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# Jason Bane

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## Education

- **University of Tennessee** **Knoxville, TN**  
*Ph.D. in Nuclear Physics* *August 2012 – Planned 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*
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## Experience

- **University of Tennessee, Department of Physics and Astronomy** **Knoxville, TN,**  
*Graduate Research Assistant* *May 2014 – Present*
  - Designed and constructed front end electronics for an electron spectrometer.
  - Created module layouts and cable maps for efficient reuse of products.
  - Tested high voltage cards and laid high voltage cable for an electron spectrometer.
  - Used Oscilloscopes to test signals, debug logic modules, and map out inconsistent signals.
  - Maintained and refurbished individual detector components of a spectrometer including checking the quality of Photo Multiplier Tubes and plastic scintillators.
  - Calibrated detectors and used online analysis tools in Java to control the quality of data during an experiment.
  - Performed analysis on a large set of data involving multiple nuclear targets using Python, C++, ROOT, and fortran.
  - Instructed new researchers on the use of hardware and software used in the field
- **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.

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- **Clay County Tennessee Education Department**  
*Secondary Educator & Football Coach*

**Celina, TN**  
*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.
- Math and reading focused tutoring.

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## Core Technical Skills

**Hardware:** Detector maintenance and wiring, front end electronics design and implementation, logical trigger design and testing

**Languages:** C, C++, L<sup>A</sup>T<sub>E</sub>X, Python, shell script, SQL  
Monte Carlo Simulation Packages

Example scripts located at <https://github.com/jbane11/examples>

**Software:** Microsoft Office, Libre Office, Textstudio, vim, atom

**Operating Systems:** Linux(Red Hat), Windows, MacOS

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## Publications

- 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 <sup>3</sup>He and <sup>3</sup>H(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

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## 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)

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## Conference Presentations

- "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
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## Poster Presentations

- "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
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## References

**Nadia Fomin**, Professor  
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## Interests

Football, coaching, programming, boating, traveling,