

William James Longley

Contact

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Department of Astronomy, Boston University
725 Commonwealth Ave., Boston, MA 02215

Education

Boston University, Boston, Massachusetts

Astronomy Ph.D Student, June 2016 – present

Advisor: Meers Oppenheim

Research Area: Computational space plasma physics

Rice University, Houston, Texas

M.S. in Physics, May 2014

Advisor: Patricia Reiff

Thesis: *Magnetospheric Model Performance During Conjugate Aurora*

Hendrix College, Conway, Arkansas

B.A. in Physics and Mathematics, May 2010

Advisor: William Wood

Thesis: *Constructing Fractals of Specified Dimensions*

Parker Undergraduate Research Award

Professional Experience

Research Fellow, Boston University, Department of Astronomy, June 2016 – Present

Adjunct Instructor, Houston Community College, Department of Natural Sciences.

Instructor for College Physics 2, with lab. Spring 2016.

Private Tutor in AP Physics, Physics, Calculus, and Algebra 2 for students at Kinkaid and Northbrook High School in Houston, TX. Sept. 2014 – May 2016.

Head Coach, Bellaire H.S. Men's Lacrosse Club (TX). Sept. 2013 – May 2015.

Research Assistant, Rice University, Department of Physics and Astronomy. May 2011 – Dec 2013.

Teaching Assistant, Rice University, Department of Physics and Astronomy. General Physics 1 and 2 Labs. Jan. 2011 – Dec. 2013.

Peer Tutor, Hendrix College, Department of Mathematics. Pre-Calculus, Calculus, Differential Equations and Linear Algebra. Aug. 2008 – May 2010.

Teaching Assistant, Hendrix College, Department of Physics. General Physics 1 and 2 Labs. Aug. 2008 – May 2010.

Publications

- Longley, William J., Meers M. Oppenheim, Alex C. Fletcher (2017) ISR Spectra Simulations with Coulomb Collisions, *J. Geophys. Res.* (In preparation)
- Fletcher, Alex C., William J. Longley, Meers M. Oppenheim (2017) Shape Functions in High-Order Particle-in-Cell Plasma Simulations, *J. Comp. Phys* (In preparation)
- Longley, William J., Patricia H. Reiff, Marc Hairston (2017), Conjugate Aurora Location During a Strong IMF By Storm, *AGU Monograph Series*, Ed. S. Haaland, A. Runov, C. Forsyth. (In press)
- Longley, W., Reiff, P., Reistad, J. P. and Østgaard, N. (2016) Magnetospheric Model Performance during Conjugate Aurora, in *Magnetosphere-Ionosphere Coupling in the Solar System* (eds C. R. Chappell, R. W. Schunk, P. M. Banks, J. L. Burch and R. M. Thorne), John Wiley & Sons, Inc., Hoboken, NJ, USA. doi: 10.1002/9781119066880.ch18
- Longley, William J., and William E. Wood (2012), Constructing Fractals of Specified Dimension, *Pi Mu Epsilon J.* 13, No. 6 349-356. ISSN 0031-952X.

Presentations

- Longley, William J., Alex Fletcher, Meers M. Oppenheim, Yakov S. Dimant, “Characterizing the Accuracy of Higher Order Particle-in-Cell (PIC) Methods,” Poster presentation at AGU Fall Meeting, December (2016).
- Longley, William J., “Using Auroral Asymmetries to Test MHD Models,” Space Physics Seminar, Rice University, Houston, TX, February 8 (2016).
- Longley, William J., “Constructions of Fractals of Specified Dimension,” Hendrix-Rhodes-Sewanee Undergraduate Symposium, Rhodes College, Memphis, TN, April 17 (2010).