

# Curriculum Vitae

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## Jason Dossett, Ph.D.

School of Mathematics and Physics

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## Education

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- Ph.D.** in Physics (Cosmology), **University of Texas at Dallas, Richardson, TX** *05/2013*
    - Dissertation: *Studies into the Nature of Cosmic Acceleration: Dark Energy or a Modification to Gravity on Cosmological Scales*
  - M. Sc.** in Physics, **University of Texas at Dallas, Richardson, TX** *12/2009*
    - GPA 4.0/4.0
  - B. Sc.** in Physics, **University of Texas at Dallas, Richardson, TX** *05/2008*
    - GPA 3.961/4.0
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## Awards

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- Dept. of Energy Office of Science Graduate Fellowship**, U.S. Department of Energy *2010-2013*
  - NS&M Graduate Dean's Fellowship**, The University of Texas at Dallas, Richardson, TX, USA *2008-2009*
  - Academic Distinction Exemplary Scholarship**, The University of Texas at Dallas, Richardson, TX, USA *2005-2008*
  - Academic Distinction Scholarship**, The University of Texas at Dallas, Richardson, TX, USA *2004-2005*
  - Robert C. Byrd Honors Scholarship**, U.S. Department of Education *2004-2008*
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## Research Funding Obtained

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- CAASTRO Supercomputing Allocation** - 648,000 CPU hours in Q1/Q2 2014 for performing N-Body simulations of large scale structure. *Dec. 2013*
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## Research Positions and Experience

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- Postdoctoral Research Fellow**, The University of Queensland *07/2013 - present*
  - Graduate Research in Cosmology**, The University of Texas at Dallas, Under Dr. Mustapha Ishak-Boushaki *05/2008-05/2013*
  - Research Assistant**, Department of Physics, The University of Texas at Dallas, Under Dr. Mustapha Ishak-Boushaki *Spring 2010 and Summer 2009*
  - Undergraduate Research in Cosmology**, The University of Texas at Dallas, Under Dr. Mustapha Ishak-Boushaki *01/2007 - 05/2008*
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## Teaching Positions and Experience

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- Problem Section Instructor**, Department of Physics, The University of Texas at Dallas: Undergraduate Classical Mechanics (PHYS 3312) *Fall 2011*
- Guest Instructor on Cosmology**, Department of Physics, The University of Texas at Dallas: The Fun of Physics (PHYS 1100) *Fall 2010 and Fall 2011*

- **Teaching Assistant**, Department of Physics, The University of Texas at Dallas: Undergraduate Classical Mechanics (PHYS 3312), Graduate Classical Mechanics (PHYS 5411) *Fall 2009*
- **Undergraduate Teaching Assistant**, Department of Physics, The University of Texas at Dallas: Thermodynamics and Statistical Mechanics (PHYS 4311) *Spring 2008*
- **Undergraduate Teaching Assistant**, Department of Physics, The University of Texas at Dallas: Classical Mechanics (PHYS 3312) *Fall 2007*

## Publications

- **“Constraining models of  $f(R)$  gravity with Planck and WiggleZ power spectrum data,”** [Jason Dossett](#), Bin Hu, and David Parkinson. **Under review at Journal of Cosmology and Astroparticle Physics**. Paper available on the arXiv pre-print server as arXiv:1401.3980.
- **“Effects of Dark Energy Perturbations on Cosmological Tests of General Relativity,”** [Jason Dossett](#), Mustapha Ishak. **Physical Review D 88, 103008 (2013)**. Paper available on the arXiv pre-print server as arXiv:1311.0726.
- **“Spatial Curvature and Cosmological Tests of General Relativity,”** [Jason Dossett](#), Mustapha Ishak. **Physical Review D 86, 103008 (2012)**. Paper available on the arXiv pre-print server as arXiv:1205.2422.
- **“Testing General Relativity at Cosmological Scales: Implementation and Parameter Correlations,”** [Jason Dossett](#), Mustapha Ishak, Jacob Moldenhauer. **Physical Review D 84, 123001 (2011)**. Paper available on the arXiv pre-print server as arXiv:1109.4583.
- **“Figures of merit and constraints from testing General Relativity using the latest cosmological datasets including refined COSMOS 3D weak lensing,”** [Jason Dossett](#), Jacob Moldenhauer, Mustapha Ishak. **Physical Review D 84, 023012 (2011)**. Paper available on the arXiv pre-print server as arXiv:1103.1195.
- **“Constraints on growth index parameters from current and future observations,”** [Jason Dossett](#), Mustapha Ishak, Jacob Moldenhauer, Yungui Gong, Anzhong Wang. **Journal of Cosmology and Astroparticle Physics 04 (2010) 022**. Paper available on the arXiv pre-print server as arXiv:1004.3086v1.
- **“More on Lensing by a Cosmological Constant,”** Mustapha Ishak, Wolfgang Rindler, [Jason Dossett](#). **Monthly Notices of the Royal Astronomical Society 403, 2152-2156 (2010)**. Paper available on the arXiv pre-print server as arXiv:0810.4956v2.
- **“Contiguous redshift parameterizations of the growth index,”** Mustapha Ishak, [Jason Dossett](#). **Physical Review D 80, 043004, (2009)**. Paper available on the arXiv pre-print server as arXiv:0905.2470.
- **“A New Independent Limit on the Cosmological Constant/Dark Energy from the Relativistic Bending of Light by Galaxies and Clusters of Galaxies,”** Mustapha Ishak, Wolfgang Rindler, [Jason Dossett](#), Jacob Moldenhauer, Chris Allison. **Monthly Notices of the Royal Astronomical Society 388, 1279-1283 (2008)**. Paper available on the arXiv pre-print server as arXiv:0710.4726v3.

## Talks

- **“Establishing the Robustness of Cosmological Tests of General Relativity to Dark Energy Perturbations,”** [Jason Dossett](#) and Mustapha Ishak. 223<sup>rd</sup> Meeting of the American Astronomical Society. January 2013.
- **“Dark Energy Perturbations and Robust Cosmological Tests of General Relativity,”** [Jason Dossett](#) and Mustapha Ishak. 27<sup>th</sup> Texas Symposium on Relativistic Astrophysics. December 2013.
- **“Testing General Relativity at Cosmological Scales: Effects of Spatial Curvature,”** [Jason Dossett](#) and Mustapha Ishak. 221<sup>st</sup> Meeting of the American Astronomical Society. January 2013.
- **“The Dark Side of the Universe,”** [Jason Dossett](#). Francis Marion University Science Symposium. April 2012.

- **“Correlations Between Cosmological Parameters and Modified Gravity Parameters when Testing Gravity at Cosmological Scales,”** [Jason Dossett](#), Mustapha Ishak, Jacob Moldenhauer. 2012 April Meeting of the APS. March 2012.
- **“ISiTGR: A Software Package for Testing General Relativity at Cosmological Scales,”** [Jason Dossett](#), Mustapha Ishak, Jacob Moldenhauer. 219<sup>th</sup> Meeting of the American Astronomical Society. January 2012.
- **“A Figure of Merit Analysis of Current Constraints on Detecting Deviations from General Relativity using the Latest Cosmological Data Sets,”** [Jason Dossett](#), Jacob Moldenhauer, Mustapha Ishak. 2011 Fall Meeting of the Texas Section of the APS. October 2011.

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### Conference Posters

- **“Correlations Between Modified Growth Parameters and Cosmological Parameters in Tests to Distinguishing Between Dark energy and Modified Gravity,”** [Jason Dossett](#), Mustapha Ishak. 2012 Department of Energy Office of Science Graduate Fellowship Annual Research Meeting. July 2012
- **“Dark Energy versus Modified Gravity: A Figure of Merit Analysis of Current Constraints on Detecting Deviations from General Relativity using the Latest Cosmological Data Sets,”** [Jason Dossett](#), Jacob Moldenhauer, Mustapha Ishak. 2011 Department of Energy Office of Science Graduate Fellowship Annual Research Meeting. July 2011.
- **“New Results on Testing General Relativity From the Latest Combined Cosmological Data Sets.”** [Jason Dossett](#), Jacob Moldenhauer, Mustapha Ishak. 217<sup>th</sup> Meeting of the American Astronomical Society. January 2011.
- **“Higher-Order Calculations of Deflection and the Contribution of the Cosmological Constant to the Deflection Angle and Gravitational Lensing.”** [Jason Dossett](#), Mustapha Ishak, Wolfgang Rindler, Jacob Moldenhauer, Chris Allison. 212<sup>th</sup> Meeting of the American Astronomical Society. June 2009.

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### Professional Societies and Positions Held

- **ARC Center of Excellence for All-sky Astrophysics (CAASTRO):** Affiliate Member
- **American Physical Society:** Junior Member
- **American Astronomical Society:** Junior Member

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### Service

- Session Chair – Testing Gravity I, 27<sup>th</sup> Texas Symposium on Relativistic Astrophysics. December 9, 2013. Dallas, TX
- Member of the Local Organizing Committee for the Final WiggleZ Team meeting. September 4-6, 2013. Brisbane, QLD Australia
- Chambliss Astronomy Student Award judge at the 219<sup>th</sup> Meeting of the AAS. January 2012. Austin, TX

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### Other Relevant Experience

- Developer of the software package *Integrated Software in Testing General Relativity* (ISiTGR). Available publicly at <http://isit.gr>
  - Extensive experience in using and modifying the CosmoMC and CAMB programs.
  - Experienced user of HPC facilities
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