM Faculty. *Technical Communication Quarterly*, 2020.
4. **Yoritomo, J.Y.**, R.L. Weaver. Slow dynamics in a single glass bead. *Physical Review E*. 101: 012902. 2020.
5. **Yoritomo, J.Y.**, R.L. Weaver. Slow dynamic nonlinearity in unconsolidated glass bead packs. *Physical Review E*, 101: 012901. 2020.
6. **Yoritomo, J.Y.**, N. Turnipseed, M.J. Villotti, A. Tate, K. Searsmith, M. Grosse Perdekamp, P. Prior, J.L. Zilles. A tale of two rubrics: Realigning genre instruction through improved response rubrics in a writing-intensive physics course. *2019 ASEE Annual Conference & Exposition, Conference Proceedings*. 2019.
7. **Yoritomo, J.Y.**, N. Turnipseed, S.L. Cooper, C.M. Elliot, J.R. Gallagher, J.S. Popovics, P. Prior, J.L. Zilles. Examining engineering writing instruction at a large research university through the lens of writing studies. *2018 ASEE Annual Conference & Exposition, Conference Proceedings*. 2018.
8. Weaver, R.L., **J.Y. Yoritomo**. Temporally weighting a time varying noise field to improve Green function retrieval. *Journal of the Acoustical Society of America*, 143(6): 3706-3719. 2018.

9. Weaver, R.L., **J.Y. Yoritomo**, J.P. Coleman. Diffuse elastic waves in a nearly axisymmetric body: distribution, transport and dynamical localization. *European Physical Journal Special Topics*, 226: 1371-1408. 2017.
10. **Yoritomo, J.Y.**, R.L. Weaver. Effect of dispersion on the convergence rate for Green's function retrieval. *Journal of the Acoustical Society of America*, 140(6): 4496-4505. 2016.
11. **Yoritomo, J.Y.**, R.L. Weaver. Fluctuations in the cross-correlation for fields lacking full diffusivity: The statistics of spurious features. *Journal of the Acoustical Society of America*, 140(1): 702-713. 2016.
12. **Yoritomo, J.Y.**, R.L. Weaver, P. Roux, M. Rupin, E.G. Williams. On band gap predictions for multiresonant metamaterials on plates (L). *Journal of the Acoustical Society of America*, 139(3): 1282-1284. 2016.

## Presentations

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- **Yoritomo, J.Y.**, N. Turnipseed, M.J. Villotti, A. Tate, K. Searsmith, M. Grosse Perdekamp, P. Prior, J.L. Zilles. *A tale of two rubrics: Realigning genre instruction through improved response rubrics in a writing-intensive physics course*. 2019 ASEE Annual Conference & Exposition, Tampa, FL, USA (presenter). June 2019
- Weaver, R.L., **J.Y. Yoritomo**. *Testing Reciprocity in an Ultrasonic Diffuse Field Electro-Acoustic System* AmeriMech Symposium: Non-reciprocal and Topological Wave Phenomena in Solids and Fluids, University of Missouri, Columbia, MO, USA. May 2019
- Weaver, R.L., **J.Y. Yoritomo**. *Diffuse Ultrasonic Transmission between two half spaces coupled through a single glass bead*. 177th Meeting of the Acoustical Society of America, Louisville, KY, USA (presenter). May 2019
- Weaver, R.L., **J.Y. Yoritomo**, J.S. Popovics, J. Bittner. *Slow-Dynamical Nonlinearity in a glass bead pack probed with diffuse ultrasound and coda-wave interferometry*. 177th Meeting of the Acoustical Society of America, Louisville, KY, USA (presenter). May 2019
- Weaver, R.L., **J.Y. Yoritomo**. *Diffuse Ultrasonic Transport in an Unconsolidated Glass Bead Pack*. 177th Meeting of the Acoustical Society of America, Louisville, KY, USA. May 2019
- Weaver, R.L., **J.Y. Yoritomo**. *Temporally weighting a time varying noise field to improve Green function retrieval*. 177th Meeting of the Acoustical Society of America. May 2019
- **Yoritomo, J.Y.** *Studying Slow Dynamics in Glass Bead Packs*. Physical Acoustics Branch, Naval Research Laboratory, Washington, DC, USA (invited). December 2018
- J.R. Gallagher, N. Turnipseed, **J. Y. Yoritomo**, J.L. Zilles. *Integrating Writing Instruction into Engineering and Science at a Large Research University*. Writing Research Without Walls Symposium, Purdue University, West Lafayette, IN, USA (presenter, panel). October 2018
- **Yoritomo, J.Y.**, N. Turnipseed, S.L. Cooper, C.M. Elliot, J.R. Gallagher, J.S. Popovics, P. Prior, J.L. Zilles. *Examining engineering writing instruction at a large research university through the lens of writing studies*. 2018 ASEE Annual Conference & Exposition, Salt Lake City, UT, USA (presenter). June 2018
- **Yoritomo, J.Y.**, R.L. Weaver. *Effect of dispersion on the convergence rate for Green's function retrieval*. Acoustics '17, Boston, MA, USA (presenter). June 2017
- Weaver, R.L., **J.Y. Yoritomo**. *Fluctuations in the cross-correlation for fields lacking full diffusivity: The statistics of spurious features* Acoustics '17, Boston, MA, USA. June 2017

- Weaver, R.L., **J.Y. Yoritomo**. *Diffuse elastic waves in a nearly axisymmetric body: Distribution, transport, and dynamical localization*. Acoustics '17, Boston, MA, USA. June 2017
- Coleman, J.P., **J.Y. Yoritomo**, R.L. Weaver. *Anderson localization amongst weakly coupled substructures*. Acoustics '17, Boston, MA, USA. June 2017
- **Yoritomo, J.Y.**, R.L. Weaver. *Fluctuations in the cross-correlation for fields lacking full diffusivity: The statistics of spurious features*. Passive Imaging and Monitoring in Wave Physics Summer School, Cargese Institute, Corsica, France (presenter, poster). May 2015
- **Yoritomo, J.Y.**, A. van Ballegooijen. *Relating Alfvén wave heating model to observations of a solar active region*. American Geophysical Union Fall Meeting, San Francisco, CA, USA (presenter, poster). December 2012

## Additional Experience & Achievements

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- Physics Department Softball Manager and Coach (2016 - 2018)
- Eagle Scout