

Mark C. Wyman

CONTACT INFORMATION

University of Chicago
Dept. of Astronomy and Astrophysics
5640 S. Ellis Ave.
Chicago, IL 60637 USA

Tel: (773) 702-4879
Fax: (773) 834-0744
E-mail: markwy@oddjob.uchicago.edu
internet: www.markewyman.com

EDUCATION

Cornell University, Ithaca, New York, USA

Ph.D. Physics. Advisor: Ira Wasserman 2006
“Cosmic superstrings: Observable remnants of brane inflation.”

McNeese State University, Lake Charles, Louisiana USA

B.S. Physics, B.S. Mathematics, B.A. English Literature 2000

PROFESSIONAL EXPERIENCE

Postdoctoral Scholar at the University of Chicago. 2010 - present

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

SELECTED HONORS AND AWARDS

NASA Graduate Student Research Fellowship 2005

Cornell Physics Department Boochever Prize 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

M. Wyman, Galilean-invariant scalar fields can strengthen gravitational lensing.
Physical Review Letters 106 (2011) 201102. arXiv:1101.1295 *7 SPIRES cites*

A. Tolley and M. Wyman, Equilateral non-Gaussianity from multi-field field dynamics.
Physical Review **D81** (2010) 043502, arXiv:0910:1853 [hep-th]. *16 SPIRES 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]. *33 SPIRES cites*

A. Tolley and M. Wyman, Stochastic Inflation Revisited, Non-Slow Roll Statistics and
DBI Inflation. JCAP 0804 (2008) 028, arXiv:0801.1854. *16 SPIRES cites*

S.-H. H. Tye, I. Wasserman, and M. Wyman, Scaling of multi-tension cosmic superstring
networks, Phys. Rev. **D71** (2005) 103508, astro-ph/0503506. **SPIRES TOPCITE**

M. Wyman, L. Pogosian, and I. Wasserman, Bounds on Cosmic Strings from WMAP and
SDSS, Phys. Rev. **D72** (2005) 023513, astro-ph/0503364. **TOPCITE 100+**

L. Pogosian, S.-H. H. Tye, I. Wasserman, M. Wyman. Observational Constraints on Cosmic
String Production During Brane Inflation. Phys. Rev. **D68** (2003) 023506,
hep-th/0304188, **SPIRES TOPCITE 100+**

PLANNING AND SERVICE

Referee, NSF Theory Proposals, Physical Review D, Physical Review Letters,
Journal of Cosmology and Astroparticle Physics, The Astrophysical Journal

Organizer of weekly “Big Bang Smackdown” for discussing cosmology, Chicago. 2010 -

International organizer, NIMS-APCTP workshop “String Theory and Cosmology.” 2009 -

Mark Wyman - CV 2/4
 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
 Session convener, Strings and Branes in Cosmology. Cosmo '07. Brighton, UK. 2007

STUDENTS
SUPERVISED

Adam Bognat, Mike Lazarides undergraduate scholarship recipient, University of Waterloo.
 Supervised summer project and senior research thesis 2009 - 2010
 Andrej Stepanchuk, Perimeter undergraduate research program, from Oxford University.
 Supervised summer research project 2009

TEACHING

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 seminar associated with the John. S. Knight "Writing in the Majors" program.
McNeese State University, Lake Charles, Louisiana USA
Undergraduate Teaching Assistant August 1997 - May 2000
 Taught laboratories for introductory physics and remedial mathematics.

CONFERENCE &
SUMMER SCHOOL
PRESENTATIONS

Invited talks, "Bulk flows" and "Gravitational lensing in massive gravity,"
 Gravity Workshop, Case Western Reserve University. 2011
 Contributed talk, "Enhanced Peculiar Velocities in Brane-Induced Gravity",
 CITA@25 / Bond@60, CITA. 2010
 Contributed talk, "Enhanced Peculiar Velocities in Brane-Induced Gravity",
 Great Lakes Cosmology Workshop, KICP. 2010
 Contributed talk, "Degravitation: the N-body simulations," Cosmo '09. CERN. 2009
 Contributed talk, "Cosmic strings looking forward," Challenges in Theoretical Cosmology.
 Tufts Inst. of Cosmology 20th Anniversary. Talloires, France. 2009

<i>Mark Wyman - CV</i>	3/4
Contributed talk, "N-body Simulations of Degravitation and DGP models," Tests of Gravity and Gravitational Physics. Case Western Reserve University.	2009
Invited talk, "Stochastic tunneling in DBI inflation," PI / CITA day.	2008
Contributed talk, "Cosmic strings on trial." PASCOS '08. Perimeter Institute.	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
Invited seminar, "Cosmic string limits from WMAP and SDSS," Fundamental strings & cosmic strings. Paris, France.	2005
Presentation, "Binding strings". Third Syracuse-Cornell Meeting.	2005
Poster, "Cosmic strings as gravity wave sources", Pulsar Timing Array Workshop.	2005
Contributed talk, "Limits on cosmic strings from WMAP and SDSS" Cosmo '04 Conference. Toronto, ON, Canada.	2004

POPULAR MEDIA

Cosmic 'egg-beaters' may have left magnetic legacy, New Scientist.	September 2007
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INVITED

PRESENTATIONS
(SINCE 2007)

Modifying gravitational lensing with a massive graviton	
CERN.	2011
University of Geneva.	2011
University of Pennsylvania.	2011
Canadian Institute for Theoretical Astrophysics / University of Toronto.	2011
Case Western Reserve University.	2011
The Gelaton Scenario	
Canadian Institute for Theoretical Astrophysics / University of Toronto.	2010
Enhanced Peculiar Velocities in Brane-Induced Gravity	
New York University.	2010
N-body simulations of DGP and Degravitation	
University of Cambridge / DAMTP.	2008
Simon Fraser University.	2008
Canadian Institute for Theoretical Astrophysics.	2008
Beyond Vanilla Cosmology	
Physics department colloquium. University of Wisconsin, Milwaukee.	2009
Physics department colloquium. Royal Military College of Canada.	2008
Astronomy department colloquium. Cornell University.	2008
Stochastic Inflation Revisited	
Syracuse University.	2008
University of Pennsylvania.	2007
Princeton University.	2007
University of Delaware.	2007

Mark Wyman - CV 4/4
 Columbia University. 2007

Cosmic strings: B-modes, magnetic field generation, and WMAP limits
 University of Pennsylvania. 2009
 KICP / Chicago. 2008
 Fermilab. 2008
 McGill University. 2008

OUTREACH

Contributor to FQXi popular science blog 2008 - Present

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 and adviser, public installation on cosmology for Canada's SNOLAB. 2009
 Collaboration with other scientists and Sudbury National Observatory's outreach team.

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 Templeton Foundation 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.

Speaker. Cornell Friends of Astronomy Conference. 2004
 Conference held for Cornell Astronomy's public supporters on Astronomy research.

OTHER

Computation: C++, FORTRAN, OpenMP, Mathematica
Languages: French (intermediate), Korean, Latin (basic)
 Piano, pipe organ, choral singing.

REFERENCES

Prof. Ira Wasserman ira@astro.cornell.edu +1 (607) 255-5867	Prof. Henry Tye sht5@cornell.edu +1 (607) 255-3360	Prof. Edward W. Kolb Rocky.Kolb@uchicago.edu +1 (773) 834-0287
Prof. Justin Khoury jkhoury@sas.upenn.edu +1 (215) 573-7152	Prof. Levon Pogolian levon@sfu.ca +1 (778) 782-7598	Prof. Wayne Hu whu@grounddown.uchicago.edu +1 (773) 702-0160