

# Mark C. Wyman

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## CONTACT INFORMATION

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## EDUCATION

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**Cornell University**, Ithaca, New York, USA  
Ph.D. Physics. Advisor: Ira Wasserman 2006

**McNeese State University**, Lake Charles, Louisiana USA  
B.S. Physics, B.S. Mathematics, B.A. English Literature 2000

## PROFESSIONAL EXPERIENCE

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**James Arthur Postdoctoral Fellow** at New York University. 2013 - present

**Postdoctoral Scholar** at the University of Chicago. 2010 - 2013

**Postdoctoral Fellow** at the Perimeter Institute for Theoretical Physics. 2006 - 2010

## SELECTED HONORS AND AWARDS

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[Compton Lecturer](#), Enrico Fermi Institute Fall 2011

NASA Graduate Student Research Fellowship 2005

National Science Foundation Graduate Research Fellowship 2002

Phi Kappa Phi Graduate Fellowship 2000

McNeese State University, graduated *Summa Cum Laude*, Phi Kappa Phi 2000

## SELECTED PUBLICATIONS

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M. Wyman, D. H. Rudd, R. A. Vanderveld, and W. Hu,  $\nu$ LCDM: Neutrinos help reconcile Planck with the Local Universe, *accepted in Physical Review Letters*, [arXiv:1307.7715](#) 18 *INSPIRE* cites

SEE ALSO:  
[ARXIV.ORG](#)  
[INSPIRE](#)  
[ADS](#)

P. Gratia, W. Hu, and M. Wyman, Self-accelerating Massive Gravity: Exact solutions for any isotropic matter distribution. *Physical Review* **D86** (2012) 061504(R), [arXiv:1205.4241](#) 54 *INSPIRE* cites

P. Adshead and M. Wyman, Chromo-Natural Inflation: Natural inflation on a steep potential with classical non-Abelian gauge fields. *Physical Review Letters* **108** (2012) 261302, [arXiv:1202.2366](#) 32 *INSPIRE* cites

M. Wyman, Galilean-invariant scalar fields can strengthen gravitational lensing. *Physical Review Letters* 106 (2011) 201102. [arXiv:1101.1295](#) 44 *INSPIRE* cites

A. Tolley and M. Wyman, Equilateral non-Gaussianity from multi-field field dynamics. *Physical Review* **D81** (2010) 043502, [arXiv:0910.1853 \[hep-th\]](#). 56 *INSPIRE* cites

J. Khoury and M. Wyman, N-Body Simulations of DGP and Degravitation Theories, *Phys. Rev.* **D80** (2009) 064023, [arXiv:0903.1292 \[astro-ph.CO\]](#). 64 *INSPIRE* cites

M. Wyman, L. Pogosian, and I. Wasserman, Bounds on Cosmic Strings from WMAP and SDSS, *Phys. Rev.* **D72** (2005) 023513, [astro-ph/0503364](#). 136 *INSPIRE* cites

## SERVICE

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Referee, NASA Theory, NSF Theory, *Physical Review D*, *Physical Review Letters*, *Journal of Cosmology and Astroparticle Physics*, *The Astrophysical Journal*, *Physics Letters B*, *General Relativity and Gravitation*, *European Physical Journal C*.

*Mark Wyman - CV* 2/4  
 Organizer of weekly “Big Bang Smackdown” for discussing cosmology, Chicago. 2010 - 2013  
 Local organizing committee, SUSY11, Chicago and Fermilab. 2011  
 International organizer, APCTP program “String Theory and Cosmology.” 2009 - 2011  
 Organized workshop, *Fundamental Physics and Large Scale Structure*, Perimeter. 2010  
 Chair of IT policy committee & Researcher IT rep., Perimeter Institute. 2007 - 2010  
 Member of theory working group, CMBPol mission planning team. 2008  
 Organized workshop, *The Astrophysics of Near-Term Cosmological Observations*. PI. 2007  
 Cosmology seminar series organizer. Perimeter Institute. 2007 - 2008

STUDENTS  
 SUPERVISED

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Pierre Gratia, University of Chicago graduate student.  
 Study of massive gravity, four papers so far (with W. Hu) 2011- 2013

Cora Dvorkin, University of Chicago graduate student.  
 I initiated a project on cosmic strings that lead to a paper (with W. Hu) 2011

Youngsoo Park, University of Chicago graduate student.  
 Research on gravitational lensing 2010 -

Hillary Child, Kenyon College undergraduate student.  
 Co-supervised her Senior Research Thesis at Kenyon. (With J.T. Giblin) 2012

Adam Bognat, Mike Lazarides undergraduate scholarship recipient, University of Waterloo.  
 Supervised summer project and senior research thesis 2009 - 2010

TEACHING

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**University of Waterloo / Perimeter Institute**, Waterloo, Ontario, Canada  
*Co-head instructor* Fall 2008  
 Created a new senior-graduate course, “[Cosmology and Astrophysics through Problems](#)”  
 with one other postdoc. Goal: introduction to modern research through classic problems.

**Cornell University**, Ithaca, New York USA  
*Part Time Graduate Teaching Assistant* January 2003 - December 2005  
 Taught undergraduate quantum mechanics, electromagnetism, and high-energy physics  
 for majors; conceptual physics for non-science majors; and graduate level cosmology.

*Writing in the Majors Graduate Seminar, Assistant Instructor* August - November 2002  
 Seminar for teaching assistants working in the John S. Knight “Writing in the Majors”  
 program. Duties included leading discussions and contributing to class planning.

*Full Time Graduate Teaching Assistant* August 2000 - May 2002  
 Taught introductory physics for non-majors and an astronomy majors’ sophomore sem-  
 inar associated with the John. S. Knight “Writing in the Majors” program.

SELECTED  
 CONFERENCE  
 PRESENTATIONS

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Invited talk, “Chromo-Natural Inflation,”  
 Cosmology after Planck, University of Michigan. 2013

Invited Plenary talk, “Inflation from Magnetic Drift,”  
 Workshop on Cosmic Acceleration, Carnegie Mellon University. 2012

<i>Mark Wyman - CV</i>	3/4
Invited talks, “Bulk flows” and “Gravitational lensing in massive gravity,” Gravity Workshop, Case Western Reserve University.	2011
Contributed talk, “Degravitaton: the N-body simulations,” Cosmo ‘09. CERN.	2009
Invited talk, “Stochastic tunneling in DBI inflation,” PI / CITA day.	2008
Lecture on Large Scale Structure, Summer School on Particle Physics, Cosmology and Strings, Perimeter Institute.	2007
Contributed talk, “Magnetogenesis,” Cosmo ‘07 Conference. Brighton, UK.	2007
Plenary talk, “Cosmic string limits from WMAP and SDSS,” Fundamental strings & cosmic strings. Paris, France.	2005

INVITED  
PRESENTATIONS  
(SINCE 2007)

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<b>Inflation from Magnetic Drift</b>	
University of California, Riverside (Colloquium).	2013
Columbia University, Stanford University; Perimeter Institute; University of Wisconsin, Milwaukee; Arizona State University.	2012-2013
<b>Gravity’s Dark Side</b>	
University of California, Berkeley; University of Illinois, Urbana-Champaign.	2012
<b>Modifying gravitational lensing with a massive graviton</b>	
CERN; University of Geneva; University of Pennsylvania; Canadian Institute for Theoretical Astrophysics (CITA); Case Western Reserve University.	2011
<b>The Gelaton Scenario</b>	
Canadian Institute for Theoretical Astrophysics (CITA).	2010
<b>Enhanced Peculiar Velocities in Brane-Induced Gravity</b>	
New York University.	2010
<b>N-body simulations of DGP and Degravitaton</b>	
DAMTP at the University of Cambridge; Simon Fraser University; CITA.	2008
<b>Beyond Vanilla Cosmology (Colloquium)</b>	
Physics department colloquium. University of Wisconsin, Milwaukee.	2009
Physics department colloquium. Royal Military College of Canada.	2008
Astronomy department colloquium. Cornell University.	2008
<b>Stochastic Inflation Revisited</b>	
Princeton University; University of Pennsylvania; University of Delaware; Columbia University; Syracuse University.	2007-8
<b>Cosmic strings: B-modes, magnetic field generation, and WMAP limits</b>	
Kavli Institute for Cosmological Physics at the University of Chicago; Fermilab; McGill University; University of Pennsylvania.	2008-9

OUTREACH

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<b>Compton Lecturer</b> , Enrico Fermi Institute at the University of Chicago.	Fall 2011
Invited semester-length series of lectures delivered to a large (100+) public audience on subject matter relating to current scientific research. Series ongoing since 1976.	

**Keynote presenter**, International Summer School for Young Physicists at PI. 2008-2009  
Invited to present two keynote presentations describing modern cosmology. Program hosts 100+ talented international secondary students interested in physics.

**Consultant / adviser**, instructional video on dark matter for high school students. 2007  
Collaboration with Perimeter Institute outreach coordinator Damian Pope. Finished video, with accompanying materials, distributed to high schools across Canada.

**Applied for and co-organized** FQXi Brown Bag Lunch Program on the topic of “Cosmology and Human Purpose.” Cornell University. 2005  
Interdisciplinary discussions on how modern cosmological discoveries impact the view of humankind on its place in the universe. My report won \$5000 prize.

**Public Lecturer** on Cosmology. Hosted by the McNeese Honors College. 2005  
Public lecture on modern cosmology; talk was advertised in local newspaper.

POPULAR MEDIA  
COVERAGE

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Cosmic ‘egg-beaters’ may have left magnetic legacy, New Scientist. September 2007

OTHER

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**Computation:** C++, FORTRAN, OpenMP, Mathematica  
**Languages:** French (intermediate), Korean, Latin (basic)

REFERENCES

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Prof. Ira Wasserman ira@astro.cornell.edu +1 (607) 255-5867	Prof. Henry Tye tye.henry@gmail.com +1 (607) 255-3360	Prof. Edward W. Kolb ekolb@uchicago.edu +1 (773) 702-7950
Prof. Justin Khoury jkhoury@sas.upenn.edu +1 (215) 573-7152	Prof. Emil Martinec ejmartin@uchicago.edu +1 (773) 702-7118	Prof. Wayne Hu whu@background.uchicago.edu +1 (773) 702-0160
Prof. Gregory Gabadadze gg32@nyu.edu +1 (212) 998-7724		