Jason Bane

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Education

- **University of Tennessee** **Knoxville, TN**
  Ph.D. in Nuclear Physics *August 2012 – December 2019*
  Thesis: The EMC Effect in A=3 Nuclei *Advisor: Nadia Fomin*
- **University of Tennessee** **Knoxville, TN**
  Secondary Education Certification in Math and Science *August 2009 – May 2010*
- **University of Tennessee** **Knoxville, TN**
  Bachelor of Science, Physics & Minor in Education *August 2004 – May 2009*

Honors

- Jefferson Science Associates graduate fellowship award (2018)
- Chancellor's honors for extraordinary professional promise (2016)
- DOE Office of Science Graduate Student Research program award (2015)
- Dean's List 2009 Academic Year (2010)

Teaching Experience

- **University of Tennessee, Department of Physics and Astronomy** **Knoxville, TN,**
  Graduate Teaching Assistant *August 2012 – May 2015*
  - Designed and implemented observational and planetarium based astronomy labs.
  - Educated students on the use of refracting telescopes and equatorial mounts.
  - Instructed students in laboratory exercises to help conceptualize physics topics.
  - Tutored students for homework assistance and test prep.

- **Clay County Tennessee Education Department** **Celina, TN**
  Secondary Educator & Football Coach *August 2010 – May 2012*
  - Created lesson plans that included interactive, creative thinking, and discussion driven curriculum for a diverse body of geometry students.
  - Constructed lessons that used hands-on lab activities, demonstrations, and interactive computer lessons to instruct high school Juniors and Seniors in algebra-based physics.
  - Used discussion-based problem-solving lessons to help remedial math students to improve their algebra, geometry and trigonometry skills for post-secondary education.
  - Provided an equitable and inclusive atmosphere for diverse students.
  - Guided student athletes through drills that focused on using the proper techniques to keep them safe
  - Tutored students in math focusing on problem solving skills.

Research Experience

- **University of Tennessee, Department of Physics and Astronomy** **Knoxville, TN,**
  Graduate Research Assistant *May 2014 – Present*
  - Extracted complete inclusive cross sections for the MARATHON data set
  - Analyzed a large set of data involving multiple nuclear targets and Monte Carlo simulations using Python, C++ , ROOT, and Fortran.
  - Lead in developing software designed to promote the collaborative use of a SQL database.
  - Lead an effort to investigate and repair faulty beam line detectors.
  - Coordinated the productive and efficient use of beam time through planning and communication between experimentalists, staff, and technicians.
  - Maintained and refurbished detector components (PMTs, scintillators...)
  - Calibrated detectors to control data quality and assessed the detectors' performance.
  - Created module layouts and cable maps for efficient reuse of signal components.
  - Collaborated with a diverse group of scientists, leading projects, working as a team member, and mentoring other students in analysis software and techniques.

Core Technical Skills

Hardware: Detector maintenance and wiring, front end electronics design and implementation, logical trigger design and testing
Languages: C, C++, LaTeX, Python, shell script, SQL
Monte Carlo Simulation Packages
Example scripts located at https://github.com/jbane11/examples
Software: Microsoft Office, Libre Office, Texstudio, vim, atom
Operating Systems: Linux(Red Hat), Windows, MacOS

Publications

- M. Murphy, [et al. including **J. Bane**], "Measurement of the cross sections for inclusive electron scattering in the E12-14-012 experiment at Jefferson Lab," Phys. Rev. C Accepted October 2019
- H. Dai, [et al. including **J. Bane**], "First Measurement of the Ar(e,e')X Cross Section at Jefferson Lab," Phys. Rev. C 99, 054608 May 2019
- R. Cruz-Torres, [et al. including **J. Bane**], "Comparing proton momentum distributions in A=3 nuclei via ^{3}He and ^3H(e,e'p) measurements," in preparation, (2019)
- S. N. Santiesteban, S. Alsalmi, D. Meekins, **J. Bane,** et al., "Density Changes in Low Pressure Gas Targets for Electron Scattering Experiments" NIM A 940, 2019
- H. Dai, [et al. including **J. Bane**], "First Measurement of the Ti(e,e')X Cross Section at Jefferson Lab," Phys. Rev. C 98, 014617 July 2018
- P V. Pandey, [et al. including **J. Bane**], "Probing electron-argon scattering for liquid-argon based neutrino-oscillation program," preprint arXiv:1711.01671

Conference Presentations and Posters

- F_2 ratio and EMC effect for A=3 Mirror Nuclei", 24th European Conference on Few-body Problems in Physics, University of Surrey, England, September 2019.
- "EMC in A=3 from MARATHON," 2nd Workshop on Quantitative Challenges in SRC and EMC Research, MIT, Cambridge MA, March 2019
- "Ratios in A=3 nuclei from MARATHON ," American Physical Society's Division of Nuclear Physics' yearly meeting, HA, October 2018
- "Measurement of the spectral function of Argon and Titanium through the(e,e'p) reaction," American Physical Society's Division of Nuclear Physics' yearly meeting, HA, October 2018
- "Status of the MARATHON experiment." American Physical Society's Division of Nuclear Physics' yearly meeting, Pittsburgh PA, October 2017
- "Searching for the Origin of the EMC effect." American Physical Society's Division of Nuclear Physics' yearly meeting, Sante Fe NM, October 2016
- "The impetus in the EMC effect, a EMC simulation." Gordon Research Conferences, Holderness, NH. August 2018
- "Searching for the Origin of the EMC effect." SURA Board of Trustees Meeting, Newport News, VA. April 2018