

# Curriculum Vitae

## Ramin A. Skibba

Assistant Project Scientist  
University of California, San Diego

Date of Birth: 29 December 1977

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### EDUCATION

**Ph.D. Physics & Astronomy:** July 2006

Thesis advisor: Ravi K. Sheth; Co-advisor: Andrew J. Connolly  
University of Pittsburgh, Pittsburgh, PA

**M.S. Physics & Astronomy:** April 2002

University of Pittsburgh, Pittsburgh, PA

**B.S. Physics:** May 2000

University of Notre Dame, South Bend, IN

**B.A. (Honors) Philosophy:** May 2000

University of Notre Dame, South Bend, IN

### RESEARCH EXPERIENCE

**Assistant Project Scientist:** August 2012 - present

University of California, San Diego

Employer: Prof. Alison L. Coil

Analysis of the evolving clustering of galaxies in the PRIMUS survey and in halo models and mock catalogs, including the clustering dependence on luminosity, color, stellar mass, and star formation rate.

Presented scientific results at conferences; published results in journals; reviewed publications and research grants; mentored students; engaged in science writing; communication, and public outreach programs (see below).

**Postdoctoral Researcher:** August 2009 - July 2012

Steward Observatory, University of Arizona, Tucson, AZ

Employer: Dr. Charles W. Engelbracht

Measurement and analysis of global spectral energy distributions of nearby galaxies, and their relation to and dependence on dust mass, stellar mass, morphology, metallicity, and star formation rate.

Gave talks at conferences and workshops; mentored undergraduate students; organized discussion groups; published and reviewed scientific results in journals.

**Postdoctoral Researcher:** August 2006 - July 2009

Max Planck Institute for Astronomy (MPIA), Heidelberg, Germany

Employer: Dr. Frank C. van den Bosch

Analysis of environmental dependence of galaxy formation processes in the Sloan Digital Sky Survey and dark matter halo model, using clustering statistics of galaxy properties, including stellar mass, morphology, and star formation rate.

Gave talks at conferences and workshops; mentored diploma students; organized discussion groups; published and reviewed scientific results in journals.

**Doctoral Candidate:** June 2002 - July 2006

University of Pittsburgh, Pittsburgh, PA

Advisor: Prof. Ravi K. Sheth

Development of halo-model description of marked statistics of galaxy properties, especially luminosity and color, in real space and redshift space. Measuring correlation functions and marked statistics in the Sloan Digital Sky Survey, mock galaxy catalogs, and Millennium Simulation semi-analytic models.

**Research Assistant:** June 2001 - August 2001

University of Pittsburgh, Pittsburgh, PA

Supervisor: Dr. John Hillier

Development of Fortran code to numerically model radiative transfer and interpret spectra of massive and luminous stars.

**Research Assistant:** January 2000 - April 2000

University of Notre Dame, South Bend, IN

Supervisor: Dr. John A. Poirier

Data analysis and development of Fortran algorithms to study primary cosmic rays using data from the GRAND (Gamma Ray Astrophysics at Notre Dame) project.

## **TEACHING EXPERIENCE**

**Instructor of Record:** March-August 2015

Waves, Optics, and Modern Physics, spring quarter

Relativity and Quantum Physics, summer quarter

University of California, San Diego

**Astronomy Teaching Workshop:** January 2012

American Astronomical Society Meeting, Austin, TX

**Teaching Assistant:** August 2000 - December 2002

University of Pittsburgh, Pittsburgh, PA

Teaching Assistant for introductory physics and astronomy courses:

- Introduction to Physics Laboratory; Introduction to Physics 1 (twice) and 2
- Basic Physical Science & Engineering 1 and 2

## **ORGANIZING AND MENTORING EXPERIENCE**

- Assisted the research supervision of a graduate student at UC San Diego; two undergraduates at U. of Arizona; and two diploma students at MPIA
- Participated in education and outreach programs: Adler Planetarium Astro-Journalists program; Weekly Space Hangouts with *Universe Today*; educational interventions with Galaxy Zoo; and UCSD Young Physicists Program (2014-present)
- Participated in Congressional Visit Day with the American Astronomical Society (2014)
- Organizer of ‘Theory Coffee’ at MPIA, ‘Postdoc Lunch’ at U. of Arizona, and ‘Galaxy Group’ at UC San Diego, weekly meetings and discussion groups (2006-2014)
- Served on Scientific Organizing Committee of ‘Evolving Galaxies in Evolving Environments’ conference in Bologna, Italy (2014)
- Chair of sessions at American Astronomical Society meetings (2010, 2015)
- Organizer and chair of symposium on Citizen Science at AAAS Annual Meeting (2015)
- Organizer of meetings with Representative Susan Davis’s and Senator Feinstein’s San Diego offices (2014-2015)
- Actively involved in many national and international collaborations (2003-present; see below)
- Speaker at numerous conferences, workshops, and institutions (2003-present; omitted from CV for conciseness)

## **FELLOWSHIPS AND GRANTS**

- Sloan Digital Sky Survey-III proposal, “The Sloan Extended QUasar, ELG and LRG Survey (SEQUELS),” Jean-Paul Kneib, P.I. Accepted, August 2013.
- NRAO Very Large Array proposal, “Gas Morphology and Dynamics in Strongly Barred Galaxies,” Karen Masters, P.I. Accepted, May 2013.
- Herschel proposal, “Measuring the Shape of the Far-Infrared Dust Continuum in the Magellanic Clouds,” Charles Engelbracht, P.I. Accepted, December 2011.
- Herschel proposal, “Beyond the Peak: Resolved Far-Infrared Spectral Mapping of Nearby Galaxies with SPIRE/FTS,” J. D. Smith, P.I. Accepted, November 2010.
- Herschel proposal, “The Physical Conditions of Star Formation at Low Metallicity: The Magellanic Clouds as Corner Stones,” Sacha Hony, P.I. Accepted, November 2010.
- National Science Foundation EPSCoR First Award, “How Environment Affects the Evolution of Galaxies Over Cosmic Time,” Gregory Rudnick, P.I. Accepted, June 2010.

- Hubble Space Telescope ACS – grant for galaxy clustering project with GOODS and GEMS data, with Andrew Connolly, January 2006
- NASA – Pennsylvania Space Grant Consortium Fellowship, August 2004

## RESEARCH EXPERTISE

- Modeling and measuring galaxy clustering statistics (in real space, redshift space, Fourier space, projected, angular), especially two-point correlation functions, cross-correlation functions, mark correlation functions
- Expertise with various statistical tools, such as principal component analysis, bootstrap error analysis, Kolmogorov-Smirnov tests, Spearman rank tests, multidimensional model fitting
- Familiar with semi-analytic models of galaxy formation and evolution
- Familiar with numerical simulations of dark matter particles and halos
- Expertise with observational and modeled galaxy group and cluster catalogs
- Knowledge of Sloan Digital Sky Survey (SDSS) data, Herschel (PACS and SPIRE) data, and PRIMUS Multi-object Survey (PRIMUS) data
- Editing skills: reviewer of numerous papers for *Monthly Notices of the RAS*, *Astrophysical Journal*, and *Astronomy & Astrophysics* journals (2006-present)
- Served on review panel for NASA Theory Program grant proposals (2013)
- Computer skills: C, C++, FORTRAN, Supermongo, IDL, Mathematica, Maple, Ruby, LATEX, LINUX/UNIX; some knowledge of IRAF, Python, R
- Languages: Fluent in Farsi, semi-fluent in German, knowledge of Spanish

## FIRST-AUTHOR PUBLICATIONS

- *Dark Matter Halo Models of Stellar Mass-Dependent Galaxy Clustering in PRIMUS and DEEP2 at  $0.2 < z < 1.2$ .* **Skibba R. A.**, Coil A. L., Mendez A., et al., 2015, *Astrophysical Journal*, submitted.
- *PRIMUS: Galaxy Clustering as a Function of Luminosity and Color at  $0.2 < z < 1$ .* **Skibba R. A.**, Smith S., Coil A. L., et al., 2014, *ApJ*, 784, 128.
- *Measures of galaxy environment – II. Rank-ordered mark correlations.* **Skibba R. A.**, Sheth R. K., Croton D. J., Muldrew S. I., Abbas U., Pearce F. R., Shattow G., 2013, *Monthly Notices of the RAS*, 429, 458.
- *The Spatial Distribution of Dust and Stellar Emission of the Magellanic Clouds.* **Skibba R. A.**, Engelbracht C. W., et al., 2012, *ApJ*, 761, 42.
- *Galaxy Zoo: The Environmental Dependence of Bars and Bulges in Disc Galaxies.* **Skibba R. A.**, Masters K. L., Nichol R. C., Zehavi I., et al., 2012, *MNRAS*, 423, 1485.

- *Properties of Dark Matter Haloes and their Correlations: the Lesson from Principal Component Analysis.* **Skibba R. A.**, Macciò A. V., 2011, *MNRAS*, 416, 2388.
- *The Emission by Dust and Stars of Nearby Galaxies in the Herschel KINGFISH Survey.* **Skibba R. A.**, Engelbracht C. W., et al., 2011, *ApJ*, 738, 89.
- *Are Brightest Halo Galaxies Central Galaxies?* **Skibba R. A.**, van den Bosch F. C., Yang X., More S., Mo H.J., Fontanot F., 2011, *MNRAS*, 410, 417.
- *Galaxy Zoo: Disentangling the Environmental Dependence of Morphology and Color.* **Skibba R. A.**, Bamford S. P., Nichol R. C., Lintott C. J., et al., 2009, *MNRAS*, 399, 966.
- *Central and Satellite Colors in Galaxy Groups: A Comparison of the Halo Model and SDSS Group Catalogs.* **Skibba R. A.**, 2009, *MNRAS*, 392, 1467.
- *A Halo Model of Galaxy Colors and Clustering in the SDSS.* **Skibba R. A.**, Sheth R. K., 2009, *MNRAS*, 392, 1080.
- *Satellite Luminosities in Galaxy Groups.* **Skibba R. A.**, Sheth R. K., Martino M. C., 2007, *MNRAS*, 382, 1940.
- *The Luminosity-Weighted or ‘Marked’ Correlation Function.* **Skibba R. A.**, Sheth R. K., Connolly A. J., & Scranton R., 2006, *MNRAS*, 369, 68.
- (70+ co-authored publications omitted for conciseness.)

## SCIENCE WRITING PUBLICATIONS

- “Comet Update,” podcast script, 5 Jan. 2015, *Loh Down on Science*
- “Dr. Irwin Jacobs: Engineer, Innovator, Qualcomm Founder,” 6 Jan. 2015, *Calit2*
- “PDEL: Qualcomm Institute’s ‘Gateway to the Social Sciences,’” 15 Jan. 2015, *Calit2*
- “Like a BOSS: How Astronomers are Getting Precise Measurements of the Universes Expansion Rate,” 15 Jan. 2015, *Universe Today*
- “Hubble’s Long Look at Distant Galaxies,” 19 Jan. 2015, *Sky & Telescope*
- “Fun In The Deep Blue Sea: Scripps Hosts Evening with Cartoonist/Conservationist Jim Toomey,” 29 Jan. 2015, *La Jolla Light*
- “It Turns Out Primordial Gravitational Waves Weren’t Found,” 2 Feb. 2015, *Universe Today*
- “Implications of the Midterm Election for Science,” op-ed, 12 Feb. 2015, *Journal of Science Policy & Governance*
- “How Do Gas and Stars Build a Galaxy?,” 18 Feb. 2015, *Universe Today*

## ORGANIZATIONS AND SOCIETIES

- National Association of Science Writers member, 2014-present
- American Physical Society member, 2014-present

- American Association for the Advancement of Science member, 2013-present
- Member of PRIMUS (PRISM Multi-object Survey; P.I.: A. Coil, M. Blanton, D. Eisenstein) and leader of galaxy clustering analyses, 2012-present
- Core member of the Galaxy Environment Project and Galaxy Cluster Mass Reconstruction Project collaborations (with Frazer Pearce and Darren Croton), 2009-present
- Member of S4G (Spitzer Survey of Stellar Structure in Galaxies; P.I.: K. Sheth), 2010-2013
- Member of HSLs (Herschel-SPIRE Legacy Survey; P.I.: A. Cooray), 2010-2011
- Member of KINGFISH (Key Insights on Nearby Galaxies: a Far-Infrared Survey with Herschel; P.I.: R. C. Kennicutt) and HERITAGE (HERschel Inventory of The Agents of Galaxy Evolution in the Magellanic Clouds; P.I.: M. Meixner), 2009-2013
- Member of Galaxy Zoo (P.I.: C. Lintott) and leader of galaxy clustering analyses, 2008-present
- Pan-STARRS Large-Scale Structure Key Project member, 2007-2009
- Sloan Digital Sky Survey Large-Scale Structure Working Group member, 2005-2009; SDSS-III Galaxy Evolution and Galaxy Clustering Working Groups, 2009-present
- American Astronomical Society (American Institute of Physics) member, 2004-present
- Society of Physics Students member, 2000-2006
- Philosophy of Science Association member, 2000-2002
- Non-academic memberships include: Students for Environmental Action (1998-2000); Students in Solidarity (2000-2004); Pittsburgh Professors for Peace and Justice, Steering Committee (2002-2004); Union of Concerned Scientists (2012-present)

## REFERENCES

- Alison L. Coil, Center for Astrophysics & Space Sciences, University of California, San Diego, 9500 Gilman Drive, San Diego, CA 92093, 858-822-3940, [acoil@ucsd.edu](mailto:acoil@ucsd.edu)
- Ravi K. Sheth, Department of Physics & Astronomy, University of Pennsylvania, 209 S. 33rd Street, Philadelphia, PA 19104, 215-898-5942, [shethrk@sas.upenn.edu](mailto:shethrk@sas.upenn.edu)
- Fraser Cain, *Universe Today*, [frasercain@gmail.com](mailto:frasercain@gmail.com)