

RISA H. WECHSLER  
*Curriculum Vitae*

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Kavli Institute for Particle Astrophysics & Cosmology  
Department of Physics  
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## Appointments

STANFORD UNIVERSITY Sept 2006 – present  
Assistant Professor  
Department of Physics, School of Humanities and Sciences  
Department of Particle Physics & Astrophysics, SLAC National Accelerator Lab  
Member, Kavli Institute for Particle Astrophysics and Cosmology

UNIVERSITY OF CHICAGO Sept 2003 – Aug 2006  
Hubble Fellow, Astronomy & Astrophysics Department  
Enrico Fermi Fellow, Enrico Fermi Institute  
Institute Fellow, Kavli Institute for Cosmological Physics  
Fellowship Sponsor: Professor A. Kravtsov

UNIVERSITY OF MICHIGAN Sept 2001 – Aug 2003  
Research Fellow, Physics Department  
Postdoctoral Advisor: Professor A. Evrard

## Education

UNIVERSITY OF CALIFORNIA AT SANTA CRUZ Sept 1996 – May 2001  
Ph.D. Physics, June 2001; M.S. Physics, September 1999.  
Dissertation: “Dark Halo Merging and Galaxy Formation”  
Advisor: Professor J. Primack

MASSACHUSETTS INSTITUTE OF TECHNOLOGY Sept 1992 – June 1996  
S.B. Physics, minor in Mathematics, June 1996.  
Senior Thesis: “Drift-Time Properties of CEBAF Hall A Vertical Drift Chambers”  
Thesis Advisor: Professor W. Bertozzi

## Awards

Frederick E. Terman Fellow, Stanford University, 2006–2009, 2009–2012  
Kavli Frontiers Fellow, National Academy of Sciences, Fall 2006, Fall 2009  
Hellman Faculty Scholar, Stanford University, 2008  
Arthur H. Compton Lecturer, Enrico Fermi Institute, Spring 2005  
Hubble Fellow, NASA/STScI, 2003–2006  
Fermi Fellow, Enrico Fermi Institute, 2003–2005  
NSF GAANN Fellow, University of California, Santa Cruz, 1998–2001  
Presidential Fellow, University of California, Santa Cruz, 1996–1998

## Research Interests

cosmology & theoretical astrophysics:  
structure formation, galaxy formation and evolution, dark matter and dark energy

## Memberships

AMERICAN ASTRONOMICAL SOCIETY  
AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

RISA H. WECHSLER  
*Presentations and Conferences*

**Recent Invited Colloquia and Seminars**

ASTROPHYSICS SEMINAR	University College, London, July 2012
PHYSICS COLLOQUIUM	University of California, Santa Cruz, June 2012
STScI COLLOQUIUM	STScI, Baltimore, May 2012
MPA/MPE/ESO JOINT ASTRONOMY COLLOQUIUM	Munich, May 2012
ASTRONOMY COLLOQUIUM	University of Chicago, April 2012
ASTROPHYSICS COLLOQUIUM	University of Pennsylvania, March 2012
ASTRONOMY COLLOQUIUM	California Institute of Technology, February 2012
KITP BLACKBOARD LUNCH	KITP, UC Santa Barbara, February 2012
IPMU SEMINAR	IPMU, Tokyo, February 2012
ASTRONOMY COLLOQUIUM	University of California, Irvine, November 2011
ASTRONOMY COLLOQUIUM	University of California, Berkeley, October 2011
ASTRONOMY COLLOQUIUM	New Mexico State University, May 2011
ASTROPHYSICS SEMINAR	University of California, Santa Barbara, February 2011
SLAC COLLOQUIUM	SLAC, December 2010
COSMOLOGY SEMINAR	New York University, November 2010
ASTRONOMY COLLOQUIUM	University of California, Santa Cruz, May 2010
PHYSICS COLLOQUIUM	Stanford University, December 2009
PHYSICS COLLOQUIUM	University of Utah, November 2009
ASTRONOMY COLLOQUIUM	Yale University, October 2009
ASTROPHYSICS COLLOQUIUM	MIT, October 2009
ASTROPHYSICS SEMINAR	Institute for Advanced Study, Sept 2009
SETI COLLOQUIUM	SETI, August 2009
ASTRONOMY COLLOQUIUM	Columbia University, March 2009
KICP COLLOQUIUM	University of Chicago, February 2009
ASTRONOMY COLLOQUIUM	California Institute of Technology, February 2008
ASTRONOMY COLLOQUIUM	University of California, Los Angeles, February 2008
PHYSICS COLLOQUIUM	University of Washington, November 2007
ASTRONOMY COLLOQUIUM	University of Arizona, March 2007
IGPP COLLOQUIUM	Lawrence Livermore National Labs, March 2007
PHYSICS COLLOQUIUM	University of California, Santa Cruz, March 2007
COSMOLOGY SEMINAR	University of California, Davis, March 2007
ASTRONOMY COLLOQUIUM	University of Hawaii, December 2006
COSMOLOGY SEMINAR	New York University, March 2006
COSMOLOGY SEMINAR	UC Berkeley, March 2006
ASTRONOMY COLLOQUIUM	University of Virginia, February 2006
ASTRONOMY COLLOQUIUM	University of Massachusetts, Amherst, February 2006
ASTROPHYSICS SEMINAR	Rutgers University, February 2006
ASTROPHYSICS SEMINAR	University of Pittsburgh, February 2006
PHYSICS COLLOQUIUM	Simon Fraser University, January 2006
KIPAC COLLOQUIUM	Stanford University, January 2006
ASTROPHYSICS SEMINAR	University of Michigan, January 2006
ASTRONOMY COLLOQUIUM	Penn State University, January 2006
PHYSICS COLLOQUIUM	University of Buffalo, January 2006
ASTRONOMY COLLOQUIUM	University of Maryland, December 2005
PHYSICS COLLOQUIUM	University of Southern California, November 2005

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*Presentations and Conferences*

**Invited Lectureships**

- DECIPHERING THE COSMIC INFRARED BACKGROUND Banyuls, France, October 2012  
*Invited Lectures: “Large-Scale Structure Formation”*
- UC-HIPACC ASTROINFORMATICS SUMMER SCHOOL UC San Diego, July 2012  
*Invited Lectures: “Simulating the Sky”*  
sponsored by UC High-Performance AstroComputing Center
- SLAC SUMMER INSTITUTE ON DARK MATTER SLAC, August 2007  
*Invited Lectures: “Structure Formation”*

**Invited Conference Talks**

- UNDERGRADUATE WOMEN IN PHYSICS CONFERENCE UT Austin, January 2013  
“Galaxy Formation in a Dark Universe”
- SAMSI-SAVI ASTROPHYSICS WORKSHOP Durham, September 2012  
“Weighing Galaxies using Inference from Cosmological Simulations”
- OORT WORKSHOP: THEORY GOES OUT ON A LIMB Leiden, May 2012  
“Galaxy Formation Insights from the Evolution of the Galaxy-Halo Connection”
- UNDERGRADUATE WOMEN IN PHYSICS CONFERENCE Stanford, January 2012  
“The Formation of Structure in the Universe”
- AMERICAN ASTRONOMICAL SOCIETY MEETING Austin, January 2012  
“CANDELS Predictions and Model Constraints”
- COSMOLOGICAL STREAMING Hebrew University, December 2011  
“Connecting Galaxy Masses and Star Formation Rates to Dark Matter Halo Formation”
- WATCHING GALAXIES GROW UP Ringberg, Germany, December 2011  
“Connecting Galaxy Masses and Star Formation Rates to Dark Matter Halo Formation”
- COSMOLOGY WITH X-RAY AND SZ Huntsville, September 2011  
“Cosmology with Dark Energy Survey Galaxy Clusters”
- STScI SYMPOSIUM, DARK MATTER STScI, May 2011  
“The Dark Matter-Galaxy Connection and Implications for Dark Matter”
- THE FUTURE OF ASTROCOMPUTING CONFERENCE San Diego, CA, December 2010  
“Simulation Challenges for Next Generation Galaxy Surveys”
- KAVLI FUTURES SYMPOSIUM Tromso, Norway, September 2010  
“Computing the Universe in the Age of Surveys of 10 Billion Galaxies”
- CLUSTERS OF GALAXIES MIT, January 2010  
“Progress and Prospects for Cosmology with Optically-Selected Clusters”
- BIGBOSS COLLABORATION MEETING LBNL, November 2009  
“The Dark Energy Survey: Status, Science, Synergies, Simulations”
- KAVLI FRONTIERS OF SCIENCE SYMPOSIUM Irvine, November 2009  
“Understanding Dark Matter: Clues from the Formation of Structure”
- POTENTIAL FUNDAMENTAL BREAKTHROUGHS IN ASTROPHYSICS  
AND COSMOLOGY WITHIN THE NEXT DECADE CCAPP Symposium, October 2009  
*Invited Review: “Recent Progress and Current Issues in Galaxy Formation”*
- SHEDDING LIGHT ON THE NATURE OF DARK MATTER KISS, Caltech, July 2009  
*Invited Core Participant. “Substructure, the galaxy-halo connection, and the  
small-scale power spectrum”*
- HARVESTING THE DESERT: THE UNIVERSE BETWEEN  $z = 1 - 3$  Marseille, June 2009  
*Invited Review: “Theoretical Expectations for Galaxies and Large-Scale Structures in  
the Redshift Desert”*

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*Presentations and Conferences*

**Invited Conferences Talks (continued)**

- JDEM WORKSHOP LBNL, January 2009  
“Modeling Deep-Wide Surveys”
- TEXAS RELATIVISTIC ASTROPHYSICS Vancouver, December 2008  
“Precision Cosmology with Optical Clusters”
- GALAXIES IN REAL LIFE AND SIMULATIONS Lorentz Center, Leiden, September 2008  
*Invited Review:* “Evolution of dark matter halos and implications for massive galaxies”
- NEW UNDERSTANDING OF GALAXY EVOLUTION IAS, Jerusalem, June 2008  
*Invited Core Participant.* “Connecting Galaxies, Halos, and Star Formation Rates across Cosmic Time”
- COSMIC WEB: GALAXIES AND THE LARGE-SCALE STRUCTURE Socorro, May 2008  
“Star Formation within the Cosmic Web”
- PANORAMIC VIEWS OF STRUCTURE FORMATION Hayama, Japan, December 2007  
*Invited Review:* “The Evolution of Galaxy Clustering”
- CLUSTERS OF GALAXIES AS COSMOLOGICAL PROBES Aspen, February 2007  
“Calibrating Cluster Galaxy Populations for Cosmological Constraints from Photometric Surveys”
- NEW ERA OF OPTICAL CLUSTERS Special Session, AAS, Seattle, January 2007  
“Calibrating Galaxy Populations for Cosmological Constraints from Photometric Surveys”
- COSMOLOGY WITH GALAXY CLUSTERS Enrico Fermi Institute, October 2005  
“Cosmology with Optical Cluster Surveys”
- NEARLY NORMAL GALAXIES IN A  $\Lambda$ CDM UNIVERSE Santa Cruz, August 2005  
“Halo Occupation and Cosmology from SDSS Clusters”
- DYNAMICS OF GALAXIES: BARYONS & DARK MATTER Las Vegas, March 2005  
“Galaxy Assembly and Merging in  $\Lambda$ CDM”
- THE FUTURE OF COSMOLOGY WITH CLUSTERS OF GALAXIES Hawaii, February 2005  
“Linking Optically-Selected Clusters to Dark Matter Halos”
- FUNDAMENTAL PHYSICS FROM GALAXY CLUSTERS Fermilab, December 2004  
“Linking Optically-Selected Clusters to Dark Matter Halos”
- COSMOLOGY WITH SUNYAEV-ZELDOVICH University of Chicago, September 2003  
“Cosmological Constraints from SDSS Galaxy Clusters”
- GREAT LAKES COSMOLOGY WORKSHOP Univ. of Michigan, Ann Arbor, May 2003  
“Cosmological Constraints from SDSS Galaxy Clusters”
- CDM ON SMALL SCALES WORKSHOP Center for Cosmological Physics, July 2002  
“Consequences of Halo Assembly for the Structure of Dark Halos and Galaxies”

**Selected Additional Conferences and Workshops**

- LSST DARK ENERGY COLLABORATION KICK-OFF MEETING UPenn, June 2012
- FRANCE-STANFORD DARK ENERGY WORKSHOP Stanford, December 2010
- UNVEILING THE MASS: EXTRACTING AND INTERPRETING GALAXY MASSES  
Kingston, June 2009
- EXTREME SCALE COMPUTING WORKSHOP SLAC, Dec 2008
- MODELING GALAXY CLUSTERING Aspen, June 2007
- NATIONAL ACADEMY/KAVLI FRONTIERS OF SCIENCE Irvine, CA, November 2006
- APPLICATIONS OF GRAVITATIONAL LENSING KITP Santa Barbara, October 2006
- GALAXY EVOLUTION WITH LARGE SURVEYS Aspen, June 2006

# RISA H. WECHSLER

## *Science Activities*

### Scientific Collaborations

BUILDER, DARK ENERGY SURVEY COLLABORATION Science Committee, 2009 – present Co-Chair, Galaxy Evolution Working Group, 2008–present Lead on Production and Analysis of DES Simulated Sky Surveys Member, Simulations, Clusters, Large-Scale Structure, and MW Working Groups Speakers Bureau, 2009 – present Builder status confers authorship rights on all key science papers of the collaboration	2003–present
MEMBER, CANDELS COLLABORATION Co-Chair, Theory Working Group 2010–present Executive Committee, 2010–present	2010–present
MEMBER, COSMIC FRONTIER COMPUTING COLLABORATION SLAC PI of multi-lab collaboration	2012–present
MEMBER, LSST DARK ENERGY SCIENCE COLLABORATION Coordinator, Science Working Group Interface to Simulations	2012–present
MEMBER, LSST COLLABORATION Member, Large-Scale Structure and Galaxy Working Groups	2006–present
MEMBER, EUCLID CLUSTER WORKING GROUP	2010–present
MEMBER, SPITZER EXTENDED DEEP SURVEY COLLABORATION	2009–present
MEMBER, LASDAMAS COLLABORATION	2007–present
MEMBER, AEGIS COLLABORATION	2006–present
MEMBER, SDSS CLUSTER WORKING GROUP	2003–2010

### Conference and Workshop Organization

AOSTA 3 LENSING AND GALAXY FORMATION Scientific Organizing Committee	Courmayeur, Summer 2013
COSMOLOGY WITH SMALL-SCALE STRUCTURE Lead Organizer	KIPAC, October 2012
KAVLI INSTITUTE ASTROPHYSICS WORKSHOP Co-Chair, Organizing Committee	Chichley Hall, July 2012
FIRST GALAXIES AND FAINT DWARFS Program Co-Coordinator; Diversity Coordinator	KITP, Feb–May 2012
FIRST LIGHT AND FAINTEST DWARFS Conference Co-Coordinator; Diversity Coordinator	KITP, February 2012
UNDERGRADUATE WOMEN IN PHYSICS CONFERENCE Local Organizing Committee	Stanford, January 2012
DETECTING DARK MATTER WITH GAMMA RAYS Organizing Committee	SLAC, October 2011
AMERICAN ASTRONOMICAL SOCIETY SPECIAL SESSION Session Organizer: “Cluster Cosmology with Optical and SZ data”	Seattle, Jan 2011
DES COLLABORATION MEETING Chair, Program Committee; Member, Local Organizing Committee	SLAC, Dec 2009
TeV PARTICLE ASTROPHYSICS WORKSHOP Session Convener	SLAC, June 2009
AMERICAN ASTRONOMICAL SOCIETY SPECIAL SESSION Session Organizer: “New Era of Optical Cluster Cosmology”	Seattle, Jan 2007
ORGANIZER, BAY AREA GALAXY FORMATION WORKSHOPS	2006–2008

RISA H. WECHSLER  
*Teaching and Service*

**Departmental Activities**

CHAIR, KIPAC THEORY GROUP, SLAC	2009–present
MEMBER, KIPAC EXECUTIVE COMMITTEE	2008–2014
CO-CHAIR, KIPAC PHYSICS, SLAC	2007–2009
KIPAC POSTDOCTORAL SELECTION COMMITTEE	2007–2010
FALL COLLOQUIUM COMMITTEE, STANFORD PHYSICS	2012
GRADUATE QUALIFYING EXAM COMMITTEE, STANFORD PHYSICS	2010–2011
PROSPECTIVE STUDENT OPEN HOUSE COMMITTEE, STANFORD PHYSICS	2010–2011
GRADUATE ADMISSIONS COMMITTEE, STANFORD PHYSICS	2006–2010
UNDERGRADUATE STUDIES COMMITTEE, STANFORD PHYSICS	2009–2010
SPACE COMMITTEE, STANFORD PHYSICS	2007–2008
GRADUATE STUDIES COMMITTEE, STANFORD PHYSICS	2006–2007

**Teaching**

COURSES TAUGHT AT STANFORD UNIVERSITY  
Winter 2013: Physics 23 & 24, Electricity and Optics  
(on junior faculty leave 2011–2012)  
Spring 2011: Faculty Sponsor, Student Initiated Course:  
    Practical Computing for Scientists  
Spring 2011: Physics 161, Extragalactic Astrophysics and Cosmology  
    see <http://risa.stanford.edu/teaching/161/>  
Spring 2010: Physics 161, Extragalactic Astrophysics and Cosmology  
Winter 2010: Physics 362, Advanced Extragalactic Astrophysics and Cosmology  
    see <http://risa.stanford.edu/teaching/362/>  
Spring 2009: Physics 161, Extragalactic Astrophysics and Cosmology  
Spring 2008: Physics 362, Advanced Extragalactic Astrophysics and Cosmology  
Fall 2007: Physics 59, Current Research Topics in Physics  
Spring 2007: Physics 463, Special Topics in Astrophysics: Theoretical Cosmology  
    see <http://risa.stanford.edu/teaching/463/>

**Reviewing Activities**

TIME ALLOCATION COMMITTEE, HUBBLE SPACE TELESCOPE  
SELECTION COMMITTEE, EINSTEIN FELLOWS PROGRAM  
SELECTION COMMITTEE, HUBBLE FELLOWS PROGRAM  
REVIEWER, DOE GRANTS  
REVIEWER, NASA ASTROPHYSICS THEORY PROGRAM  
REVIEWER, DOE INCITE REVIEW PANEL  
REVIEWER, NASA ATP/BYOND EINSTEIN PANEL  
REFEREE, *The Astrophysical Journal*; *Monthly Notices of the Royal Astronomical Society*;  
*The Astronomical Journal*; *Physical Review*  
Invited to review grants for several international programs,  
    including Norway, Chile, and Switzerland

# RISA H. WECHSLER

## *Broader Impacts*

<b>Public Talks</b>	SAN FRANCISCO AMATEUR ASTRONOMERS, RANDALL MUSEUM “Galaxy Formation in a Dark Universe”	October 2012
	CLASSES WITHOUT QUIZZES, STANFORD UNIVERSITY “Dark Matter: The Search for 85% of the Mass in the Universe”	October 2011
	HEINZ PAGELS LECTURE, ASPEN “Dark Matter: The Search for 85% of the Mass in the Universe”	August 2011
	DISCOVERY CHANNEL RETREATS, “SECRETS OF THE UNIVERSE” “Galaxy Formation in a Dark Universe”	June 2011
	STSCI DARK MATTER WRITER’S WORKSHOP presentation and member of panel for press questions	May 2011
	PRESENTATION HIGH SCHOOL “What is the Universe Made of?”	February 2011
	TEDXYOUTHCASTILLEJA “Dark Matter”	November 2010
	SATURDAY UNIVERSITY, STANFORD UNIVERSITY “The End of Days: What Science Tells Us about the Fate of the Universe”	November 2010
	CLASSES WITHOUT QUIZZES, STANFORD UNIVERSITY “The End of Days: What Science Tells Us about the Fate of the Universe”	October 2009
	SLAC KIDS DAY LECTURER “Galaxies: The Universe’s Time Machine”	August 2009
	“WHAT PHYSICISTS DO” LECTURE, SONOMA STATE UNIVERSITY “Lighting Up the Dark: Galaxies as Probes of the Dark Universe”	May 2008
	SCIENCE SYMPOSIUM, ACALANES HIGH SCHOOL “What is the Universe Made of?”	April 2008
	SLAC PUBLIC LECTURE “Dark Energy: What the...?”	October 2007
	STANFORD TEACHER SUMMER RESEARCH PROGRAM “Galaxy Formation in a Cold-Dark Matter Universe”	August 2007
	ARTHUR H. COMPTON LECTURER, ENRICO FERMI INSTITUTE “The Story of Galaxy Formation in Our Universe” a series of eight public lectures to the public on cosmology and galaxy formation <a href="http://risa.stanford.edu/compton/">http://risa.stanford.edu/compton/</a>	Spring 2005
	LECTURER, SPACE EXPLORERS PROGRAM	February 2005
	SATURDAY MORNING PHYSICS LECTURER, UNIV. OF MICHIGAN “Timeline of a Galaxy in an Accelerating Universe”	December 2002

### **Additional Outreach**

ADVISORY BOARD, COGITO online community for academically talented youth	2007 – present
BLOGGER, COSMIC VARIANCE BLOG AT DISCOVER MAGAZINE	2005 – present
CONSULTANT, THE SCIENTISTS & ENTERTAINMENT EXCHANGE provided input to ensure scientific accuracy in network television content	2011 – present
SCIENCE ON STAGE, SAN FRANCISCO EXPLORATORIUM provided scientific content to audience for play readings; consultant on choosing plays with scientific content to be produced	2006 – 2007

# RISA H. WECHSLER

## *Broader Impacts*

### Science Tool Development

ROCKSTAR: ROBUST OVERDENSITY CALCULATOR USING K-SPACE TOPOLOGICALLY ADAPTIVE REFINEMENT

developed with student P. Behroozi; new algorithm for robustly finding halos and sub-structures in phase space; publicly available at <http://code.google.com/p/rockstar/>

GRAVITATIONALLY-CONSISTENT MERGER TREES

developed with student P. Behroozi; new algorithm for producing gravitationally-consistent merger trees; code publicly available at <http://code.google.com/p/consistent-trees/>

LASDAMAS: LARGE SUITE OF DARK MATTER SIMULATIONS

PIs: Berlind, Scoccimarro, Wechsler, van den Bosch

Suite of 200 cosmological simulations.

SDSS mock catalogs publicly available at <http://lss.phy.vanderbilt.edu/lasdamas/>

ADDGALS: ADDING DENSITY DETERMINED GALAXIES TO LIGHTCONE SURVEYS

algorithm developed for realistic synthetic galaxy catalogs for large surveys

used by SDSS cluster working group, DES science working groups

mock catalogs available at <http://risa.stanford.edu/mocks/>

CLUSTER: CLUSTER SURVEY OPTIMIZER

developed with students A. Bouland and H. Wu; calculator to determine dark energy figure of merit and optimal followup strategies for large cluster surveys

publicly available at <http://risa.stanford.edu/cluster/>

### Selected Recent Press

SKY & TELESCOPE MAGAZINE October 2012

feature article mentioning our work

on the cosmological context of the Milky Way and Magellanic Clouds

SKY & TELESCOPE MAGAZINE July 2012

cover article mentioning our work

on the comparisons between simulated and observed data

SCIENCE BYTES @ PBS.ORG July 2012

web video featuring our work on dark matter and

scientific visualization <http://www.sciencebytes.org/>

SCIENTIFIC AMERICAN December 2011

article mentioning our work on the Milky Way and its satellites

<http://www.scientificamerican.com/article.cfm?id=smc-lmc-magellanic-clouds>

ASTRONOMY MAGAZINE December 2011

“Astro Confidential” Profile

IMAGINE MAGAZINE October 2011

Profile: “In my own words: Exploring the Dark Side of the Universe”

NSF PRESS RELEASE May 2011

“Just Four Percent of Galaxies Have Neighbors Like the Milky Way”

HPC WIRE May 2011

“A Dark Matter for Astrophysics Research”

KAVLI FOUNDATION PROFILE July 2010

“Risa Wechsler: Shedding Light on the Dark Side”



# RISA H. WECHSLER

## *Advising*

### Postdoctoral Fellows

Michael Busha (2007–2010); currently Postdoctoral Fellow, Univ. of Zurich  
Brian Gerke (KIPAC Fellow, 2007–2011); currently Staff Scientist LBNL  
Louis Strigari (Hubble Fellow, 2008–2011; Research Scientist 2011–2012)  
Oliver Hahn (KIPAC Fellow, Co-advised with Abel; 2009–2012)  
Yu Lu (2010 – 2013); Carlos Cunha (Kavli Fellow, 2011 – 2014)

### Graduate Students

#### STANFORD DISSERTATION STUDENTS:

Hao-Yi Wu, Postdoctoral Fellow, U Michigan (Stanford Graduate Fellow; PhD 2011)  
PhD Dissertation: *Precision Cosmology from Galaxy Cluster Surveys:  
Understanding Optical Mass Tracers*

Peter Behroozi (ARCS Fellow; PhD 2012)

PhD Dissertation: *Reconstruction of Galaxy Star Formation Histories  
from Redshift Eight to the Present Day*

Rachel Reddick (Stanford Graduate Fellow; 4th year)

Yao-Yuan Mao (Stanford Graduate Fellow; 3rd year)

Tony Li (NSF Fellow; 3rd year)

#### STANFORD ROTATION STUDENTS:

Rebecca Nie (2011; M.S. Applied Physics); Ning Bao, Sarah Harrison (2010); Jesse Marshall, Alice Allafort (2009), Conrad Hutcheson (2006–2009), Katherine Luna (2006)

#### STANFORD PHD COMMITTEES:

reading committees:

Matt Turk (2009), Ping Wang (2011), Ji-Hoon Kim (2011)

Doug Appelgate (2012); Keith Bechtol (2012)

dissertation committees:

John Wise (2007), Michael Dore (2009), Daniele Moreira Alves (2011)

#### GRADUATE STUDENTS CO-SUPERVISED ELSEWHERE:

Eduardo Rozo, Hubble Fellow, U Chicago (PhD 2006, University of Chicago)

Sarah Hansen (PhD 2008, University of Chicago)

Kyle Stewart, Asst Prof, California Baptist University (PhD 2009, UC Irvine)

Charlie Conroy, Asst Prof UCSC (PhD 2010, Princeton University)

Felipe Marin, Postdoctoral Fellow, Swinburne (PhD 2010, University of Chicago)

### Undergraduate Research Students

Greg Peiris '12; Honors Thesis: *Effects of Supersonic relative velocity between baryons and dark matter in the early Universe*

Blythe Moreland (UMichigan Undergraduate, SULI Student Summer 2011)

Joshua Weinands (UBC Undergraduate, Visiting Research Student, 2011)

Yu Xian Lim '11; Honors Thesis: *Inferring the halo mass function from galaxy clusters: accuracy limits due to redshift-space distortions*

Lulu Liu (MIT Undergraduate, Visiting Research Student 2009–2010)

Noah Sennet '12 (Undergraduate Summer Research 2010)

Zahan Malkahni '12 (Undergraduate Summer Research 2009)

Alex Ji '11 (Undergraduate Summer Research 2009; 2011–2012)

Adam Bouland (Yale Undergraduate, Visiting Research Student, Summer 2009)

# RISA H. WECHSLER

## *Publications*

### Publications Summary

76 refereed publications (+10 currently under review). ~5700 total citations.

20 publications with more than 100 citations.

$h = 42$  (42 papers with more than 42 citations).

$g = 74$  (74 papers with an average of 74 citations).

(publication statistics from ADS; Aug 2012)

*Student and Postdoctoral Fellow advisees listed in italics.*

Journal abbreviations are: ApJ, *The Astrophysical Journal*; AJ, *The Astronomical Journal*; MNRAS, *Monthly Notices of the Royal Astronomical Society*.

### Recent Preprints Submitted to Refereed Journals

S10. RHAPSODY: I. STRUCTURAL PROPERTIES AND FORMATION HISTORY FROM A STATISTICAL SAMPLE OF RE-SIMULATED CLUSTER-SIZE HALOS

*H. Wu, O. Hahn, R. H. Wechsler, Y. Mao, P. Behroozi.*

**2012**, ApJ, submitted 9.12, arXiv:1209.3309 [astro-ph.CO]

S9. ON THE LACK OF EVOLUTION IN GALAXY STAR FORMATION EFFICIENCY

*P. S. Behroozi, R. H. Wechsler, C. Conroy.*

**2012**, ApJ Letters, submitted 9.12, arXiv:1209.3013 [astro-ph.CO]

S8. UNBOUND PARTICLES IN DARK MATTER HALOS

*P. S. Behroozi, A. Loeb, R. H. Wechsler.*

**2012**, Journal of Cosmology and Astroparticle Physics, submitted 8.12, arXiv:1208.0334 [astro-ph.CO]

S7. THE AVERAGE STAR FORMATION HISTORIES OF GALAXIES IN DARK MATTER HALOS FROM  $z = 0 - 8$

*P. S. Behroozi, R. H. Wechsler, C. Conroy.*

**2012**, ApJ, submitted 7.12, arXiv:1207.6105 [astro-ph.CO]

S6. SPECTROSCOPIC FAILURES IN PHOTOMETRIC REDSHIFT CALIBRATION: COSMOLOGICAL BIASES AND SURVEY REQUIREMENTS

*C. Cuhna, D. Hutnerer, H. Lin, M. T. Busha, R. H. Wechsler.*

**2012**, MNRAS, submitted 7.12, arXiv:1207.3347 [astro-ph.CO]

S5. IMPROVED MOCK GALAXY CATALOGS FOR THE DEEP2 GALAXY REDSHIFT SURVEY FROM SUBHALO ABUNDANCE AND ENVIRONMENT MATCHING

*B. F. Gerke, R. H. Wechsler, P. S. Behroozi, M. C. Cooper, R. Yan, A. Coil.*

**2012**, ApJ, submitted 7.12, arXiv:1207.2214 [astro-ph.CO]

S4. THE CONNECTION BETWEEN GALAXIES AND DARK MATTER STRUCTURES IN THE LOCAL UNIVERSE

*R. Reddick, R. H. Wechsler, J. Tinker, P. S. Behroozi.*

**2012**, ApJ, submitted 7.12, arXiv:1207.2160 [astro-ph.CO]

S3. HALO-TO-HALO SIMILARITY AND SCATTER IN THE VELOCITY DISTRIBUTION OF DARK MATTER

*Y.-Y. Mao, L. E. Strigari, R. H. Wechsler, H.-Y. Wu, O. Hahn.*

**2012**, Physical Review Letters, submitted 5.12

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## *Publications*

### Recent Preprints Submitted to Referred Journals (continued)

S2. GRAVITATIONALLY CONSISTENT HALO CATALOGS AND MERGER TREES FOR PRECISION COSMOLOGY

*P. Behroozi, R. H. Wechsler, H. Y. Wu, M. T. Busha, A. Klypin, J. Primack.*

**2011**, ApJ, submitted, arXiv:1110.4370 [astro-ph.CO]

S1. THE ROCKSTAR PHASE-SPACE TEMPORAL HALO FINDER AND THE VELOCITY OFFSETS OF CLUSTER CORES

*P. Behroozi, R. H. Wechsler, H. Y. Wu.*

**2011**, ApJ, submitted, arXiv:1110.4372 [astro-ph.CO]

### Refereed Publications

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75. THE CORRELATED FORMATION HISTORIES OF MASSIVE GALAXIES AND THEIR DARK MATTER HALOS

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74. A HIGH THROUGHPUT WORKFLOW ENVIRONMENT FOR COSMOLOGICAL SIMULATIONS

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72. SAMPLE VARIANCE IN PHOTOMETRIC REDSHIFT CALIBRATION: COSMOLOGICAL BIASES AND SURVEY REQUIREMENTS

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71. THE COSMIC ABUNDANCE OF CLASSICAL MILKY WAY SATELLITES

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70. ROBUST OPTICAL RICHNESS ESTIMATION WITH REDUCED SCATTER

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A. Finoguenov, M. Tanaka.  
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68. COSMOLOGICAL CONSTRAINTS FROM GALAXY CLUSTERING AND THE MASS-TO-NUMBER RATIO OF GALAXY CLUSTERS  
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67. NEW CONSTRAINTS ON THE EVOLUTION OF THE STELLAR-TO-DARK MATTER CONNECTION: COMBINED ANALYSIS OF GALAXY-GALAXY LENSING, CLUSTERING, AND STELLAR MASS FUNCTIONS FROM  $Z=0.2$  TO  $z=1$   
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J-P. Kneib, A. Benson, **R. H. Wechsler**, and others.  
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66. CANDELS: THE COSMIC ASSEMBLY NEAR-INFRARED DEEP EXTRAGALACTIC LEGACY SURVEY - THE HUBBLE SPACE TELESCOPE OBSERVATIONS, IMAGING DATA PRODUCTS AND MOSAICS  
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**2012**, arXiv:1209.2451 [astro-ph]

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### Conference Proceedings

C8. THE EVOLUTION OF GALAXY CLUSTERING AND THE GALAXY–HALO CONNECTION  
**R. H. Wechsler**. 2008, in Panoramic Views of Galaxy Formation and Evolution ASP Conference Series, Vol. 399, proceedings of the conference held 11-16 December, 2007, at Shonan Village Center, Hayama, Japan. Edited by Tadayuki Kodama, Toru Yamada, and Kentaro Aoki. San Francisco: Astronomical Society of the Pacific

C7. INTERPRETING SDSS CLUSTER MASSES AND ABUNDANCES WITH MOCK CATALOGS  
**R. H. Wechsler**. 2004, in Carnegie Observatories Astrophysics Series, Vol. 3: Clusters of Galaxies: Probes of Cosmological Structure and Galaxy Evolution, ed. J. S. Mulchaey, A. Dressler, and A. Oemler (Pasadena: Carnegie Observatories)

C6. THE MASSES OF LYMAN BREAK GALAXIES

J. R. Primack, **R. H. Wechsler**, R. S. Somerville. Proceedings of Mass of Galaxies at Low and High Redshift, Venice, October 2001, eds. R. Bender and A. Renzini (astro-ph/0112504)

C5. CLUSTERING IN THE LAS CAMPANAS DISTANT CLUSTER SURVEY

A. H. Gonzalez, D. Z. Zaritsky, **R. H. Wechsler**. Proceedings of ‘Where’s the Matter? Tracing Dark and Bright Matter with the New Generation of Large Scale Surveys’, Marseille, France, 2001 ed. M Treyer & L. Tresse (astro-ph/0111069)

C4. CONCENTRATIONS AND ASSEMBLY HISTORIES OF DARK MATTER HALOS

**R. H. Wechsler**, J. S. Bullock, J. R. Primack, A. V. Kravtsov, A. Dekel. Proceedings of ‘Where’s the Matter? Tracing Dark and Bright Matter with the New Generation of Large Scale Surveys’, Marseille, France, 2001 ed. M Treyer & L. Tresse (astro-ph/0111069)

C3. TRACING COSMIC EVOLUTION WITH THE LAS CAMPANAS DISTANT CLUSTER SURVEY

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C2. CLUSTERING OF HIGH-REDSHIFT GALAXIES: RELATING LBGs TO DARK-MATTER HALOS

**R. H. Wechsler**, J. S. Bullock, R. S. Somerville, T. S. Kolatt, M. A. K. Gross, J. R. Primack, G. R. Blumenthal, A. Dekel. 1999, Proceedings of Clustering at High Redshift, Marseille, France, ed. A. Mazure, O. Le Fevre, & V. Le Brun (astro-ph/991035)

C1. COSMOLOGICAL IMPLICATIONS OF LYMAN-BREAK GALAXY CLUSTERING

**R. H. Wechsler**, M. A. K. Gross, J. R. Primack, G. R. Blumenthal, R. S. Somerville, A. Dekel. 1998, Proceedings of the Ninth Astrophysics Conference, College Park, Maryland, 1998, ed. S. Holt, E. Smith (astro-ph/9812368)