

CURRICULUM VITAE: RAVI K. SHETH (March 2013)

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Date of birth: 20 February 1968 Place of birth: Milwaukee, WI, USA
Nationality: USA/Italy

Faculty Appointments:

2011 – 2012	Senior Research Scientist	ICTP
2009 –	Professor	University of Pennsylvania
2007 – 2010	Associate Chair for Graduate Affairs	
2007 – 2009	Associate Professor	University of Pennsylvania
2005 – 2007	Assistant Professor	University of Pennsylvania
2002 – 2004	Assistant Professor	University of Pittsburgh

Research Experience:

1999 – 2001 Fermilab, Batavia, IL, U.S.A.
1996 – 1999 MPI für Astrophysik, Garching, Germany
1994 – 1996 Astronomy Department, U.C. Berkeley, U.S.A.

Higher Education:

1990 – 1994	Ph.D. in Astrophysics Marshall Scholar	Institute of Astronomy and Jesus College University of Cambridge
1986 – 1990	BSc (High Honors) in Physics Dana S. McGill Scholar	Haverford College
1983 – 1986	Four 'IB' HL certificates	Kodaikanal International School, India

Research interests/highlights:

I develop physical models and statistical methods which allow the data from large scale galaxy and cluster surveys to constrain models of galaxy formation and cosmology.

My work on halo abundances and clustering forms the basis of methods which use clusters (e.g., X-ray luminosities, temperatures, the Sunyaev-Zeldovich effects, galaxy velocity dispersions) to study cosmology. Recently, I extended the approach to predict how the morphology (sheets, filaments, voids) rather than simply the density, of large scale structure evolves, and how these predictions are modified if the initial conditions were non-Gaussian, or if the force of gravity does not decrease as the inverse-square of separation.

I have played a leading role in the development of what is now the standard model of nonlinear clustering and biasing: the Halo Model. It is the currently the best language for interpreting measurements of weak lensing, the thermal and kinematic Sunyaev-Zeldovich effects, and how galaxy clustering depends on galaxy type, both in real and in redshift space.

In 2004, I showed that dark matter halo formation is correlated with environment; I also discussed why, and pointed out that understanding this correlation is necessary if the Halo Model is to be used as a precision tool for cosmology. This correlation was sufficiently unexpected and the consequences sufficiently important that a number of groups have since confirmed that the effect does indeed exist: the effect is now called Assembly Bias.

In 2002, I developed a new method for estimating the evolution of the optical depth in the Lyman- α forest. In 2005, I showed how to use Mark Correlations to quantify environmental trends in the galaxy distribution. More recently, I have developed methods for making unbiased estimates of the galaxy luminosity function and galaxy scaling relations from photometric redshift surveys. The methods can have broader impact, since they can be applied to studies where peculiar velocities are an important component of the observed redshift: these include using star counts to model the structure of our galaxy, and estimating the luminosity function of dwarf galaxies in our local (≤ 50 Mpc) neighborhood. And in 2012, I provided a simple formula for the first crossing distribution by walks with correlated steps which is accurate for a wide range of barrier shapes. I then showed how to extend it to treat n -dimensional walks – thus providing the first realistic fully analytic model of nonlocal bias. In the process, I showed how to unify the Excursion Set and Peaks Theory descriptions of the Cosmic Web.

Visiting Positions:

Senior Visiting Scholar	AIMS, Cape Town	South Africa (2012–2015)
Visiting Professor	LUTH - Meudon Observatory	France (June 2012)
Visiting Professor	GEPI - Meudon Observatory	France (June 2011)
Visiting Scholar	IPhT-CEA	Saclay, France (June 2010)
Visiting Professor	APC, Paris 7 Diderot	Paris, France (June 2009)

Grants and Awards:

Co-I: NASA-ATP (2011-2014):

Galaxies, halos and mass as cosmological tests (\$417k)

PI: NSF (2009-2013):

Stochastic bias and ellipsoidal collapse (\$407k)

Co-I: Westerbork Radio Telescope (2006-2007):

The gas content of void galaxies (195 hours)

PI: NSF (2005-2009):

Accounting for distance errors in cosmology (\$295k)

Joint PI: HST Cycle 14 Archival:

Mark correlations and galaxy evolution (\$20k of \$80k)

Co-I: HST Cycle 14 Archival (PI: D. Turnshek):

Are our ideas about quasar absorption lines consistent with galaxy images?

Co-I: HST Cycle 13 Snapshot (PI: M. Bernardi):

The most massive galaxies in the Universe (\$0k of \$113k)

PI: NASA-ADP (2004-2007):

Hot and cold spots in the WMAP sky (\$135k)

PI: NSF (2003-2007):

Substructure and the halo model of large scale structure (\$235k)

Joint-PI: US-Israel BSF (2003-2007):

Cosmology with the Lyman-alpha forest (\$37k)

PI: NASA-ATP (2003-2006):

Marked correlation functions and the evolution of galaxy biasing (\$290k)

PI: NCSA-PSC TCS1 (2003-2004):

Numerical simulations of self-similar gravitational clustering (35k units)

PI: UPitt FRG II (2002-2005):

Ellipsoidal collapse and the shapes of objects (\$3k)

Graduate Students:

U. Abbas	Pitt→Marseille→Torino	Galaxy clustering and environment
L. Rimoldini	Pitt→Edinburgh→MPIA→Geneva	Clustering of absorption line systems
R. Skibba	Pitt→MPIA→Arizona→UCSD	Mark correlation functions
M. Caler	Penn→ West Chester	Absorption line systems
T. Y. Lam	Penn→IPMU→MPA	Non-gaussian statistics in cosmology
M. Martino	Penn	Environmental effects and non-standard models
J. Moreno	Penn→Haverford→SISSA→UVic	Merger trees and quasars
G. Rossi	Penn→KIAS→CEA-Saclay	Distance errors in cosmology
N. Frusciante	SISSA	Local and nonlocal bias
E. Castorina	SISSA	Stochastic bias and excursion set peaks

Post-graduate Scholar Sponsor:

J. Colberg	Pitt→CMU→UMass	Voids; The Theorist's Virtual Observatory
D. Vanden Berk	Pitt→PSU	Quasars and AGN
R. Smith	Penn→ETH, Zurich→MPA	Halos, perturbation theory and BAOs
L. Ostorero	Penn→ Torino	
P. Pápai	ICTP→ PSU, Thailand	Anisotropic clustering
A. Paranjape	ICTP→Zurich	The excursion set approach
E. Sefusatti	ICTP→Milano	Fast mocks for cosmology

Courses Developed and Taught in Trieste:

Spring 2012	Cosmology	ICTP Diploma
Spring 2012	Large Scale Structure	SISSA PhD

Courses Developed and Taught at Penn:

Spring 2013	Survey of the Universe	125 non-science majors
Spring 2010	The Big Bang and Beyond	60 non-science majors
Fall 2009	The Big Bang and Beyond	25 freshman
Fall 2008	Survey of the Universe	60 non-science majors
Spring 2008	The Big Bang and Beyond	15 non-science majors
Fall 2007	The Big Bang and Beyond	13 non-science majors
Spring 2007	Life in the Universe	19 non-science majors
Fall 2006	The Big Bang and Beyond	115 non-science majors
Spring 2006	Life in the Universe	26 non-science majors
Fall 2005	Physics I: Mechanics and Waves	83 physics/engineering majors
Spring 2005	Mechanics, Dynamics and Chaos	4 graduate students

Courses Developed and Taught at Pitt:

Spring 2004	Stonehenge to Hubble	100 non-science majors
Fall 2003	Introduction to Astronomy	100 physics majors
Spring 2003	Galactic and Extra-galactic Astronomy	7 graduate students
Fall 2002	Introduction to Astronomy	100 physics majors
Spring 2002	Radiative Processes in Astrophysics	7 graduate students

Courses Developed and Taught Elsewhere:

Lecturer	Galaxy surveys	TIFR, India (December 2012)
Lecturer	Structure formation	STIAS, South Africa (Jan 2012)
Visiting Lecturer	Nonlinear clustering	HRI, India (February 2009)
Invited Lecturer	XIII BSCG	Rio de Janiero, Brazil (July 2008)
PIRE Lecturer	Hierarchical structure formation	Santiago, Chile (March 2007)
Invited Lecturer	Galaxies and Cosmology	University of Padova (January 2007)
NOVA Lecturer	The halo model	The Netherlands (November 2006)

University Service:

2009 – 2011	Committee on Undergraduate Academic Standing
2007 – 2011	Graduate Chair
2007 – 2011	Department Planning Committee
2007	Particle-Cosmology Faculty Search Committee
2006 – 2011	Overseer Penn Dark Energy Survey Account
2006	Graduate Committee
2006	Colloquium Committee
2006	Astronomy Seminar Organizer
2005 – 2008	Astro Faculty Search Committee
2005 –	20 PhD Thesis Committees (other than for my own students)

External Service:

2012 –	Kaufman Science Advisory Board
2012 –	IAU-OAD Task Force 1 (Research and Universities)
2009	NASA ATP Grant Review Panel
2008	NOAO Extragalactic Time Allocation Committee
2008 – present	Editorial Board: Advances in Astronomy
2007 – 2008	Dark Energy Survey Publications Committee
2007 – present	PhD reviewer for students in France, India, Israel, Italy, Spain, The Netherlands
2007	NASA Spitzer Proposal Review Panel
2006 – 2007	NSF Grant Review Panel
2004	NASA Grant Review Panel
2004 – present	Public lectures: Philadelphia, Pittsburgh, Rio de Janeiro
1995 – present	Referee for AA, ApJ, JCAP, MNRAS, New. Ast., PRD

Organization of International Conferences:

Organizing Committee: Halo bias: Nonlinear, nonlocal and non-Gaussian
ICTP, Trieste, Italy (16-18 October 2013)

Organizing Committee: New light in cosmology from the CMB
ICTP, Trieste, Italy (22 July - 2 August 2013)

Organizing Committee: Recent developments in nuclear and astroparticle physics
ICTP, Trieste, Italy (19-23 November 2012)

Organizing Committee: The physics of star formation and its role in galaxy evolution
ICTP, Trieste, Italy (16-18 October 2012)

Organizing Committee: ICTP Cosmology Summer School/Large Scale Structure Workshop
ICTP, Trieste, Italy (17 July-2 August 2012)

Organizing Committee: Perturbative approaches to redshift space distortions
Pauli Institute, ITP, Zurich, Switzerland (11-13 July 2012)

Organizing Committee: Joint ICTP-SISSA Workshop on Interacting Galaxies and Binary Quasars
ICTP, Trieste, Italy (2-5 April 2012)

Co-Director, Lecturer: Cape Town International Cosmology School
STIAS, Stellenbosch, South Africa (15-28 January 2012)

Organizer, Lecturer: School and Conference on Analytical and Computational Astrophysics
ICTP, Trieste, Italy (14-25 November 2011)

International Organizing Committee: 3rd Galileo–Xu Guangqi Meeting
Beijing, China (11-15 October 2011)

Organizing Committee: Workshop on Infrared Modifications of Gravity
ICTP, Trieste, Italy (26-30 September 2011)

Scientific Organizing Committee: Galaxy Evolution and Environment
Kuala Lumpur, Malaysia (30 March-3 April 2009)

Organizing Committee: Cosmological Voids
Dutch Royal Academy of Sciences, Amsterdam (11-15 December 2006)

Invited Chair: Galaxies and Large Scale Structure

XI Marcel Grossmann Meeting on General Relativity, Berlin, (23-29 July 2006)

Organizing Committee: Workshop on Voids

Aspen Center for Physics (28 May-18 June 2006)

Invited Chair: Galaxies and Large Scale Structure

X Marcel Grossmann Meeting on General Relativity, Rio de Janeiro (20-26 July 2003)

Organizing Committee: Structure formation and dark matter halos

Fermilab, Batavia, IL (10-12 May 2001)

Organizing Committee: Evolution of large scale structure

The first MPA-ESO conference in Garching, Germany (2-7 August 1998)

Books and Invited Reviews:

1. Galaxies and large scale structure: Lecture notes from the XIIIth Brazilian School on Cosmology and Gravitation.
Ravi K. Sheth. 2009.
AIP Conference Proceedings, Volume 1132, pp. 158-198. Eds. M. Novello & S. Perez.
2. The Halo Model of Large Scale Structure
Asantha Cooray & **Ravi K. Sheth.** 2002
Physics Reports, 372, 1-129.
3. Evolution of large scale structure: From recombination to Garching
Eds. A. J. Banday, **Ravi K. Sheth** and L. da Costa. 1999
Proceedings of the MPA-ESO conference in Garching, Germany (2-7 Aug. 1998)

Primary Refereed Publications:

133. An accurate tool for the fast generation of dark matter halo catalogs
P. Monaco, E. Sefusatti, S. Borgani, M. Crocce, P. Fosalba, **Ravi K. Sheth** & T. Theuns.
2013
Monthly Notices of the Royal Astronomical Society, revised
132. On the self-consistency of the excursion set approach
I. Achitouv, Y. Rasera, **Ravi K. Sheth** & P.-S. Corasaniti. 2013
Physical Review Letters, submitted (arXiv:1212.1166)
131. Stochastic bias in multi-dimensional excursion set approaches
E. Castorina & **Ravi K. Sheth.** 2013
Monthly Notices of the Royal Astronomical Society, revised (arXiv:1301.5128)
130. Peak-peak correlations in the cosmic background radiation from cosmic strings
M. S. Movahed, B. Javanmardi & **Ravi K. Sheth.** 2013
Monthly Notices of the Royal Astronomical Society, revised (arXiv:1212.0964)

129. Systematic effects on the luminosity size relation: Dependence on model fitting and morphology
M. Bernardi, A. Meert, V. Vikram, M. Huertas-Company, S. Mei, F. Shankar & **Ravi K. Sheth**. 2013
Monthly Notices of the Royal Astronomical Society, revised (arXiv:1211.6122)
128. Ellipsoidal halo finders and implications for models of triaxial halo formation
G. Despali, G. Tormen & **Ravi K. Sheth**. 2013
Monthly Notices of the Royal Astronomical Society, in press (arXiv:1212.4157)
127. Excursion set peaks: A self-consistent model of dark halo abundances and clustering
A. Paranjape, **Ravi K. Sheth** & V. Desjacques. 2013
Monthly Notices of the Royal Astronomical Society, in press (arXiv:1210.1483)
126. Nonlocal Lagrangian bias
Ravi K. Sheth, K. C. Chan & R. Scoccimarro. 2013
Physical Review D, 87, 083002 (13 pages)
125. On the anisotropic density distribution on large scales
P. Papai & **Ravi K. Sheth**. 2013
Monthly Notices of the Royal Astronomical Society, 429, 1133–1138
124. Measures of galaxy environment II - Rank ordered mark correlations
R. Skibba, **Ravi K. Sheth**, et al. 2013
Monthly Notices of the Royal Astronomical Society, 429, 458–468
123. Scale dependent halo bias in the excursion set approach
M. Musso, A. Paranjape, **Ravi K. Sheth**. 2012
Monthly Notices of the Royal Astronomical Society, 427, 3145–3158
122. Peaks theory and the excursion set approach
A. Paranjape & **Ravi K. Sheth**. 2012
Monthly Notices of the Royal Astronomical Society, 426, 2789–2796
121. Lagrangian bias in the local bias model
N. Frusciante & **Ravi K. Sheth**. 2012
Journal of Cosmology and Astroparticle Physics, 11, 016
120. Cosmic tides
U.-L. Pen, **Ravi K. Sheth**, J. Harnois-Deraps, X. Chen, Z. Li. 2012
Physical Review D, submitted (arXiv:1202.5804)
119. The luminosities of the brightest cluster galaxies and brightest satellites in SDSS groups
A. Paranjape & **Ravi K. Sheth**. 2012
Monthly Notices of the Royal Astronomical Society, 423, 1845–1855
118. One step beyond: The excursion set approach with correlated steps
M. Musso & **Ravi K. Sheth**. 2012
Monthly Notices of the Royal Astronomical Society, 423, L102–L106

117. Plain fundamentals of fundamental planes: Analytics and algorithms
Ravi K. Sheth & M. Bernardi. 2012
Monthly Notices of the Royal Astronomical Society, 422, 1825–1834
116. Formation times, mass growth histories and concentrations of dark matter haloes
C. Giocoli, G. Tormen & **Ravi K. Sheth**. 2012
Monthly Notices of the Royal Astronomical Society, 422, 185–198
115. Gravity and large-scale non-local bias
K. C. Chan, R. Scoccimarro & **Ravi K. Sheth**. 2012
Physical Review D., 85, 083509 (24 pages)
114. A hierarchy of voids: More ado about nothing
A. Paranjape, T. Y. Lam & **Ravi K. Sheth**. 2012
Monthly Notices of the Royal Astronomical Society, 420, 1648–1655
113. Halo abundances and counts in cells: The excursion set approach with correlated steps
A. Paranjape, T. Y. Lam & **Ravi K. Sheth**. 2012
Monthly Notices of the Royal Astronomical Society, 420, 1429–1441
112. Halo bias in the excursion set approach with correlated steps
A. Paranjape & **Ravi K. Sheth**. 2012
Monthly Notices of the Royal Astronomical Society, 419, 132–137
111. How unusual are the Shapley supercluster and the Sloan Great Wall?
Ravi K. Sheth & A. Diaferio. 2011
Monthly Notices of the Royal Astronomical Society, 417, 2938–2949
110. Modelling the shapes of the largest gravitationally bound objects
G. Rossi, **Ravi K. Sheth** & G. Tormen. 2011
Monthly Notices of the Royal Astronomical Society, 416, 248–261
109. Symmetry in stochasticity: Random walk models of large scale structure
Ravi K. Sheth. 2011
Pramana – Journal of Physics, 77, 169–184
108. Optimal linear reconstruction of dark matter from halo catalogs
C. Yanchuan, G. Bernstein & **Ravi K. Sheth**. 2011
Monthly Notices of the Royal Astronomical Society, 412, 995–1010
107. Scale-dependent bias from scale-dependent growth
K. Parfrey, L. Hui & **Ravi K. Sheth**. 2011
Physical Review D, 83, 063511
106. Evidence of major dry mergers at $M_* > 2 \times 10^{11} M_\odot$ from curvature in early-type galaxy scaling relations?
M. Bernardi, N. Roche, F. Shankar & **Ravi K. Sheth**. 2011
Monthly Notices of the Royal Astronomical Society, 412, L6–L10

105. Curvature in the color-magnitude relation but not in color- σ : Major dry mergers at $M_* > 2 \times 10^{11} M_\odot$?
M. Bernardi, N. Roche, F. Shankar & **Ravi K. Sheth**. 2011
Monthly Notices of the Royal Astronomical Society, 412, 684–704
104. The cosmological free-free signal from galaxy groups and clusters
P.-P. Ponente, J.-M. Diego, **Ravi K. Sheth**, C. Burigana, S. Knollmann & Y. Ascasibar. 2011
Monthly Notices of the Royal Astronomical Society, 410, 2353–2362
103. Modeling scale-dependent bias on the baryonic acoustic scale with the statistics of peaks of Gaussian random fields
V. Desjacques, M. Crocce, R. Scoccimarro & **Ravi K. Sheth**. 2010
Physical Review D, 82, 103529
102. Halo model description of the nonlinear dark matter power spectrum at $k \gg 1 h\text{Mpc}^{-1}$
C. Giocoli, M. Bartelmann, **Ravi K. Sheth** & M. Cacciato. 2010
Monthly Notices of the Royal Astronomical Society, 408, 300–313
101. MgII absorption systems and their neighbouring galaxies from a background subtraction technique
M. Caler, **Ravi K. Sheth** & B. Jain. 2010
Monthly Notices of the Royal Astronomical Society, 406, 1269–1289
100. Galaxy luminosities, stellar masses, sizes, velocity dispersions as a function of morphological type
M. Bernardi, F. Shankar, J. B. Hyde, S. Mei, F. Marulli & **Ravi K. Sheth**. 2010
Monthly Notices of the Royal Astronomical Society, 404, 2087–2122
99. The substructure hierarchy in dark matter haloes
C. Giocoli, G. Tormen, **Ravi K. Sheth** & F. C. van den Bosch. 2010
Monthly Notices of the Royal Astronomical Society, 404, 502–517
98. Convolution and deconvolution based estimates of galaxy scaling relations from photometric redshift surveys
Ravi K. Sheth & G. Rossi. 2010
Monthly Notices of the Royal Astronomical Society, 403, 2137–2142
97. Sizes and ages of SDSS ellipticals: Comparison with hierarchical galaxy formation models
F. Shankar, F. Marulli, M. Bernardi, X. Dai, J. B. Hyde & **Ravi K. Sheth**. 2010
Monthly Notices of the Royal Astronomical Society, 403, 117–128
96. The nonlinear redshift space probability distribution function in models with local primordial non-Gaussianity
T. Y. Lam, V. Desjacques & **Ravi K. Sheth**. 2010
Monthly Notices of the Royal Astronomical Society, 402, 2397–2402
95. Large scale bias and the inaccuracy of the peak background split
M. Manera, **Ravi K. Sheth** & R. Scoccimarro. 2010
Monthly Notices of the Royal Astronomical Society, 402, 589–602

94. Redshift space correlations and scale-dependent stochastic biasing of density peaks
V. Desjacques & **Ravi K. Sheth**. 2010
Physical Review D, 81, 023526 (24 pages)
93. Reconstructing galaxy fundamental distributions and scaling relations from photometric redshift surveys. Applications to the SDSS early-type sample
G. Rossi, **Ravi K. Sheth** & C. Park. 2010
Monthly Notices of the Royal Astronomical Society, 401, 666–676
92. The initial shear field in models with primordial local non-Gaussianity and implications for halo and void abundances
T. Y. Lam, **Ravi K. Sheth** & V. Desjacques. 2009
Monthly Notices of the Royal Astronomical Society, 399, 1482–1494
91. Non-gaussian distribution and clustering of hot and cold pixels in the WMAP5 sky
G. Rossi, **Ravi K. Sheth**, C. Park & C. Hernandez-Monteagudo. 2009
Monthly Notices of the Royal Astronomical Society, 399, 304–316
90. Halo abundances in the f_{nl} model
T. Y. Lam & **Ravi K. Sheth**. 2009
Monthly Notices of the Royal Astronomical Society, 398, 2143–2151
89. Dark matter halo creation in moving barrier models
J. Moreno, C. Giocoli & **Ravi K. Sheth**. 2009
Monthly Notices of the Royal Astronomical Society, 397, 299–310
88. The nonlinear probability distribution function in models with local primordial non-Gaussianity
T. Y. Lam & **Ravi K. Sheth**. 2009
Monthly Notices of the Royal Astronomical Society, 395, 1743–1748
87. Spherical collapse and cluster counts in modified gravity models
M. Martino, H. F. Stabenau & **Ravi K. Sheth**. 2009
Physical Review D, 79, 084013 (10 pages)
86. On the equivalence between the effective cosmology and excursion set treatments of environment
M. C. Martino & **Ravi K. Sheth**. 2009
Monthly Notices of the Royal Astronomical Society, 394, 2109–2112
85. Linear theory and velocity correlations of clusters
I. Zehavi & **Ravi K. Sheth**. 2009
Monthly Notices of the Royal Astronomical Society, 394, 1459–1462
84. A halo model of galaxy colors and clustering in the SDSS
R. A. Skibba & **Ravi K. Sheth**. 2009
Monthly Notices of the Royal Astronomical Society, 392, 1080–1091
83. Merger histories of dark matter haloes in moving barrier models
J. Moreno, C. Giocoli & **Ravi K. Sheth**. 2008
Monthly Notices of the Royal Astronomical Society, 391, 1729–1740

82. A search for the most massive galaxies III: Global and central structure
J. B. Hyde, M. Bernardi, **Ravi K. Sheth**, K. Gebhardt & R. C. Nichol. 2008
Monthly Notices of the Royal Astronomical Society, 391, 1559–1576
81. A search for the most massive galaxies II: Structure, environment and formation
M. Bernardi, J. B. Hyde, A. Fritz, **Ravi K. Sheth**, K. Gebhardt & R. C. Nichol. 2008
Monthly Notices of the Royal Astronomical Society, 391, 1191–1209
80. Ellipsoidal collapse and the redshift space probability distribution function of dark matter
T. Y. Lam & **Ravi K. Sheth**. 2008
Monthly Notices of the Royal Astronomical Society, 389, 1249–1258
79. An analytic model for the bispectrum of galaxies in redshift space
R. E. Smith, **Ravi K. Sheth** & R. Scoccimarro. 2008
Phys. Rev. D, 78, 023523 (26 pages)
78. The 2df-SDSS LRG and QSO survey: Evolution of the clustering of LRGs since $z=0.6$
D. Wake, **Ravi K. Sheth** et al. 2008
Monthly Notices of the Royal Astronomical Society, 387, 1045–1062
77. Unbiased estimates of galaxy scaling relations from photometric redshift surveys
G. Rossi & **Ravi K. Sheth**. 2008
Monthly Notices of the Royal Astronomical Society, 387, 735–740
76. Experimental design and model selection: The example of exoplanet detection
V. Balasubramanian, K. Larjo & **Ravi K. Sheth**. 2008
Festschrift for Jorma Rissanen, TICSP series 38, p.81–92 (arXiv:0802.0498)
75. Perturbation theory and excursion set estimates of the probability distribution function of dark matter, and a method for reconstructing the initial distribution
T. Y. Lam & **Ravi K. Sheth**. 2008
Monthly Notices of the Royal Astronomical Society, 386, 407–415
74. Motion of the acoustic peak in the correlation function
R. E. Smith, R. Scoccimarro & **Ravi K. Sheth**. 2008
Physical Review D, 77, 043525 (20 pages)
73. Satellite luminosities in galaxy groups
R. Skibba, **Ravi K. Sheth** & M. Martino. 2007
Monthly Notices of the Royal Astronomical Society, 382, 1940–1946
72. The probability distribution of the SZ power spectrum: An analytic approach
P. Zhang & **Ravi K. Sheth**. 2007
The Astrophysical Journal, 671, 14–26
71. The three-point correlation function of luminous red galaxies in the SDSS
G. Kulkarni, R. Nichol, **Ravi K. Sheth**, H. Seo, D. Eisenstein, & A. Gray. 2007
Monthly Notices of the Royal Astronomical Society, 378, 1196–1206

70. On estimating luminosity and redshift distributions in photometric redshift surveys
Ravi K. Sheth. 2007
Monthly Notices of the Royal Astronomical Society, 378, 709–715
69. Strong clustering of underdense regions and the environmental dependence of clustering from Gaussian initial conditions
U. Abbas & **Ravi K. Sheth.** 2007
Monthly Notices of the Royal Astronomical Society, 378, 641–648
68. Mark correlations in galaxy formation models
Ravi K. Sheth, A. J. Connolly & R. Skibba. 2007
Monthly Notices of the Royal Astronomical Society, submitted (astro-ph/0511773)
67. On the inconsistency between the black hole mass function inferred from $M_{\bullet} - \sigma$ and $M_{\bullet} - L$ correlations
E. Tundo, M. Bernardi, J. B. Hyde, **Ravi K. Sheth** & A. Pizzella. 2007
The Astrophysical Journal, 663, 53–60
66. Selection bias in the $M_{\bullet} - \sigma$ and $M_{\bullet} - L$ correlations and its consequences
M. Bernardi, **Ravi K. Sheth,** E. Tundo & J. B. Hyde. 2007
The Astrophysical Journal, 660, 267–275
65. The luminosities, sizes and velocity dispersions of Brightest Cluster Galaxies: Implications for formation history
M. Bernardi, J. B. Hyde, **Ravi K. Sheth,** C. J. Miller & R. C. Nichol. 2007
The Astronomical Journal, 133, 1741–1755
64. An improved model for the formation times of dark matter haloes
C. Giocoli, J. Moreno, **Ravi K. Sheth** & G. Tormen. 2007
Monthly Notices of the Royal Astronomical Society, 376, 977–983
63. The scale dependence of halo and galaxy bias I: Effects in real space
R. E. Smith, R. Scoccimarro & **Ravi K. Sheth.** 2007
Physical Review D, 75, 063512 (30 pages)
62. The probability distribution of the Ly- α transmitted flux from a sample of SDSS quasars
V. Desjacques, A. Nusser & **Ravi K. Sheth.** 2007
Monthly Notices of the Royal Astronomical Society, 374, 206–219
61. The environmental dependence of galaxy clustering in the SDSS
U. Abbas & **Ravi K. Sheth.** 2006
Monthly Notices of the Royal Astronomical Society, 372, 1749–1754
60. Environment and the cosmic evolution of star formation
Ravi K. Sheth, R. Jimenez, B. Panter & A. F. Heavens. 2006
The Astrophysical Journal Letters, 650, L25–L28
59. The luminosity-weighted or ‘marked’ correlation function
R. Skibba, **Ravi K. Sheth,** A. J. Connolly & R. Scranton. 2006
Monthly Notices of the Royal Astronomical Society, 369, 68–76

58. An excursion set model of the cosmic web: The abundance of sheets, filaments and halos
J. Shen, T. Abel, H. J. Mo, & **Ravi K. Sheth**. 2006
The Astrophysical Journal, 645, 783–791
57. The effect of large-scale structure on the SDSS galaxy three-point correlation function
R. C. Nichol, **Ravi K. Sheth**, Y. Suto, et al. 2006
Monthly Notices of the Royal Astronomical Society, 368, 1507–1514
56. A search for the most massive galaxies in the Universe: Double trouble?
M. Bernardi, **Ravi K. Sheth**, R. C. Nichol, et al. 2006
The Astronomical Journal, 131, 2018–2034
55. Evolution and environment of early-type galaxies
M. Bernardi, R. C. Nichol, **Ravi K. Sheth**, C. J. Miller & J. Brinkmann. 2006
The Astronomical Journal, 131, 1288–1317
54. The impact of halo shapes on the bispectrum in cosmology
R. E. Smith, P. I. R. Watts & **Ravi K. Sheth**. 2006
Monthly Notices of the Royal Astronomical Society, 365, 214–230
53. The environmental dependence of clustering in hierarchical models
U. Abbas & **Ravi K. Sheth**. 2005
Monthly Notices of the Royal Astronomical Society, 364, 1327–1336
52. The halo model description of mark correlations
Ravi K. Sheth. 2005
Monthly Notices of the Royal Astronomical Society, 364, 796–806
51. Voids in a Λ CDM universe
J. M. Colberg, **Ravi K. Sheth**, A. Diaferio, L. Gao & N. Yoshida. 2005
Monthly Notices of the Royal Astronomical Society, 360, 216–226
50. Improved cosmological constraints from gravitational lens statistics
J. Mitchell, C. Keeton, J. Frieman & **Ravi K. Sheth**. 2005
The Astrophysical Journal, 622, 81–98
49. Colors, magnitudes, and velocity dispersions in early-type galaxies: Implications for galaxy ages and metallicities
M. Bernardi, **Ravi K. Sheth**, R. C. Nichol, D. P. Schneider & J. Brinkmann. 2005
The Astronomical Journal, 129, 61–72
48. On the inclusion of environmental effects in the halo model of large scale structure
Ravi K. Sheth, U. Abbas & R. Skibba. 2004
Proceedings of IAU Colloquium 195, ed. A. Diaferio, p.539–545
47. On the environmental dependence of halo formation
Ravi K. Sheth & G. Tormen. 2004
Monthly Notices of the Royal Astronomical Society, 350, 1385–1390

46. On departures from a power law in the galaxy correlation function
I. Zehavi, D. H. Weinberg, Z. Zheng, A. A. Berlind, J. A. Frieman, R. Scoccimarro, **Ravi K. Sheth**, M. R. Blanton, M. Tegmark, H. J. Mo, et al. 2004
The Astrophysical Journal, 608, 16–24
45. A hierarchy of voids: Much ado about nothing
Ravi K. Sheth & R. van de Weygaert. 2004
Monthly Notices of the Royal Astronomical Society, 350, 517–538
44. Formation times and masses of dark matter haloes
Ravi K. Sheth & G. Tormen. 2004
Monthly Notices of the Royal Astronomical Society, 349, 1464–1468
43. Substructure in dark matter halos: Towards a model of the abundance and spatial distribution of subclumps
Ravi K. Sheth. 2003
Monthly Notices of the Royal Astronomical Society, 345, 1200–1204
42. Substructure and the halo model of large scale structure
Ravi K. Sheth & B. Jain. 2003
Monthly Notices of the Royal Astronomical Society, 345, 529–538
41. Quasar-galaxy and galaxy-galaxy cross-correlations: Model predictions with realistic galaxies
B. Jain, R. Scranton & **Ravi K. Sheth**. 2003
Monthly Notices of the Royal Astronomical Society, 345, 62–70
40. The velocity dispersion function of early-type galaxies
Ravi K. Sheth, M. Bernardi, P. L. Schechter, et al. 2003
The Astrophysical Journal, 594, 225–231
39. The morphological Butcher-Oemler effect in the SDSS Cut and Enhance galaxy cluster catalog
T. Goto, S. Okamura, M. Yagi, **Ravi K. Sheth**, et al. 2003
Publications of the Astronomical Society of Japan, 55, 739–755
38. Early-type galaxies in the Sloan Digital Sky Survey IV. Colors and chemical evolution
M. Bernardi, **Ravi K. Sheth**, et al. 2003
The Astronomical Journal, 125, 1882–1896
37. Early-type galaxies in the Sloan Digital Sky Survey III. The Fundamental Plane
M. Bernardi, **Ravi K. Sheth**, et al. 2003
The Astronomical Journal, 125, 1866–1881
36. Early-type galaxies in the Sloan Digital Sky Survey II. Correlations between observables
M. Bernardi, **Ravi K. Sheth**, et al. 2003
The Astronomical Journal, 125, 1849–1865

35. Early-type galaxies in the Sloan Digital Sky Survey I. The sample
M. Bernardi, **Ravi K. Sheth**, J. Annis, et al. 2003
The Astronomical Journal, 125, 1817–1848
34. A feature at $z \sim 3.2$ in the evolution of the Ly- α forest optical depth
M. Bernardi, **Ravi K. Sheth**, M. Subbarao, et al. 2003
The Astronomical Journal, 125, 32–52
33. Detection of He II reionization in the SDSS quasar sample
T. Theuns, M. Bernardi, J. Frieman, P. Hewett, J. Schaye, **Ravi K. Sheth** & M. Subbarao.
2002
The Astrophysical Journal Letters, 574, L111–L114
32. On the distribution of halos, galaxies and mass
R. Casas-Miranda, H. J. Mo, **Ravi K. Sheth** & G. Börner. 2002
Monthly Notices of the Royal Astronomical Society, 333, 730–738
31. PTHalos: A fast method for generating mock galaxy distributions
Román Scoccimarro & **Ravi K. Sheth**. 2002
Monthly Notices of the Royal Astronomical Society, 329, 629–640
30. An excursion set model of hierarchical clustering: Ellipsoidal collapse and the moving barrier
Ravi K. Sheth & G. Tormen. 2002
Monthly Notices of the Royal Astronomical Society, 329, 61–75
29. Non-gaussian CMB temperature fluctuations from peculiar velocities of clusters N. Yoshida,
Ravi K. Sheth, & A. Diaferio. 2001
Monthly Notices of the Royal Astronomical Society, 328, 669–677
28. On the streaming motions of haloes and galaxies
Ravi K. Sheth, A. Diaferio, L. Hui & R. Scoccimarro. 2001
Monthly Notices of the Royal Astronomical Society, 326, 463–472
27. Linear and nonlinear contributions to pairwise peculiar velocities
Ravi K. Sheth, L. Hui, A. Diaferio & R. Scoccimarro. 2001
Monthly Notices of the Royal Astronomical Society, 325, 1288–1302
26. Ellipsoidal collapse and an improved model for the number and spatial distribution of dark matter haloes
Ravi K. Sheth, H. J. Mo & G. Tormen. 2001
Monthly Notices of the Royal Astronomical Society, 323, 1–12
25. Peculiar velocities of galaxies and clusters
Ravi K. Sheth & A. Diaferio. 2001
Monthly Notices of the Royal Astronomical Society, 322, 901–917
24. How many galaxies can fit in a halo? Constraints on galaxy formation efficiency from spatial clustering

- R. Scoccimarro, **Ravi K. Sheth**, L. Hui & B. Jain. 2001
The Astrophysical Journal, 546, 20–34
23. Halo dark matter and ultra-high energy cosmic rays
P. Blasi & **Ravi K. Sheth**. 2000
Physics Letters B, 486, 233–238
 22. The correlation of peaks in the microwave background
A. F. Heavens & **Ravi K. Sheth**. 1999
Monthly Notices of the Royal Astronomical Society, 310, 1062–1070
 21. Large scale bias and the peak background split
Ravi K. Sheth & G. Tormen. 1999
Monthly Notices of the Royal Astronomical Society, 308, 119–126
 20. The forest of merger history trees associated with the formation of dark matter halos
Ravi K. Sheth & G. Lemson. 1999
Monthly Notices of the Royal Astronomical Society, 305, 946–956
 19. Biasing and the distribution of dark matter halos
Ravi K. Sheth & G. Lemson. 1999
Monthly Notices of the Royal Astronomical Society, 304, 767–792
 18. Mass growth and density profiles of dark matter halos in hierarchical clustering
Adi Nusser & **Ravi K. Sheth**. 1998
Monthly Notices of the Royal Astronomical Society, 303, 685–695
 17. An excursion set model for the distribution of dark matter and dark matter halos
Ravi K. Sheth. 1998
Monthly Notices of the Royal Astronomical Society, 300, 1057–1070
 16. The Generalized Poisson distribution and a model of clustering from Poisson initial conditions
Ravi K. Sheth. 1998
Monthly Notices of the Royal Astronomical Society, 299, 207–217
 15. Random walks and the additive coagulation equation
Ravi K. Sheth. 1998
Monthly Notices of the Royal Astronomical Society, 295, 869–872
 14. Coagulation and branching process models of gravitational clustering
Ravi K. Sheth & J. Pitman. 1997
Monthly Notices of the Royal Astronomical Society, 289, 66–82
 13. The nonlinear correlation function and density profiles of virialized halos
Ravi K. Sheth & B. Jain. 1997
Monthly Notices of the Royal Astronomical Society, 285, 231–238

12. Scale dependence of nonlinear gravitational clustering in the Universe
Ravi K. Sheth & W. C. Saslaw. 1996
The Astrophysical Journal, 470, 78–91
11. Galton–Watson branching processes and the growth of gravitational clustering
Ravi K. Sheth. 1996
Monthly Notices of the Royal Astronomical Society, 281, 1277–1289
10. The distribution of counts in cells in the nonlinear regime
Ravi K. Sheth. 1996
Monthly Notices of the Royal Astronomical Society, 281, 1124–1132
9. The distribution of pairwise peculiar velocities in the nonlinear regime
Ravi K. Sheth. 1996
Monthly Notices of the Royal Astronomical Society, 279, 1310–1324
8. Random dilutions, generating functions, and the void probability distribution function
Ravi K. Sheth. 1996
Monthly Notices of the Royal Astronomical Society, 278, 101–110
7. Constrained realizations and minimum variance reconstructions of non-Gaussian random fields
Ravi K. Sheth. 1995
Monthly Notices of the Royal Astronomical Society, 277, 933–944
6. Merging and hierarchical clustering from an initially Poisson distribution
Ravi K. Sheth. 1995
Monthly Notices of the Royal Astronomical Society, 276, 796–824
5. Press-Schechter, thermodynamics, and nonlinear gravitational clustering
Ravi K. Sheth. 1995
Monthly Notices of the Royal Astronomical Society, 274, 213–220
4. Synthesizing the observed distribution of galaxies
Ravi K. Sheth & W. C. Saslaw. 1994
The Astrophysical Journal, 437, 35–55
3. The distribution of IRAS galaxies on linear and nonlinear scales
Ravi K. Sheth, H. J. Mo & W. C. Saslaw. 1994
The Astrophysical Journal, 427, 562–573
2. Nonlinear properties and time evolution of gravitational galaxy clustering
W. C. Saslaw & **Ravi K. Sheth**. 1993
The Astrophysical Journal, 409, 504–516
1. Competition between direct and concerted movements in surface diffusion with application to the Au(110) surface
L. D. Roelofs, J. I. Martin & **Ravi K. Sheth**. 1991
Surface Science, 250, 17–26

Other Refereed Publications:

22. The clustering of galaxies in the SDSS-III Baryon Oscillation Spectroscopic Survey: a large sample of mock galaxy catalogues
M. Manera et al. (The BOSS collaboration). 2012
Monthly Notices of the Royal Astronomical Society, 428, 1036–1054
21. Bispectrum and nonlinear biasing of galaxies: Perturbation analysis, numerical simulation and SDSS galaxy clustering
T. Nishimichi et al. 2006
Proceedings of the Astronomical Society of Japan, 59, 93–106
20. Cosmological Constraints from the SDSS Luminous Red Galaxies
M. Tegmark et al. (The SDSS collaboration). 2006
Physical Review D, 74, 123507
19. Detection of Cosmic Magnification with the SDSS
R. Scranton et al. 2005
The Astrophysical Journal, 633, 589–602
18. Large Scale Clustering of SDSS Quasars: Impact of the Baryon Density and the Cosmological Constant
K. Yahata et al. 2005
Proceedings of the Astronomical Society of Japan, 57, 529–540
17. The luminosity and color dependence of the galaxy correlation function
I. Zehavi et al. 2005
The Astrophysical Journal, 630, 1-27
16. The C4 clustering algorithm: Clusters of galaxies in the SDSS
C. J. Miller et al. 2005
The Astronomical Journal, 130, 968–1001
15. A hierarchy of voids
R. van de Weygaert, **Ravi K. Sheth** & E. Platen. 2004
Proceedings of IAU Colloquium 195, ed. A. Diaferio, p.58–63
14. Physical evidence for dark energy
R. Scranton et al. (The SDSS collaboration). 2003
Physics Reviews D, submitted (astro-ph/0307335)
13. Three-point correlation functions of SDSS galaxies in redshift space: Morphology, color, and luminosity dependence
I. Kayo et al. 2004
Publications of the Astronomical Society of Japan, 56, 415–423
12. Cosmological parameters from SDSS and WMAP
M. Tegmark et al. (The SDSS collaboration). 2004
Physical Review D, 69, 103501 (26 pages)

11. The three-dimensional power spectrum of galaxies from the SDSS
M. Tegmark et al. (The SDSS collaboration). 2004
The Astrophysical Journal, 606, 702–740
10. Karhunen-Loeve estimation of the power spectrum parameters from the angular distribution of galaxies in early SDSS data
A. S. Szalay et al. (The SDSS collaboration). 2003
The Astrophysical Journal, 591, 1–11
9. The environment of passive spiral galaxies in the SDSS
T. Goto et al. 2003
Publications of the Astronomical Society of Japan, 55, 757–770
8. Galaxy star formation as a function of environment in the EDR of the SDSS
P. Gomez et al. 2003
The Astrophysical Journal, 584, 210–227
7. Analysis of systematic effects and statistical uncertainties in angular clustering of galaxies from early SDSS Data
R. Scranton et al. (The SDSS collaboration). 2002
The Astrophysical Journal, 579, 48–75
6. The angular correlation function of galaxies from Early SDSS Data
A. Connolly et al. (The SDSS collaboration). 2002
The Astrophysical Journal, 579, 42–47
5. Composite luminosity functions of the SDSS Cut and Enhance galaxy cluster catalog
T. Goto et al. 2002
Publications of the Astronomical Society of Japan, 54, 515–525
4. The 3D power spectrum from angular clustering of galaxies in early SDSS data
S. Dodelson et al. (The SDSS collaboration) 2002
The Astrophysical Journal, 572, 140–156
3. The angular power spectrum of galaxies from early SDSS data
M. Tegmark et al. (The SDSS collaboration) 2002
The Astrophysical Journal, 571, 191–205
2. Galaxy clustering in early SDSS redshift data
Idit Zehavi et al. (The SDSS collaboration). 2002
The Astrophysical Journal, 571, 172–190
1. Sloan Digital Sky Survey: Early Data Release
C. Stoughton et al. (The SDSS collaboration). 2002
The Astronomical Journal, 123, 485–548

Non-Refereed Conference Proceedings:

11. Effect of Distance Errors: Applications to SDSS Early-Type Galaxies
G. Rossi & **Ravi K. Sheth**. 2008
Proceedings of the XLIIIst Rencontres de Moriond (arXiv:0804.0818)
10. SMBH Mass Function from Velocity Dispersion and Luminosity
E. Tundo, M. Bernardi, **Ravi K. Sheth**, J. B. Hyde & A. Pizella. 2007
ASP Conference Series, Vol. 380, p. 565 eds. Alonso, Ferguson, Mobasher, Norris. Proceedings of the conference held in Sintra, Portugal (9-13 October 2006).
9. Hot and cold spots in the WMAP sky
G. Rossi & **Ravi K. Sheth**. 2006
Proceedings of the Cosmology School at Moriond (March 2006)
8. Void hierarchy and cosmic structure
R. van de Weygaert & **Ravi K. Sheth**. 2003
in “Multi-Wavelength Cosmology”, Astrophysics and Space Science Library, 301, p.223.
ed. M. Plionis. Proceedings of the conference at Mykonos, Greece (17–20 June 2003).
7. On halo and galaxy bias
R. Casas-Miranda, H. J. Mo, **Ravi K. Sheth** & G. Börner. 2002
Proceedings of the 11th UN/ESA Workshop on Basic Space Sciences, Cordoba, Argentina (9–13 September 2002).
6. Small scale anisotropies of UHECRs from super-heavy halo dark matter
P. Blasi & **Ravi K. Sheth**. 2001
in Proceedings of the 27th International Cosmic Ray Conference, p. 1951, Hamburg, Germany (07–15 August 2001).
5. A random walk through models of nonlinear clustering
Ravi K. Sheth. 2001
in the Annals of the N.Y. Academy of Science, 927, 1–12. eds. J. N. Fry, R. Bucher and H. Kandrup. Proceedings of the “The onset of nonlinearity in cosmology” workshop, Gainesville, Florida (16–19 February 2000).
4. A nonlinear and biased view of dark matters
Ravi K. Sheth. 1999
in ASP Conference Series, 201, 337–345. eds. S. Courteau and J. Willick. Proceedings of the “Cosmic Flows Workshop”, Victoria, Canada (13–17 July 1999)
3. Stochastic biasing and the forest of merger history trees
Ravi K. Sheth. 1998
in “From stars to the Universe”. Proceedings of the workshop in Shanghai, China (October 1998)
2. Dark matters
Ravi K. Sheth. 1998
in “From stars to galaxies to the Universe”, p.31–39. eds. G. Börner and H. J. Mo. Proceedings of the workshop at Ringberg Castle, Germany (2–5 June 1998)

1. A model of the dark matter distribution

Ravi K. Sheth. 1998

in “Large scale structure: Tracks and traces”, p.41–42. eds. V. Müller, S. Gottlöber, J. P. Mücke and J. Wambsganss. Proceedings of the 12th Potsdam Cosmology Workshop (15–19 September 1997)