

# Charles R. Keeton: Curriculum Vitae

July 9, 2009

## Employment History

- 2004-present Assistant Professor of Physics and Astronomy, Rutgers University, Piscataway, NJ
- 2001-2004 NASA Hubble Fellow, University of Chicago, Chicago, IL
- 1998-2001 Bart J. Bok Fellow, University of Arizona, Tucson, AZ

## Education

- June 1998 Ph.D. In Physics, Harvard University, Cambridge, MA  
title: "Using Gravitational Lenses to Study Galaxies and Cosmology"  
supervisor: Christopher Kochanek
- May 1994 B.A. In Physics, *Summa Cum Laude*, Cornell University, Ithaca, NY

## Awards

- 2007 Rutgers Society of Physics Students Outstanding Teacher Award
- 2009 Presidential Early Career Award for Scientists and Engineers (PECASE)

## Teaching

	Course Title	Enrollment	Evaluation Responses	Teaching Effectiveness		Course Quality	
				Instructor	Dept. Mean	Instructor	Dept. Mean
S09	Honors Seminar	9	8	5.00	4.58	4.88	4.06
F08	sabbatical						
S08	Princ. Astroph. (II)	47	28	4.75	4.29	4.61	4.18
F07	Princ. Astroph. (I)	45	34	4.94	4.64	4.76	4.47
S07	Princ. Astroph. (II)	40	29	4.86	4.00	4.72	3.92
F06	Princ. Astroph. (I)	47	36	4.95	4.26	4.73	4.09
S06	Princ. Astroph. (II)	35	21	4.88	4.19	4.64	4.03
F05	Princ. Astroph. (I)	25	18	4.78	4.36	4.55	4.20
S05	Galaxies and	8 <sup>†</sup>	7	4.50	4.11	4.50	3.93
	The Milky Way	4 <sup>‡</sup>	3	5.00	4.38	5.00	4.33

Student evaluations are on a scale of 1 (worst) to 5 (best).

"Princ. Astroph." denotes the two-semester advanced undergraduate course "Principles of Astrophysics."  
The interdisciplinary Honors Seminar in S09 was titled "The Preposterous Universe."

Cross-listed course: <sup>†</sup> Undergraduate enrollment, <sup>‡</sup> Graduate enrollment

### **Doctoral Theses Supervised**

- current Eve LoCastro, 1<sup>st</sup> year student
- current Ross Fadely, 5<sup>th</sup> year student
- March 2008 Arthur Congdon, “Probing Small-Scale Structure in Galaxies with Strong Gravitational Lensing”  
*Art is now a NASA-funded postdoc at the Jet Propulsion Laboratory in Pasadena, CA.*
- April 2006 Gregory Dobler, “Finite Source Gravitational Lensing: Theory and Applications”  
*Greg was a student at the University of Pennsylvania, but I was his primary research advisor. He is now a postdoc at the Harvard-Smithsonian Center for Astrophysics in Cambridge, MA.*

### **Master's Theses Supervised**

- October 2008 Matthew Klimek, “Parametrized Post-Newtonian Coefficients for Brans-Dicke Gravity with d+1 Dimensions”  
*Matthew's thesis was published as a peer-reviewed article in the journal Classical and Quantum Gravity.*
- July 2006 Attila Cangi, “A Detailed Study of the Gravitational Lens PG 1115+080”

### **Membership on Doctoral Thesis Committees**

- current Riccardo Sanchez
- April 2008 Sergio Lukic, “Geometric Features of String Theory at Low-Energy”
- May 2006 Hua Yao, “Unoccupied Electronic Structure and CO Chemisorption Properties of Ultrathin Ni Films on Cu(100)”

### **Membership on Master's Thesis Committees**

- Sept 2006 Sukbum Hong, “Fabry-Perot Observations of the Globular Cluster M28 (NGC 6626)”

## **Undergraduate Research Projects Supervised**

2009-present Brandi Bernoskie

2009-present Brett Salmon

2006-present Jennifer van Saders, “Galaxy Shapes and Gravitational Lensing”

*Jen received the Richard T. Weidner Prize from the Department of Physics & Astronomy, and the Henry Rutgers Scholars Award from the Rutgers SAS Honors Program. She will enter the Ph.D. program in astronomy at The Ohio State University in Fall 2009.*

2008-present Amanda Hood, “Gravitational Lens Modeling with Objective Priors”

*Amanda will enter the Ph.D. program in applied math at Cornell University in Fall 2009.*

2008-present Adam Tomczak, “Gravitationally Lensed CO Emission in the Eight O’Clock Arc” (joint supervision with Prof. Andrew Baker)

*Adam will enter the Ph.D. program in astronomy at Texas A&M University in Fall 2009.*

2007-2008 Jonathan Faiwieszewski, “The Search for Dark Matter: Gravitational Lensing and the Central Limit Theorem”

*Jonathan is now in medical school at UMDNJ in Newark.*

2005 Ian Boyle, “Gravitational Lensing Tutorial”

*Ian is now a program and project manager at Merrill Lynch.*

## **Mentorship**

Rutgers School of Arts and Science Honors Program mentees:

2008-present Jude Busarello  
Ariana Hackenburg  
Alexander Lewis

2007-2008 Joshua Cooper  
Meryl William

## **Invited Conference Presentations**

- 7/2009 “TBD”  
Shedding Light on the Nature of Dark Matter, Keck Institute for Space Studies, Caltech/JPL, Pasadena, CA
- 6/23/2009 “A Multi-Messenger Approach to Substructure Lensing”  
Strong Gravitational Lensing in the Next Decade, Cogne, Italy
- 12/17/2008 “Astrophysical Applications of Stochastic Lensing”  
Workshop on Probability and its Lensing Applications, Petters Research Institute, Dangriga, Belize
- 10/31/2008 “Lensing Constraints on Dark Matter Substructure in Galaxies”  
Tri-State Astronomy Conference (CT/NJ/NY), City University of New York, NY
- 8/20/2008 “Lensing Constraints on Dark Matter Substructure in Galaxies”  
Identification of Dark Matter 2008, Alba Nova, Stockholm, Sweden
- 6/14/2007 “Strong Lensing and Cosmology”  
Plenary talk, Searching for Strong Lenses in Large Imaging Surveys, Fermilab, Batavia, IL
- 3/30/2007 “Parametric Lens Modeling”  
School on Gravitational Lens Modeling, University of Valencia, Spain
- 1/22/2007 “Tests of Braneworld Gravity with Lensing”  
Rethinking Gravity: From the Planck Scale to the Size of the Universe, University of Arizona
- 1/10/2007 “Probing Dark Matter with Gravitational Lensing”  
Geometric and Stochastic Lensing Workshop: Applications to Black Holes and Dark Matter, Petters Research Institute, Dangriga, Belize
- 10/5/2006 “Cosmology with Strong Lensing” (invited review)  
Astrophysical Applications of Gravitational Lensing, Kavli Institute of Theoretical Physics, University of California at Santa Barbara
- 1/25/2006 “Stochastic Gravitational Lensing and the Nature of Dark Matter”  
Astrostatistics Workshop, Statistical and Applied Mathematical Sciences Institute
- 10/24/2005 “A General Theory of Gravitational Lensing with Stochastic Substructure,” MKI Workshop on Dark Matter Substructure, Massachusetts Institute of Technology

11/8/2004 “The Importance of Lens Galaxy Environments”  
Workshop on Gravitational Lensing, Institute for Advanced Study

**Invited Colloquia and Seminars**

11/20/2008 “Gravitational Lensing with Stochastic Substructure”  
Astrophysics Seminar, Institute for Advanced Study

9/29/2008 “Lensing Constraints on Dark Matter Substructure in Galaxies”  
Astrophysics/High-Energy Physics Seminar, Physics Department,  
University of Michigan

3/18/2008 “A New Channel for Detecting Dark Matter Substructure in Galaxies”  
Seminar, Center of Cosmology and AstroParticle Physics, Ohio State  
University

10/18/2007 “A New Channel for Detecting Dark Matter Substructure in Galaxies”  
Cosmology Seminar, Physics Department, UC Davis

4/27/2007 “Probing Dark Matter and Gravity with Gravitational Lensing”  
Astrophysics & Space Sciences Section, Jet Propulsion Laboratory

3/13/2007 “Testing Theories of Gravity with Black Hole Lensing”  
Astrophysics Division Colloquium, Goddard Space Flight Center

12/4/2006 “Probing Dark Matter and Gravity with Gravitational Lensing”  
Astrophysics Seminar, Physics Department, Duke University

10/18/2006 “Testing Theories of Gravity with Black Hole Lensing”  
Astronomy Department Colloquium, University of Maryland

9/15/2006 “Probing Dark Matter and Gravity with Gravitational Lensing”  
Physics Department Colloquium, University of Louisville

4/24/2006 “Studying Galactic Substructure with Gravitational Lensing”  
Physics Dept. Colloquium, Queens College, City University of New York

4/20/2006 “Testing Theories of Gravity with Lensing by Compact Objects”  
Astronomy Department Colloquium, Harvard-Smithsonian Center for  
Astrophysics

3/7/2005 “On Finding Lenses with Anomalous Flux Ratios”  
Gravitational Lensing Seminar, Princeton University

- 11/3/2004 “The Importance of Lens Galaxy Environments”  
Astronomy Department Colloquium, Columbia University
- 10/27/2004 “Gravitational Lensing and Galactic Substructure”  
Theoretical Astrophysics Seminar, University of Illinois at Urbana-Champaign
- 10/26/2004 “The Importance of Lens Galaxy Environments”  
Astronomy Department Colloquium, University of Illinois at Urbana-Champaign
- 10/21/2004 “Gravitational Lensing and Galactic Substructure”  
Physics Department Colloquium, Lehigh University
- 9/28/2004 “Do Lens Galaxies Contain Substructure?”  
Joint Tufts/CfA/MIT Cosmology Seminar, Harvard-Smithsonian Center for Astrophysics
- 9/8/2004 “Do Lens Galaxies Contain Substructure?”  
Astrophysics Seminar, University of Pennsylvania

### **Other Scholarly Presentations**

- 6/11/2009 “Gravitational Lensing and the Nature of Dark Matter”  
Astrophysics REU program, Rutgers
- 1/6/2009 “LSST Strong Lensing: Galaxies and Their Nuclei Under a Gravitational Microscope”  
Poster presentation, 213<sup>th</sup> meeting of the American Astronomical Society
- 11/24/2008 “Gravitational Lensing with Stochastic Substructure”  
Monday Astronomy Research Seminar, Rutgers
- 11/5/2007 “A New Channel for Detecting Dark Matter Substructure in Galaxies”  
Monday Astronomy Research Seminar, Rutgers
- 10/16/2006 “Testing Theories of Gravity with Black Hole Lensing”  
Monday Astronomy Research Seminar, Rutgers
- 7/25/2006 “Testing Theories of Gravity with Lensing by Compact Objects”  
Eleventh Marcel Grossmann Meeting on General Relativity, Freie Universitaet, Berlin, Germany
- 3/21/2006 “Gravitational Lensing: Mother Nature's Telescope”  
Rutgers Seminar in Physics

- 10/4/2004 "Do Lens Galaxies Contain Substructure?"  
Monday Astronomy Research Seminar, Rutgers
- 9/28/2004 "A Lens and a Mirror: Gravitational Lensing and SALT"  
Rutgers Seminar in Physics

### **Outreach Presentations**

- Fall 2009 Guest lecturer, US Coast Guard Academy
- 6/18/2009 "A Ray of Light in a Sea of Dark (Matter)"  
Lecture to Concordia Astronomy Club
- 6/2/2009 Kindergarten class, James Monroe School, Edison, NJ
- 10/10/2008 "A Ray of Light in a Sea of Dark (Matter)"  
Lecture to New Jersey Mensa Society
- 2/15/2008 "A Ray of Light in a Sea of Dark (Matter)"  
Public lecture, Amateur Astronomers, Inc., Union County College,  
Cranford, NJ
- 8/25/2007 "Black Holes and the 5<sup>th</sup> Dimension"  
Public lecture, New Jersey Astronomical Association, High Bridge, NJ
- 4/21/2007 "Black Holes and the 5<sup>th</sup> Dimension"  
Public lecture, Bergen Community College, Paramus, NJ
- 4/18/2007 "Testing Gravity with Black Hole Lensing"  
Rutgers University Society of Physics Students
- 9/14/2006 "Black Holes and the 5<sup>th</sup> Dimension"  
Public lecture, Rauch Planetarium, Louisville, KY
- 3/17/2005 "Chasing the Elusive Dark Matter with Gravitational Lensing"  
Lecture to Concordia Astronomy Club

### **Telescope Observing**

(Programs with myself or my students as PI.)

2009: CoI, Gemini Observing Program

"Testing CDM with Substructure Gravitational Lensing"

Awarded 2 nights with the Gemini North 8-meter telescope in Hawaii. The PI is my

graduate student Ross Fadely.

2008: CoI, Spitzer Space Telescope Observing Program

“A Spitzer Search for Substructure: Flux Ratios in Unique Lenses”

The telescope time was approved and scheduled for May 15, 2009. Unfortunately, the cryogenic coolant ran out 25 minutes before the observations were to begin, so our program could not be executed. The PI is my graduate student Ross Fadely.

2008: PI, Hubble Space Telescope Observing Program

“Microlensing of the Broad Line Region in the Most Anomalous Lensed Quasar”

Awarded 4 orbits of HST observing time with the High Resolution Channel of the Advanced Camera for Surveys. Since the attempted HRC repair was not successful, we are examining options for using a different instrument.

2008: CoI, Gemini Observing Program

“A Gemini Search for Dark Matter Substructure”

Awarded 10.7 hours of queue observing time with the Gemini North 8-meter telescope in Hawaii. The PI is my graduate student Ross Fadely.

2005: PI, Hubble Space Telescope Observing Program

“A Last Look at the First Gravitational Lens”

Awarded 16 orbits of HST observing time.

### **External Grants**

Submitted

1/1/2010 – 8/31/2013, \$402568

PI, NASA Origins of Solar Systems Program

“Detecting Extrasolar Kuiper Belts Using Gravitational Microlensing”

Pending

PI, Hubble Space Telescope Observing Program

“Microlensing of the Broad Line Region in the Most Anomalous Lensed Quasar”

The telescope time (4 orbits) and associated funding (\$28,354) have been approved, but we need to find an alternate instrument to use (see above). The funding period will run for two years following the observations.

Awarded

7/1/2008 – 6/30/2013, \$587,257

PI, National Science Foundation CAREER award

“CAREER: A New Frontier in Dark Matter Substructure Studies”

9/1/2007 – 8/31/2009, \$55,613  
PI, Hubble Space Telescope Archive/Theory Program  
“Galaxy Shapes and Gravitational Lensing”

10/1/2005 – 9/30/2008, \$117,953 (\$93,212 to Rutgers)  
PI, Hubble Space Telescope Observing Program  
“A Last Look at the First Gravitational Lens”

8/1/2005 – 7/31/2007, \$90,987 (\$38,197 to Rutgers)  
PI, Hubble Space Telescope Archive/Theory Program  
“The Theory of Multiscale Gravitational Lensing”

### Service

*Contributions to the academic profession.*

2001-present Author of the “gravlens/lensmodel” software package. I have made this software freely available as a service to the community. The software is widely used in both student training and active research. It has been used in more than 60 research publications by other research groups. I maintain the software, including frequent upgrades, provide extensive documentation, and answer questions from trainees and users.

2004-present Referee for The Astrophysical Journal, The Astronomical Journal, Classical & Quantum Gravity, General Relativity and Gravitation, Il Nuovo Cimento B, Monthly Notices of the Royal Astronomical Society, New Journal of Physics, and Physical Review D.

2009 Panelist for peer review of NSF Astronomy & Astrophysics research grants. The six-member panel reviewed 26 grant proposals; I submitted written reviews or panel summaries for 13 of the proposals.

2009 Peer reviewer for the City University of New York's Research Award Program (twice).

2009 Peer assessor for Research Fellowship Competition at St. John's College, Cambridge.

2008 Panelist for peer review of NSF Astronomy & Astrophysics research grants. The six-member panel reviewed 20 grant proposals; I submitted written reviews or panel summaries for 10 of the proposals.

2008 Peer reviewer for US Department of Energy Dark Energy research grants.

2007 Peer reviewer for European Young Investigator Awards program.

- 2004 Panelist for Hubble Space Telescope Time Allocation Committee.
- 2006-present Member of the Scientific Advisory Board for the Petters Research Institute, in Belize.
- 2005-2007 Member of the scientific organizing committee for the German/American Frontiers of Science symposium, offered by the U.S. National Academy of Sciences and the German Alexander von Humboldt Foundation. Each summer, GAFOS brings together strong young scientists from a variety of disciplines to learn about forefront research in eight diverse topics. I was invited as a general participant in 2005, and then invited to join the organizing committee for the 2006 and 2007 symposia.

*Contributions to the department and university*

- 2005-present I have written letters of recommendation for 12 graduate and undergraduate students I have worked with as primary or secondary research supervisor.
- 2005-present I have also written letters of recommendation for 15 undergraduate students that I have taught, in support of their applications to summer research programs and/or graduate school.
- 2007-present Faculty mentor for Rutgers School of Arts & Sciences Honors Program.
- 2008-present Faculty representative for SAS Honors Program Scholars Days.
- 2008-present Faculty advisor/evaluator for students applying to the Fulbright Program.

*Service on departmental committees.*

- 2007-2008 Undergraduate Studies Committee  
WWW Committee
- 2006-2007 Undergraduate Studies Committee  
Responsibilities Committee
- 2005-2006 Graduate Recruiting Committee (chair)  
Responsibilities Committee  
Astronomy Faculty Search Committee
- 2004-2005 Astrophysics Seminar Organizer  
Physics Colloquium Committee

Graduate Recruiting Committee  
Astronomy Faculty Search Committee

*Contributions to society at large.*

In 2006, my research on gravitational lensing by small black holes and prospects for determining whether space has a fourth dimension received broad media coverage. Articles about the work appeared in MSNBC.com, New Scientist, The San Francisco Chronicle, and many prominent blogs. I was also interviewed for a segment that appeared on National Public Radio.

I continue to be active in giving public lectures to amateur astronomy clubs and other interested organizations. I learned from and was inspired by such events when I was young, and now I enjoy conveying the excitement of our field to the broader community.

## Publications

Citations:	all publications	3348 / 131
	refereed publications	3025 / 76
	first-author refereed publications	1101 / 23

Hirsch index: h=34

### **Refereed Journal Articles: Submitted**

[83] K. Heng & **C. R. Keeton**, “Planetesimal Disk Microlensing,” *The Astrophysical Journal*, submitted; preprint arXiv:0903.5304

[82] A. B. Congdon, **C. R. Keeton** & C. E. Nordgren, “Identifying Anomalies in Gravitational Lens Time Delays,” *The Astrophysical Journal*, submitted

[81] R. Fadely, **C. Keeton**, R. Nakajima & G. Bernstein, “Improved Constraints on the Gravitational Lens Q0957+561. II. Strong Lensing,” *The Astrophysical Journal*, submitted

[80] A. B. Congdon, **C. R. Keeton** & C. E. Nordgren, “Prospects for testing general relativity with lensing by massive black holes,” *Physical Review D*, submitted

### **Refereed Journal Articles: Accepted or In Press**

[79] R. Mandelbaum, G. van de Ven & **C. R. Keeton**, “Galaxy density profiles and shapes -- II. selection biases in strong lensing surveys,” *Monthly Notices of the Royal Astronomical Society*, in press; preprint arXiv:0808.2497

[78] G. van de Ven, R. Mandelbaum & **C. R. Keeton**, “Galaxy density profiles and shapes -- I. simulation pipeline for lensing by realistic galaxy models,” *Monthly Notices of the Royal Astronomical Society*, in press; preprint arXiv:0808.2493

[77] R. Perna & **C. R. Keeton**, “Gravitational Lensing of Anisotropic Sources,” *Monthly Notices of the Royal Astronomical Society*, in press; preprint arXiv:0904.3935

[76] C. D. Fassnacht, **C. R. Keeton** & D. Khavinson, “Gravitational Lensing by Elliptical Galaxies, and the Schwarz Function,” *New Trends in Complex and Harmonic Analysis*, in press; preprint arXiv:0708.2684

### **Refereed Journal Articles: Published**

[75] **C. R. Keeton** & L. Moustakas, “A New Channel for Detecting Dark Matter Substructure in Galaxies: Gravitational Lens Time Delays,” *The Astrophysical Journal*, 699, 1720 (2009)

- [74] R. Nakajima, G. Bernstein, R. Fadely, **C. Keeton** & T. Schrabback, “Improved Constraints on the Gravitational Lens Q0957+561. I. Weak Lensing,” *The Astrophysical Journal*, 697, 1793 (2009)
- [73] R. E. Ryan Jr., S. H. Cohen, R. A. Windhorst, **C. R. Keeton**, & T. J. Veach, “Is the Optically Unidentified Radio Source FIRST J121839.7+295325 a Dark Lens?” *The Astrophysical Journal*, 688:43 (2008)
- [72] E. Rozo, D. Nagai, **C. R. Keeton** & A. Kravtsov, “The Impact of Baryonic Cooling on Giant Arc Abundances,” *The Astrophysical Journal*, 687:22 (2008)
- [71] A. B. Congdon, **C. R. Keeton** & C. E. Nordgren, “Analytic Relations for Magnifications and Time Delays in Gravitational Lenses with Fold and Cusp Configurations,” *Monthly Notices of the Royal Astronomical Society*, 389:398 (2008)
- [70] G. Dobler, **C. R. Keeton**, A. Bolton & S. Burles, “Lensing Probabilities for Spectroscopically Selected Galaxy-Galaxy Strong Lenses,” *The Astrophysical Journal*, 685:57 (2008)
- [69] K. S. Virbhadra & **C. R. Keeton**, “Time delay and magnification centroid due to gravitational lensing by black holes and naked singularities,” *Physical Review D*, 77:124014 (2008)
- [68] M. Oguri, N. Inada, M. A. Strauss, C. S. Kochanek, G. T. Richards, D. P. Schneider, R. H. Becker, M. Fukugita, M. D. Gregg, P. B. Hall, J. F. Hennawi, D. E. Johnston, I. Kayo, **C. R. Keeton**, B. Pindor, M.-S. Shin, E. L. Turner, R. L. White, D. G. York, S. F. Anderson, N. A. Bahcall, R. J. Brunner, S. Burles, F. J. Castander, K. Chiu, A. Clocchiatti, D. Eisenstein, J. A. Frieman, Y. Kawano, R. Lupton, T. Morokuma, H.-W. Rix, R. Scranton & E. S. Sheldon, “The Sloan Digital Sky Survey Quasar Lens Search. III. Constraints on Dark Energy from the Third Data Release Quasar Lens Catalog,” *The Astronomical Journal*, 135:512 (2008)
- [67] N. Inada, M. Oguri, R. H. Becker, M.-S. Shin, G. T. Richards, J. F. Hennawi, R. L. White, B. Pindor, M. A. Strauss, C. S. Kochanek, D. E. Johnston, M. D. Gregg, I. Kayo, D. Eisenstein, P. B. Hall, F. J. Castander, A. Clocchiatti, S. A. Anderson, D. P. Schneider, D. G. York, R. Lupton, K. Chiu, Y. Kawano, R. Scranton, J. Frieman, **C. R. Keeton**, T. Morokuma, H.-W. Rix, E. L. Turner, S. Burles, R. J. Brunner, E. S. Sheldon, N. A. Bahcall & M. Fukugita, “The Sloan Digital Sky Survey Quasar Lens Search. II. Statistical Lens Sample from the Third Data Release,” *The Astronomical Journal*, 135:496 (2008)
- [66] J. Fohlmeister, C. S. Kochanek, E. E. Falco, J. Wambsganss, N. Morgan, C. W. Morgan, E. O. Ofek, D. Maoz, **C. R. Keeton**, J. C. Barentine, G. Dalton, J. Dembicky, W. Ketzeback, R. McMillan & C. S. Peters, “A Time Delay for the Cluster-Lensed Quasar SDSS J1004+4112,” *The Astrophysical Journal*, 662:62 (2007)

- [65] G. Dobler, **C. R. Keeton** & J. Wambsganss, "Microlensing of Central Images in Strong Gravitational Lens Systems," *Monthly Notices of the Royal Astronomical Society*, 377:977 (2007)
- [64] A. B. Congdon, **C. R. Keeton** & S. J. Osmer, "Microlensing of an Extended Source by a Power-Law Mass Distribution," *Monthly Notices of the Royal Astronomical Society*, 376:263 (2007)
- [63] G. Dobler & **C. R. Keeton**, "Microlensing of Lensed Supernovae," *The Astrophysical Journal*, 653:1391 (2006)
- [62] C. Y. Peng, C. D. Impey, H.-W. Rix, E. E. Falco, **C. R. Keeton**, C. S. Kochanek, J. Lehar & B. A. McLeod, "Lensed Quasar Hosts," *New Astronomy Reviews*, 50:689 (2006)
- [61] C. Y. Peng, C. D. Impey, H.-W. Rix, C. S. Kochanek, **C. R. Keeton**, E. E. Falco, J. Lehar & B. A. McLeod, "Probing the Coevolution of Supermassive Black Holes and Galaxies using Gravitationally Lensed Quasar Hosts," *The Astrophysical Journal*, 649:616 (2006)
- [60] N. Ota, N. Inada, M. Oguri, K. Mitsuda, G. T. Richards, Y. Suto, W. N. Brandt, F. J. Castander, R. Fujimoto, P. B. Hall, **C. R. Keeton**, R. C. Nichol, D. P. Schneider, D. E. Eisenstein, J. A. Frieman & E. L. Turner, "Chandra Observations of SDSS J1004+4112: Constraints on the Lensing Cluster and Anomalous X-Ray Flux Ratios of the Quadruply Imaged Quasar," *The Astrophysical Journal*, 647:215 (2006)
- [59] K. Williams, I. Momcheva, **C. R. Keeton**, A. I. Zabludoff & J. Lehar, "First Results from a Photometric Survey of Strong Gravitational Lens Environments," *The Astrophysical Journal*, 646:85 (2006); erratum, *The Astrophysical Journal*, 672:733 (2008)
- [58] **C. R. Keeton** & A. O. Petters, "Formalism for Testing Theories of Gravity Using Gravitational Lensing by Compact Objects. III: Braneworld Gravity," *Physical Review D*, 73:104032 (2006)
- [57] I. Momcheva, K. Williams, **C. R. Keeton** & A. I. Zabludoff, "A Spectroscopic Study of the Environments of Gravitational Lens Galaxies," *The Astrophysical Journal*, 641:169 (2006)
- [56] **C. R. Keeton** & A. O. Petters, "Formalism for Testing Theories of Gravity Using Gravitational Lensing by Compact Objects. II: Probing Post-Post-Newtonian Metrics," *Physical Review D*, 73:044024 (2006)
- [55] **C. R. Keeton**, S. Burles, P. L. Schechter & J. Wambsganss, "Differential Microlensing of the Continuum and Broad Emission Lines in SDSS J0924+0219, the Most Anomalous Lensed Quasar," *The Astrophysical Journal*, 639:1 (2006)

- [54] G. Dobler & **C. R. Keeton**, “Finite Source Effects in Strong Lensing: Implications for the Substructure Mass Scale,” *Monthly Notices of the Royal Astronomical Society*, 365:1243 (2006)
- [53] A. Congdon & **C. R. Keeton**, “Multipole Models of Four-Image Gravitational Lenses with Anomalous Flux Ratios,” *Monthly Notices of the Royal Astronomical Society*, 364:1459 (2005)
- [52] M. Oguri, **C. R. Keeton** & N. Dalal, “The Impact of Lens Galaxy Environments on the Image Separation Distribution,” *Monthly Notices of the Royal Astronomical Society*, 364:1451 (2005)
- [51] **C. R. Keeton**, B. S. Gaudi & A. O. Petters, “Identifying Lenses with Small-Scale Structure. II. Fold Lenses,” *The Astrophysical Journal*, 635:35 (2005)
- [50] **C. R. Keeton** & A. O. Petters, “Formalism for Testing Theories of Gravity Using Gravitational Lensing by Compact Objects. I: Static, Spherically Symmetric Case,” *Physical Review D*, 72:104006 (2005)
- [49] D. Rusin, **C. R. Keeton** & J. N. Winn, “Measuring Supermassive Black Holes in Distant Galaxies with Central Lensed Images,” *The Astrophysical Journal Letters*, 627:L93 (2005)
- [48] N. Inada, M. Oguri, **C. R. Keeton**, et al., “Discovery of a Fifth Image of the Large Separation Gravitationally Lensed Quasar SDSS J1004+4112,” *Publications of the Astronomical Society of Japan*, 57:L7 (2005)
- [47] D. Huterer, **C. R. Keeton** & C.-P. Ma, “Effects of Ellipticity and Shear on Gravitational Lens Statistics,” *The Astrophysical Journal*, 624:34 (2005)
- [46] J. L. Mitchell, **C. R. Keeton**, J. A. Frieman & R. K. Sheth, “Improved Cosmological Constraints from Gravitational Lens Statistics,” *The Astrophysical Journal*, 622:81 (2005)
- [45] **C. R. Keeton**, M. Kuhlen & Z. Haiman, “Gravitational Lensing Magnification Without Multiple Imaging,” *The Astrophysical Journal*, 621:559 (2005)
- [44] **C. R. Keeton** & A. I. Zabludoff, “The Importance of Lens Galaxy Environments,” *The Astrophysical Journal*, 612:660 (2004)
- [43] G. T. Richards, **C. R. Keeton**, et al., “Microlensing of the Broad Emission Line Region in the Quadruple Lens SDSS J1004+4112,” *The Astrophysical Journal*, 610:679 (2004)
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