

# CURRICULUM VITAE

## Stacy S. McGaugh

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University of Maryland  
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### Education

University of Michigan	Ph.D. 1992	Astronomy	1987 – 1992
Princeton University		Physics	1985 – 1986
Massachusetts Institute of Technology	S.B. 1985	Physics	1981 – 1985

### Awards

Distinguished Fellow, Flint Northern Alumni Association, 2001  
Society of  $\Sigma\Xi$  Thesis Award, 1991  
Helen F. Weber Fellow, 1987

### Employment

Associate Professor	Department of Astronomy University of Maryland	2003 –
Assistant Professor	Department of Astronomy University of Maryland	1998 – 2003
Research Fellow	Department of Physics and Astronomy Rutgers University	1997 – 1998
Carnegie Fellow	Department of Terrestrial Magnetism Carnegie Institution of Washington	1995 – 1997
Research Associate	Institute of Astronomy University of Cambridge	1992 – 1995

### Research Interests

Low Surface Brightness Galaxies  
Galaxy Formation and Evolution  
Measurements of Cosmological Parameters  
Tests of Dark Matter and alternative hypotheses

**Professional Societies** — IAU, AAS, DDA (DDA Committee 2007 – 2009),  $\Sigma\Xi$

## Publications in Refereed Journals

“Constraining the NFW Potential with Observations and Modeling of LSB Galaxy Velocity Fields”

Kuzio de Naray, R., McGaugh, S.S., & Mihos, J.C., submitted

“Escape speeds from 141 globular clusters of the Milky Way in MOND”

Angus, G.W., & McGaugh, S.S., submitted

“Milky Way Mass Models and MOND”

McGaugh, S.S. 2008, *ApJ*, in press

“Mass Models of Low Surface Brightness Galaxies with High Resolution Optical Velocity Fields”

Kuzio de Naray, R., McGaugh, S.S., & de Blok, W.J.G. 2008, *ApJ*, **676**, 920–943

“The Collision Velocity of the Bullet Cluster in Conventional and Modified Dynamics”

Angus, G.W., & McGaugh, S.S. 2007, *MNRAS*, 383, 417–423

“The AGN and Gas Disk in the Low Surface Brightness Galaxy PGC045080”

Das, M., Kantharia, N., Ramya, S., Prabhu, T.P., McGaugh, S.S., & Vogel, S.N. 2007, *MNRAS*, **379**, 11–20

“The Rotation Velocity Attributable to Dark Matter at Intermediate Radii in Disk Galaxies”

McGaugh, S.S., de Blok, W.J.G., Schombert, J.S., Kuzio de Naray, R., & Kim, J.H. 2007, *ApJ*, **659**, 149–161

“CO Detection and Millimeter Continuum Emission from Low Surface Brightness Galaxies”

Das, M., O’Neil, K., Vogel, S.N., & McGaugh, S.S. 2006, *ApJ*, **651**, 853–860

“High Resolution Optical Velocity Fields of 11 Low Surface Brightness Galaxies”

Kuzio de Naray, R., McGaugh, S.S., de Blok, W.J.G., & Bosma, A. 2006, *ApJS*, **165**, 461–479

“The Compression of Dark Matter Halos by Baryonic Infall”

Sellwood, J.A., & McGaugh, S.S. 2005, *ApJ*, **634**, 70–76

“The Balance of Dark and Luminous Mass in Rotating Galaxies”

McGaugh, S.S. 2005, *Phys. Rev. Lett.*, **95**, 171302

- “The Baryonic Tully-Fisher Relation of Galaxies with Extended Rotation Curves and the Stellar Mass of Rotating Galaxies”  
McGaugh, S.S. 2005, *ApJ*, **632**, 859–871
- “The Baryonic Tully Fisher Relation”  
Gurovich, S., McGaugh, S.S., Freeman, K.C., Jerjen, H. Staveley-Smith, L., de Blok, W.J.G. 2004, *PASA*, **21**, 412–414
- “Oxygen Abundances and Chemical Evolution in Low Surface Brightness Galaxies”  
Kuzio de Naray, R., McGaugh, S.S., & de Blok, W.J.G. 2004, *MNRAS*, **355**, 887–898
- “Confrontation of MOND Predictions with WMAP First Year Data”  
McGaugh, S.S. 2004, *ApJ*, **611**, 26–39
- “The Acceleration Scale in Disk Galaxy Dynamics: Disk Mass and the Dark Matter Distribution”  
McGaugh, S.S. 2004, *ApJ*, **609**, 652–666
- “Simulating Observations of Dark Matter Dominated Galaxies: Towards the Optimal Halo Profile”  
de Blok, W.J.G., Bosma, A., & McGaugh, S.S. 2003, *MNRAS*, **340**, 657–678
- “A Limit on the Cosmological Mass Density and Power Spectrum from the Rotation Curves of Low Surface Brightness Galaxies”  
McGaugh, S.S., Barker, M.K., & de Blok, W.J.G. 2003, *ApJ*, **584**, 566–576
- “Modified Newtonian Dynamics as an Alternative to Dark Matter”  
Sanders, R.H., & McGaugh, S.S. 2002, *ARA&A*, **40**, 263–317
- “High-Resolution Rotation Curves of Low Surface Brightness Galaxies: Mass Models”  
de Blok, W.J.G., McGaugh, S.S., & Rubin, V.C. 2001, *AJ*, **122**, 2396–2428
- “High-Resolution Rotation Curves of Low Surface Brightness Galaxies: Data”  
McGaugh, S.S., Rubin, V.C., & de Blok, W.J.G. 2001, *AJ*, **122**, 2381–2395
- “Mass Density Profiles of LSB Galaxies”  
de Blok, W.J.G., McGaugh, S.S., Bosma, A., & Rubin, V.C. 2001, *ApJ*, **552**, L23–L26
- “Gas Mass Fractions and the Evolution of LSB Dwarf Galaxies”  
Schombert, J.M., McGaugh, S.S., & Eder, J.A. 2001, *AJ*, **121**, 2420–2430
- “BOOMERanG Data Suggest a Purely Baryonic Universe”  
McGaugh, S.S. 2000, *ApJ*, **541**, L33–36

“The Baryonic Tully-Fisher Relation”

McGaugh, S.S., Schombert, J.M., Bothun, G.D., & de Blok, W.J.G. 2000, *ApJ*, **533**, L99–L102

“Star Formation and Tidal Encounters with the Low Surface Brightness Galaxy UGC 12695 and Companions”

O’Neil, K., Verheijen, M.A.W., & McGaugh, S.S. 2000, *AJ*, **119**, 2154–2165

“Distinguishing Between CDM and MOND: Predictions for the Microwave Background”

McGaugh, S.S. 1999, *ApJ*, **523**, L99–L102

“The Molecular ISM in Low Surface Brightness Disk Galaxies”

Mihos, J.C., Spaans, M., & McGaugh, S.S. 1999, *ApJ*, **515**, 89–96

“HST WFPC-2 Imaging of UGC 12695: A Remarkably Unevolved Galaxy at Low Redshift”

O’Neil, K., Bothun, G. D., Impey, C. D., & McGaugh, S. 1998, *AJ*, **116**, 657–672

“Testing Modified Newtonian Dynamics with Low Surface Brightness Galaxies — Rotation Curve Fits”

de Blok, W. J. G., & McGaugh, S. S. 1998, *ApJ*, **508**, 132–140

“Testing the Hypothesis of Modified Dynamics with Low Surface Brightness Galaxies and Other Evidence”

McGaugh, S. S., & de Blok, W. J. G. 1998, *ApJ*, **499**, 66–81

“Testing the Dark Matter Hypothesis with Low Surface Brightness Galaxies and Other Evidence”

McGaugh, S. S., & de Blok, W. J. G. 1998, *ApJ*, **499**, 41–65

“The Dark and Baryonic Matter Content of Low Surface Brightness Galaxies”

de Blok, W. J. G., & McGaugh, S. S. 1997, *MNRAS*, **290**, 533–552

“Low-Surface-Brightness Galaxies: Hidden Galaxies Revealed”

Bothun, G., Impey, C., & McGaugh, S. 1997, *PASP*, **109**, 745–758

“Gas Mass Fractions and the Evolution of Spiral Galaxies”

McGaugh, S. S., & de Blok, W. J. G. 1997, *ApJ*, **481**, 689–702

“Dynamical Stability and Environmental Influences in Low Surface Brightness Disk Galaxies”

Mihos, J. C., McGaugh, S. S., & de Blok, W. J. G. 1997, *ApJ*, **477**, L79–L83

- “HI Observations of Low Surface Brightness Galaxies: Probing Low Density Galaxies”  
de Blok, W. J. G., McGaugh, S. S., & van der Hulst, J. M. 1996, *MNRAS*, **283**, 18–54
- “Could a Local Group X-ray Halo Affect the X-ray and Microwave Backgrounds?”  
Pildis, R. A., & McGaugh, S. S. 1996, *ApJ*, **470**, L77–L79
- “Does Low Surface Brightness Mean Low Density?”  
de Blok, W. J. G., & McGaugh, S. S. 1996, *ApJ*, **469**, L89–L92
- “Cosmological Constant”  
McGaugh, S. S. 1996, *Nature*, **381**, 483
- “The Number, Luminosity, and Mass Density of Spiral Galaxies as a Function of Surface Brightness”  
McGaugh, S. S. 1996, *MNRAS*, **280**, 337–354
- “Galaxy Selection and the Surface Brightness Distribution”  
McGaugh, S. S., Bothun, G. D., & Schombert, J. M. 1995, *AJ*, **110**, 573–580
- “The Morphology of Low Surface Brightness Disk Galaxies”  
McGaugh, S. S., Schombert, J. M., & Bothun, G. D. 1995, *AJ*, **109**, 2019–2033
- “The Tully-Fisher Relation for Low Surface Brightness Galaxies — Implications for Galaxy Evolution”  
Zwaan, M. A., van der Hulst, J. M., de Blok, W. J. G., & McGaugh, S. S. 1995, *MNRAS*, **273**, L35–L38
- “The Contribution of Low Surface Brightness Galaxies to Faint Galaxy Number Counts”  
Ferguson, H. C., & McGaugh, S. S. 1995, *ApJ*, **440**, 470–484
- “Oxygen Abundances in Low Surface Brightness Disk Galaxies”  
McGaugh, S. S. 1994, *ApJ*, **426**, 135–149
- “Spatial Distribution of Low Surface Brightness Galaxies”  
Mo, H. J., McGaugh, S. S., & Bothun, G. D. 1994, *MNRAS*, **267**, 129–140
- “A Possible Local Counterpart to the Excess Population of Faint Blue Galaxies”  
McGaugh, S. S. 1994, *Nature*, **367**, 538–541
- “Structural Characteristics and Stellar Composition of Low Surface Brightness Disk Galaxies”  
McGaugh, S. S., & Bothun, G. D. 1994, *AJ*, **107**, 530–542

“Star Formation Thresholds in Low Surface Brightness Galaxies”

van der Hulst, J. M., Skillman, E. D., Smith, T. R., Bothun, G. D., McGaugh, S. S., & de Blok, W. J. G. 1993, *AJ*, **106**, 548–559

“The Small Scale Environment of Low Surface Brightness Disk Galaxies”

Bothun, G. D., Schombert, J. M., Impey, C. D., Sprayberry, D., & McGaugh, S. S. 1993, *AJ*, **106**, 530–547

“A Catalog of Low Surface Brightness Galaxies: List II”

Schombert, J. M., Bothun, G. D., Schneider, S. E., & McGaugh, S. S. 1992, *AJ*, **103**, 1107–1133

“HII Region Abundances: Model Oxygen Line Ratios”

McGaugh, S. S. 1991, *ApJ*, **380**, 140–150

“Stellar Populations in Shell Galaxies”

McGaugh, S. S., & Bothun, G. D. 1990, *AJ*, **100**, 1073–1085

“The Geometry, Composition, and Mass of the Crab Nebula”

MacAlpine, G. M., McGaugh, S. S., Mazzarella, J. M., & Uomoto, A. 1989, *ApJ*, **342**, 364–378

“An Investigation of the Efficiencies of Various Buffer Gases in Na-Xe Spin Exchange”

McGaugh, S. S., Musolf, M., Wu, Z., & Happer, W. 1987, *Physics Letters A*, **120**, 124–128

## Other Publications

“VLT/VIMOS Integral field kinematics of the Giant Low Surface Brightness galaxy ESO 323-G064”

Cocato, L., Swaters, R., Rubin, V.C., D’Odorico, S., & McGaugh, S.S. 2007, *Formation and Evolution of Galaxy Disks*, in press

“Radio Observations of the AGN and Gas in Low Surface Brightness Galaxies”

Das, M., O’Neil, K., Kantharia, N., Vogel, S.N., & McGaugh, S.S. 2006, *IAU Symposium #235: Galaxy Evolution across the Hubble Time*, in press

“Some Systematic Properties of Rotation Curves”

McGaugh, S.S. 2005, *Mass Profiles and Shapes of Cosmological Structures*, eds. G. A. Mamon, F. Combes, C. Deffayet, B. Fort, (EDP Sciences), 69 – 76

“Two Dimensional Velocity Fields of Low Surface Brightness Galaxies”

Kuzio de Naray, R., McGaugh, S.S., de Blok, W.J.G., & Bosma, A. 2005, *Mass Profiles and Shapes of Cosmological Structures*, eds. G. Mamon, F. Combes, C. Deffayet, B. Fort (EDP Sciences), 285 – 286

“Galaxy Masses: Disks and Their Halos”

McGaugh, S. S. 2003, *The Mass of Galaxies at Low and High Redshift*, ed. R. Bender and A. Renzini, 45 – 50

“Constraints on the Radial Mass Distribution of Dark Matter Halos from Rotation Curves”

McGaugh, S. S. 2002, *The Shapes of Galaxies and their Dark Halos*, ed. P. Natarajan (New Haven: World Scientific), 186 – 193

“Galaxy Dynamics and the Second Peak: Cold Dark Matter?”

McGaugh, S. S. 2001, *International Journal of Modern Physics A*, 16, 1031 – 1033

“Baryonic Tully-Fisher Relations”

McGaugh, S. S. 2001, *Galaxy Disks and Disk Galaxies*, eds. J. G. Funes & E. M. Corsini, ASP 230, 541 – 544

“Modified Newtonian Dynamics”

McGaugh, S. S. & Schulman, E. 2000, *Mercury*, **29**(2), 8

“Dynamical Constraints on Disk Galaxy Formation”

McGaugh, S. S. 2000, *Galaxy Dynamics: from the Early Universe to the Present*, eds. F. Combes, G. A. Mamon, & V. Charmandaris, ASP 197, 153 – 160

“How Galaxies Don’t Form”

McGaugh, S. S. 1999, *Galaxy Dynamics*, eds. D. Merritt & J. Sellwood, ASP 182, 528 – 538

“Optical Galaxy Selection”

McGaugh, S. S. 1999, *IAU Colloquium # 171: The Low Surface Brightness Universe*, ed. J. I. Davies, C. Impey, & S. Phillipps, ASP 170, 19 – 26

“Some Early Universe Predictions of Simple Modified Dynamics”

McGaugh, S. S. 1998, *After the Dark Ages: When Galaxies Were Young (the Universe at  $2 < z < 5$ )*, eds. S. S. Holt & E. P. Smith, AIP 470, 72 – 75

“The Baryon Fraction Distribution and the Tully-Fisher Relation”

McGaugh, S. S., & de Blok, W. J. G. 1998, *Galactic Halos*, ed. D. Zaritsky, ASP 136, 210 – 212

- “Gas Content and Star Formation Thresholds in the Evolution of Spiral Galaxies”  
McGaugh, S. S., & de Blok, W. J. G. 1997, *Star Formation, Near and Far*, eds. S. S. Holt & L. G. Mundy, AIP 393, 510 – 513
- “Dynamical Stability and Galaxy Evolution in LSB Disk Galaxies”  
Mihos, J. C., McGaugh, S. S., & de Blok, W. J. G. 1997, *Star Formation, Near and Far*, eds. S. S. Holt & L. G. Mundy, AIP 393, 311 – 314
- “Dark Matter in Low Surface Brightness Galaxies”  
de Blok, W. J. G., & McGaugh, S. S. 1997, *Dark Matter in Galaxies and Cosmological Implications*, eds. P. Salucci & M. Persic, 39 – 46
- “An Analysis of the Evolutionary State of SNR G299.2 - 2.9”  
Wright, J. T., Slane, P., Vancura, O., Plucinsky, P., Smith, C., & McGaugh, S. 1997, *AAS*, **191**, 4004
- “Reverse Baryon Catastrophe in Extremely Dark Matter Dominated Galaxies”  
McGaugh, S. S., de Blok, W. J. G., & van der Hulst, J. M. 1996, *BAAS*, **28**, 1387
- “The Properties and Evolution of Low Surface Brightness Disk Galaxies”  
de Blok, W. J. G., van der Hulst, J. M. & McGaugh, S. S. 1996, *BAAS*, **28**, 1387
- “Dwarf and Low Surface Brightness Galaxies”  
McGaugh, S. S. 1996, *IAU Symposium # 171: New Light on Galaxy Evolution* eds. R. Bender & R. L. Davies, (Dordrecht: Kluwer), 97–104
- “Properties of Low Surface Brightness Galaxies”  
W. J. G. de Blok, J. M. van der Hulst, S. S. McGaugh 1996, *IAU Symposium # 171: New Light on Galaxy Evolution* eds. R. Bender & R. L. Davies, (Dordrecht: Kluwer), 35
- “Gravitational Dynamics: Universal Twists”  
McGaugh, S. S. 1995, *Nature*, **377**, 386
- “The Contribution of Low Surface Brightness Galaxies to Faint Galaxy Number Counts”  
Ferguson, H. C. & McGaugh, S. S. 1994: Baltimore, STScI  
*Quantifying Galaxy Morphology at High Redshift*  
<http://stsci.edu/meetings/galaxy-morphology/proceedings/posters.html>
- “The Contribution of Low Surface Brightness Galaxies to Faint Galaxy Number Counts”  
Ferguson, H. C. & McGaugh, S. S. 1993, *BAAS*, **25**, 1398

“Number Density of Low Surface Brightness Galaxies”

McGaugh, S. S. 1993, *BAAS*, **25**, 1384

“Chemical abundances in low surface brightness galaxies: Implications for their evolution”

McGaugh, S. S., & Bothun, G. D. 1993, *The Evolution of Galaxies and Their Environment*, 88–89

“Low Surface Brightness Galaxies”

van der Hulst, J. M., de Blok, W. J. G., McGaugh, S. S., & Bothun, G. D. 1993, *The Evolution of Galaxies and Their Environment*, 92–93

“Low Surface Brightness Galaxies”

McGaugh, S. S., Bothun, G. D., van der Hulst, J. M., & Schombert, J. M. 1991, *BAAS*, **23**, 1444

“Understanding the HII Region Oxygen Abundance Sequence”

McGaugh, S. S. 1990, *BAAS*, **22**, 1268

“The Geometry, Composition, and Mass of the Crab Nebula”

McGaugh, S., MacAlpine, G., Lawrence, S., & Uomoto, A. 1989, *BAAS*, **21**, 750

“A Preliminary Examination of Redshift and Luminosity Characteristics for APM Survey Quasars”

MacAlpine, G. M., McGaugh, S. S., Anderson, S., Weymann, R., Turnshek, D., Hewett, P., Chaffee, F., & Foltz, C. 1989  
*Proceedings of a Workshop on Optical Surveys for Quasars*, 107–111  
Also in *Active Galactic Nuclei*, 418–423

## Invited Conference Presentations

“Scaling Relations in Dim Galaxies: from the Big and Bright to the Faintest of the Tiny”

08/27/07, University of Michigan, Ann Arbor: *The Globular Clusters — Dwarf Galaxies Connection*

“The Halo by Halo Missing Baryon Problem”

06/27/07, Cardiff: *IAU 244, Dark Galaxies & Lost Baryons*

“The Connection Between Dark and Luminous Matter”

03/22/07, UC Irvine: *Astrophysical Probes of the Nature of Dark Matter*

“Balance of Dark and Luminous Mass in Rotating Galaxies”

10/05/06, Kavli Institute of Theoretical Physics, University of California, Santa Barbara: *Applications Of Gravitational Lensing: Unique Insights Into Galaxy Formation And Evolution*

“Empirical Constraints on Halo Profiles from Rotation Curves”

05/19/06, Las Cruces, New Mexico: *Galaxies in the Cosmic Web*

“Observational Constraints on the Acceleration Discrepancy Problem”

04/20/06, Royal Observatory, Edinburgh: *Alternative Gravities & Dark Matter Workshop*

“Mass discrepancies in the Universe: missing mass or new physics?”

10/01/05, University of Michigan: *Dark Matter in the Universe*

“Constraints on the mass profiles of spiral galaxies”

07/05/05, Institut d’Astrophysique de Paris: *Mass Profiles and Shapes of Cosmological Structures*

“Luminous and Dark Mass in Spiral Galaxies”

06/28/05, Ascona, Switzerland: *The Formation of Disk Galaxies*

“Mass Distributions from Rotation Curves”

06/10/04, Hebrew University: *Galaxy Formation Workshop*

“Dark Matter Halo Concentrations”

06/08/04, Hebrew University: *Galaxy Formation Workshop*

“Are Cuspy Halos Viable?”

2002, U. Chicago: *Predictions of Cold Dark Matter Models on Small Scales: Current and Future Tests*

“The Dynamics of Low Surface Brightness Galaxies”

2002, Washington, DC: *Galaxies: Mind Over Matter*

“Galaxy Masses: Disks and Their Halos”

2001, Venice: *The Mass of Galaxies at Low and High Redshift*

“LSB Galaxy Rotation Curves as Tests of CDM & MOND”

2001, IAS: *Galaxies and the Dark Matter Problem*

“Constraints on the Radial Mass Distribution of Dark Matter Halos from Rotation Curves.”

2001, Yale: *The Shapes of Galaxies and Their Halos*

“Galaxy Dynamics and the Second Peak: Cold Dark Matter?”

2000, Columbus: Division of Particles & Fields

“Baryonic Tully-Fisher Relations”

2000, Vatican Observatory: *Galaxy Disks and Disk Galaxies*

“Dynamical Constraints on Disk Galaxy Formation”

1999, IAP XV: *Galaxy Dynamics: from the Early Universe to the Present*

“How Galaxies Don’t Form”

1998, Rutgers: *Galaxy Dynamics*

“Optical Galaxy Selection”

1998, Cardiff: IAU Colloquium 171: *The Low Surface Brightness Universe*

“Testing the Modified Dynamics with Low Surface Brightness Galaxies”

1997, Kapteyn Astronomical Institute: *Low Surface Brightness Galaxy Workshop*

“Kinematics of Low Surface Brightness Galaxies”

1997, STScI: *Galaxy Journal Club series on Low Surface Brightness Galaxies*

“Low Surface Brightness Galaxies”

1996, STScI: *The Evolution of Low Luminosity Galaxies & Faint Blue Galaxies*

“Dwarf and Low Surface Brightness Galaxies”

1996, Heidelberg: IAU Symposium 171: *New Light on Galaxy Evolution*

“The Number Density of Low Surface Brightness Galaxies”

1994, STScI: *Quantifying Galaxy Morphology at High Redshift*

<http://www.stsci.edu/meetings/galaxy-morphology/proceedings/proceedings.html>

“Local Low Surface Brightness Galaxies and the Excess Faint Galaxy Population”

1994, IoA: *Faint Blue Galaxies Workshop*

“The Formation and Evolution of Low Surface Brightness Galaxies”

1993, NORDITA: *Dim Galaxies, Dark Matter, and Extragalactic Background Radiation*

## Other Talks

“Reconstructing the Mass Profile of the Milky Way”

04/28/08, Division of Dynamical Astronomy, Boulder, Colorado

“Cosmic Flights of Fancy: Mass and the Gravity that Moves It”

04/09/08, DTM, Carnegie Institution of Washington

“The Kinematic Signature of a Bar in the Edge-on Galaxy NGC 2683”

03/15/08, Flash talk, NOAO

“Seeing Through Dark Matter”

02/14/08, TRIUMF, Vancouver, Canada

“The Legend of Happy Valley — Tale of the Headless Halo”

10/31/07, Astronomy Colloquium, Penn State University

“Does MOND remain viable?”

10/02/07, CAS seminar, Johns Hopkins University

“The Pros and Cons of Invisible Mass and Modified Gravity”

04/13/07, Physics Department, George Mason University

“The Mass Discrepancy Problem: New physics in matter or gravity?”

04/06/06, Physics Department, University of Rochester

“An overview of MOND”

03/06/06, Astronomy Journal Club, University of Maryland

“The Mass of Spiral Galaxies, Luminous and Dark”

10/03/05, Astronomy Department, University of Michigan

“The Mass of Spiral Galaxies”

09/20/05, Club Galax, University of Maryland

“Astronomical Evidence for and against Dark Matter and Modified Gravity”

03/29/05, Physics Department, University of Florida

“Mass Distributions in Spiral Galaxies”

03/25/05 Astrophysics Seminar, Department of Physics and Astronomy, Rutgers University

- “Mass Discrepancies in the Universe: Dark Matter or Different Dynamics?”  
04/28/04, Perimeter Institute, Canada
- “Dark Matter & Dark Energy: Gravity as We Know It?”  
11/06/03, Physics Department, GMU
- “The Era of Precision Cosmology: Whither Now?”  
10/03/03, College of Arts and Sciences, John Carroll University
- “Mass Distributions from Rotation Curves”  
06/10/04, Galaxy Formation Workshop, Hebrew University
- “Dark Matter Halo Concentrations”  
06/08/04, Galaxy Formation Workshop, Hebrew University
- “Cosmology and Dark Matter Halos”  
04/22/03: Kapteyn Astronomical Institute, University of Groningen
- “Puzzles in Disk Dynamics”  
04/16/03: Institute of Astronomy, University of Cambridge
- “Gravity or Dark Matter?”  
02/12/03: HEP Division Seminar, Argonne National Laboratory
- “Dark Matter or Gravity?”  
12/11/02: Physics Department, UMBC
- “Gravity or Dark Matter?”  
11/14/02: Astrophysics group, Naval Research Laboratory
- “MOND — Modification of Newtonian Dynamics”  
10/30/02: Particle physics group, Johns Hopkins
- “Gravity or Dark Matter?”  
10/14/02: Astronomy Department, University of North Carolina
- “Gravity or Dark Matter?”  
10/04/02: College of Arts and Sciences, John Carroll University
- “Gravity and Dark Matter”  
09/18/02: Astronomy Department, University of Maryland
- “Were Primordial Dark Halos Hollow?: Decompression of Fabry Perot Rotation Curves”  
05/03/02: ALTS lunch talk, Maryland Astronomy Dept.

- “Dynamical Constraints on Galaxy Formation”  
03/11/02: Fermilab Theoretical Astrophysics Seminar, FNAL
- “The Rotation Curves of Low Surface Brightness Galaxies”  
02/12/02: NRAO Greenbank
- “Monkey Wrenches in Gravity and Cosmology”  
01/18/02: Mathematics Seminar, University of Michigan-Flint
- “The Mass Content of the Universe: Dark or Virtual?”  
11/28/01: Laboratory for Physical Sciences, NSA/UMd
- “Galaxy Dynamics and the Cosmic Microwave Background: Small Bumps and Shallow Cusps”  
10/03/01: Department of Terrestrial Magnetism, Carnegie Institution of Washington
- “Ripples in the Cosmic Microwave Background”  
03/27/01: Junior Faculty Seminar Series, CMPS Dean
- “From Galaxy Dynamics to the Cosmic Microwave Background: A Quick tour”  
03/09/01: ALTS lunch talk, Maryland Astronomy Dept.
- “Small Bumps and Shallow Cusps: CDM, MOND, and Speculations on Cosmology”  
02/13/01: NASA/GSFC LHEA colloquium
- “The Second Peak: CDM or No CDM?”  
01/09/2001: Dan Diego, 197th AAS, *BAAS*, **32**, 4, 55.06
- “Small Bumps and Shallow Cusps: CDM, MOND, and Speculations on Cosmology”  
12/07/00: Rutgers, Astrophysics group colloquium
- “Gravity or Dark Matter?”  
10/19/00: Astronomy Colloquium, U. Massachusetts (Amherst)
- “Gravity or Dark Matter?”  
09/07/00: Gravity group, Maryland Physics
- “Cosmological Constraints from Dark Matter Dominated Galaxies”  
04/20/00: Goddard Laboratory for Astronomy and Solar Physics
- “Cosmological Constraints from Dark Matter Dominated Galaxies”  
11/10/99: Maryland High Energy Physics group

“The Baryonic Tully-Fisher Relation”

11/04/99: Washington Area Astronomer’s Meeting

“Cosmological Constraints from Dark Matter Dominated Galaxies”

11/02/99: Department of Terrestrial Magnetism, Carnegie Institution of Washington

“Phenomenological Constraints on Galaxy Formation Theories”

03/99: Harvard CfA theory group

“Galaxy Rotation Curves: Is Dark Matter the Answer?”

03/99: Max Planck/ESO Joint Astronomy Colloquium

“Low Surface Brightness Galaxies as Dark Matter Laboratories”

03/99: NASA/GSFC LHEA colloquium

“Modified Dynamics”

1998: Rutgers High Energy Physics group

“Low Surface Brightness Galaxies and their Number Density”

1998: New Mexico State, Astronomy department colloquium

“How Galaxies Don’t Form”

1998: Maryland, Astronomy department colloquium

“Gravity or Dark Matter?”

1998: Columbia, Astronomy department colloquium

“Gravity or Dark Matter?”

1998: Case Western Reserve, Astronomy department colloquium

“Gravity and Dark Matter”

1997: Wesleyan, Astronomy department colloquium

“How Galaxies Don’t Form”

1997: Rutgers, Astrophysics group colloquium

“Gravity or Dark Matter?”

1997: NRAO Charlottesville

“Low Surface Brightness Galaxies”

1997: SUNY at Stony Brook, Astronomy department colloquium

“Low Surface Brightness Galaxies”

1997: Fermilab

- “Spiral Galaxy Evolution: Complementary Approaches at High and Low Redshift”  
1997: Space Telescope Science Institute
- “Low Surface Brightness Galaxies”  
1997: Department of Physics, Stanford University
- “Gravity or Dark Matter?”  
1997: Department of Physics and Astronomy, University of Pennsylvania
- “Faint Galaxy Counts and Local Galaxy Gas Fractions: an Evolutionary Conundrum”  
1997: Aspen Winter Astrophysics Conference
- “Baryon Fractions in Low Surface Brightness Galaxies”  
1997: Aspen Winter Astrophysics Conference
- “Reverse Baryon Catastrophe in Extremely Dark Matter Dominated Galaxies”  
1997: Toronto, 189th AAS, *BAAS*, **28**, 4, 84.03
- “Gravity or Dark Matter?”  
1996: Department of Terrestrial Magnetism, Carnegie Institution of Washington
- “The Formation and Evolution of Low Surface Brightness Galaxies”  
1996: Yale University
- “Gravity or Dark Matter?”  
1996: Pontificia Universidad Catolica de Chile
- “The Curtis Schmidt Very Low Surface Brightness Galaxy Survey”  
1996: CTIO/NOAO
- “Constraints on Dark Matter from Low Surface Brightness Galaxies”  
1996: STScI
- “The Physical Properties of Low Surface Brightness Galaxies”  
1995: Department of Terrestrial Magnetism, Carnegie Institution of Washington
- “Relations between Luminous and Dark Mass Distributions in Disk Galaxies”  
1995: IFACS, NASA GSFC
- “The Physical Properties of Low Surface Brightness Galaxies”  
1995: University of Virginia
- “Rotation Curves of Spiral Galaxies as a Function of Density”  
1995: Cambridge, 36th Herstmonceux Conference, *Gravitational Dynamics*

“The Faint Galaxy Problem”

1995: Institute of Astronomy, University of Cambridge

“Things as a Function of Surface Brightness”

1995: Institute of Astronomy, University of Cambridge

“Low Surface Brightness Galaxies in a Cosmological Context”

1995: University of Oxford

“The Physical Properties of Low Surface Brightness Galaxies”

1995: Queen Mary & Westfield College, University of London

“The Physical Properties of Low Surface Brightness Galaxies”

1994: University of Durham

“The Physical Properties of Low Surface Brightness Galaxies”

1994: Kapteyn Astronomical Institute, University of Groningen

“The Number Density of Low Surface Brightness Galaxies”

1993: Washington, D. C., 183rd AAS, *BAAS*, **25**, 1384

“The Physical Properties of Low Surface Brightness Galaxies”

1993: College of Cardiff, University of Wales

“The Physical Properties of Low Surface Brightness Galaxies”

1993: Instituto Astrofisica de Canarias

“The Formation and Evolution of Low Surface Brightness Galaxies”

1992: Institute of Astronomy, University of Cambridge

“The Constancy of the IMF as a Function of Metallicity”

1992: Kapteyn Institute, University of Groningen

“Low Surface Brightness Galaxies”

1991: Atlanta, 179th AAS, *BAAS*, **23**, 1444

“Low Surface Brightness Galaxies”

1991: KPNO/NOAO

“Models of Giant Extragalactic HII Regions”

1990: University of Michigan

“The Shell Galaxy Arp 230: A Merger Induced Starburst”

1989: University of Michigan

## Public Lectures

“Light in the Darkness: The Role of Mass, Energy, and Gravity in Modern Cosmology”

12/09/04: Cleveland Museum of Natural History

“Distinguishing Cosmologies: Arguments for and Against the Standard World Model, Then and Now”

10/03/03: FYS, John Carroll University

“Gravity, the Universe, and Dark Matter”

05/13/03: Society for Industrial and Applied Mathematics

“Where is Most of the Universe Hiding? The Missing Mass Problem”

03/05/02: Smithsonian Associates Lecture Series, Smithsonian Institution

“Collective Denial and Individual Responsibility: Galileo’s Daughters”

10/04/02: FYS, John Carroll University

“Dim Galaxies shed New Light on Old Problems”

05/02/00: Public talk, Space Telescope Science Institute

## Teaching Experience

### Courses

HONR 219Q: Perspectives on the Cosmos:

From the Ancient Philosophers to Modern Science	Spring 2008
ASTR 620: Galaxies	Fall 2007
ASTR 121: Introductory Astrophysics II — Stars and Beyond	Spring 2007
ASTR 120: Introductory Astrophysics I — Solar System	Fall 2006
ASTR 121: Introductory Astrophysics II — Stars and Beyond	Spring 2006
ASTR 120: Introductory Astrophysics I — Solar System	Fall 2005
ASTR 100: Introduction to Astronomy	Spring 2003
ASTR 620: Galaxies	Fall 2003
ASTR 100: Introduction to Astronomy	Fall 2002
ASTR 688C: Observational Cosmology	Spring 2002
ASTR 620: Galaxies	Fall 2001
ASTR 100: Introduction to Astronomy	Spring 2001
ASTR 100: Introduction to Astronomy	Fall 2000
ASTR 220: Collisions in Space	Spring 2000
ASTR 220: Collisions in Space	Fall 1999
ASTR 688S: Observational Cosmology	Spring 1999

See <http://www.astro.umd.edu/~ssm/courses.html> for further information.

### Mentoring

#### Ph.D. Students

Rachel Kuzio <i>High Resolution Optical Velocity Fields of Low Surface Brightness Galaxies and the Density Profiles of Dark Matter Halos</i>	2007
Ji Hoon Kim <i>Star Formation History of LSB Galaxies</i>	2007
Jim Marshall <i>A Large Survey for Very Low Surface Brightness Galaxies</i>	2004
Erwin de Blok <i>The Properties and Evolution of LSB Galaxies</i>	1997

#### Undergraduates

David Stark <i>The Baryonic Tully-Fisher Relation from Gas Rich Galaxies</i>	2008
Cathy Caviglia <i>Stellar Absorption Features in the Spectra of LSB Galaxies</i>	2007
Matt Zagursky <i>Stellar Velocities from 2Mass</i>	2007
Dan Schwartz <i>Very Faint Local Galaxies</i>	2006
Matt Parlette <i>Large Scale Structure Formation</i>	2004
Mia Bovill <i>Stellar Populations in an LSB Galaxy</i>	2004
Mike Barker <i>Cosmology from Rotation Curves</i>	2001
Anil Kochhar <i>Faint Blue Galaxies</i>	2000

## Funding

“Analysis of a Survey for Ultra Low Surface Brightness Galaxies”

**\$141,001** from 15 Feb 1999 to 31 Jan 2002

NSF Extragalactic Astronomy and Cosmology Program: AST9901663

“Globular Clusters of Low Surface Brightness Galaxies”

**\$18,209** from 1 Apr 2000 to 31 Mar 2003

NASA Space Telescope Science Institute: NAS526555

“Discovery and Dynamics of Very Low Surface Brightness Disk Galaxies”

**\$341,001** from 1 Aug 2002 to 31 July 2005

NSF Extragalactic Astronomy and Cosmology Program: AST0206078

“Mass Profiles of Spiral Galaxies”

**\$122,377** from 15 Mar 2003 to 14 Mar 2006

NASA Astrophysical Data Program: NAG513108

“High Resolution Velocity Fields of Low Surface Brightness Galaxies”

**\$340,237** from 15 July 2005 to 30 June 2009

NSF Extragalactic Astronomy and Cosmology Program: AST0505956

“REU supplement to High Resolution Velocity Fields of Low Surface Brightness Galaxies”

**\$12,450** from 1 July 2008 to 30 June 2009

NSF Extragalactic Astronomy and Cosmology Program: AST0505956

“The Spitzer Tully-Fisher Relation”

**\$31,401** from 1 July 2008 to 30 June 2010

NASA Spitzer Science Center (Cycle 5 Observations)

“Star Formation and the Tully-Fisher Relation”

**\$25,000** from 1 July 2008 to 30 June 2010

NASA Spitzer Science Center (Archival)

## References

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