CURRICULUM VITAE
Barbara Sue Ryden

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Employment history:

October 1998 –
Associate professor
Ohio State University, Department of Astronomy

October 1992 – September 1998
Assistant professor
Ohio State University, Department of Astronomy

September 1990 – August 1992
Postdoctoral research fellow
Canadian Institute for Theoretical Astrophysics

September 1987 – August 1990
Postdoctoral research fellow
Harvard-Smithsonian Center for Astrophysics

Born:

May 2, 1961
New Milford, CT, U.S.A.

Education:

Ph. D. (1987) Princeton University
Astrophysics
Thesis adviser: James E. Gunn

B. A. (1983) Northwestern University
Physics and Integrated Science Program

Honors, etc.:

NSF Young Investigator (1993-98)
Participant, Summer Program for
  Young Investigators in Cosmology (1990-91)
Smithsonian Postdoctoral Fellow (1987-90)
Jacobus Honorary Fellow (1986-87)
NSF Graduate Fellow (1983-86)
Phi Beta Kappa (1982)

Membership in Professional Societies:

American Astronomical Society
Astronomical Society of the Pacific

Grants:

NSF Young Investigator Award: NSF AST-93-577396 (PI)
Observational Studies of the Structure of Elliptical Galaxies
Amount: $125,000   Duration: 8/93 - 7/00

NASA Astrophysics Theory Program: NASA NAG5-3111
[with D. Weinberg (PI), R. Scherrer, & A. Gould]
Dark Matter and Cosmic Structure Formation
Amount: $207,000   Duration: 11/95 - 10/98

Thesis Students Supervised:

Aniruddha Thakar (Ph.D. March 1997)
A Numerical Study of Counterrotating Disks in Spiral Galaxies

Alberto Conti (Ph.D. September 2000)
Evolution of the Properties of Galaxies

S. M. Khairul Alam (M.S. March 2002)
The Shapes of Galaxies in the Sloan Digital Sky Survey

Recent Talks, Colloquia, & Other Presentations:

5/02: Caltech, Dept. of Astronomy, Pasadena, CA
Colloquium: The morphological evolution of elliptical galaxies

11/01: Ringberg Workshop, Ringberg Castle, Tegernsee, Germany
Invited talk: The evolution of merger remnants

5/01: Yale Cosmology Workshop, "The Shapes of Galaxies and Their Halos", New Haven, CT
Contributed talk: The morphological evolution of merger remnants

8/00: "Kingston 2000" conference, CITA, Toronto, ON, Canada
Contributed talk: The age – shape relation for elliptical galaxies

2/00: Miami University, Dept. of Physics, Oxford, OH
Colloquium: The large-scale structure of the universe

6/99: "Instrumentation and Cosmology" conference, Princeton U., Princeton, NJ
Invited talk: Galaxy formation – the analytic approach

8/98: "Galaxy Dynamics" conference, Rutgers U., New Brunswick, NJ
Contributed talk: Shapes of elliptical galaxies with massive dark objects

3/98: University of Wisconsin, Dept. of Astronomy, Madison, WI
Colloquium: The expansion of the universe - slowing down or speeding up?

3/97: University of Michigan, Dept. of Astronomy, Ann Arbor, MI
Colloquium: The continuing search for q_0

12/96: Very Large Array, NRAO, Soccoro, NM
New Mexico State University, Dept. of Astronomy, Las Cruces, NM
Los Alamos National Laboratory, Theoretical Astrophysics, Los Alamos, NM
Colloquium: The formation of counterrotating disks in spiral galaxies

10/96: Case Western Reserve University, Cleveland, OH
Seminar: Voids in the universe - Past, present, and future

8/96: The Second Stromlo Symposium, Canberra, ACT, Australia
Contributed talk: Dwarf elliptical and dwarf S0 galaxies in the Virgo cluster

8/96: Canadian Institute for Theoretical Astrophysics, Toronto, ON, Canada
Seminar: Still searching for q_0

8/96: "Cosmology – The Big Picture" conference, Iqaluit, NT, Canada
Contributed talk: Methods for measuring the deceleration parameter

1/96: University of Toledo, Dept. of Physics and Astronomy, Toledo, OH
Colloquium: The search for q_0 and the fate of the universe

BIBLIOGRAPHY

Refereed papers

1. "A Statistical Comparison of Voids in the Galaxy Distribution and n-body Simulations." Barbara S. Ryden & Edwin L. Turner, 1984, *ApJL*, **287**, L59-63
2. "Molecules in Galaxies. I. CO Observations in a Spiral Arm of M31." Barbara S. Ryden & Antony A. Stark, 1986, *ApJ*, **305**, 823-29
3. "Galaxy Formation by Gravitational Collapse." Barbara S. Ryden & James E. Gunn, 1987, *ApJ*, **318**, 15-31
4. "Galaxy Formation: The Role of Tidal Torques and Dissipational Infall." Barbara S. Ryden, 1988, *ApJ*, **329**, 589-611
5. "Collapse of Density Peaks in a Gaussian Random Field." Barbara S. Ryden, 1988, *ApJ*, **333**, 78-89
6. "The Area of Isodensity Contours as a Measure of Large Scale Structure." Barbara S. Ryden, 1988, *ApJL*, **333**, L41-44
7. "The Area of Isodensity Contours in Cosmological Models and Galaxy Surveys." Barbara S. Ryden, Adrian L. Melott, David A. Craig, J. Richard Gott III, David H. Weinberg, Robert J. Scherrer, Suketu P. Bhavsar, & John M. Miller, 1989, *ApJ*, **340**, 647-60
8. "Dynamical Evolution of Domain Walls in an Expanding Universe." William H. Press, Barbara S. Ryden, & David N. Spergel, 1989, *ApJ*, **347**, 590-604
9. "Single Mechanism for Generating Large Scale Structure and Providing Dark Missing Matter." William H. Press, Barbara S. Ryden, & David N. Spergel, 1990, *Phys. Rev. Lett.*, **64**, 1084-87
10. "Oblate Spheroidal Mass Distributions of Varying Ellipticity." Barbara S. Ryden, 1990, *MNRAS*, **244**, 341-48
11. "The Evolution of Networks of Domain Walls and Cosmic Strings." Barbara S. Ryden, William H. Press, & David N. Spergel, 1990, *ApJ*, **357**, 293-300
12. "Global Texture as the Origin of Large Scale Structure: Numerical Simulations of Evolution." David N. Spergel, Neil Turok, William H. Press, & Barbara S. Ryden, 1991, *Phys. Rev.*, **D43**, 1038-46
13. "Compression of Dark Halos by Baryon Infall: Self-similar Solutions." Barbara S. Ryden, 1991, *ApJ*, **370**, 15-24
14. "Phase Shifts in Gravitationally Evolving Density Fields." Barbara S. Ryden & Mirt Gramann, 1991, *ApJL*, **383**, L33-36
15. "Projections of Ellipsoidal Galaxies." Barbara S. Ryden, 1991, *MNRAS*, **253**, 743-52
16. "Projections of Box-shaped Galaxies." Barbara S. Ryden, 1992, *ApJ*, **386**, 42-51
17. "The Intrinsic Shapes of Elliptical Galaxies." Barbara S. Ryden, 1992, *ApJ*, **396**, 445-52
18. "The Shapes of Brightest Cluster Galaxies." Barbara S. Ryden, Tod R. Lauer, & Marc Postman, 1993, *ApJ*, **410**, 515-19
19. "Self-similar Collapse of Axisymmetric Systems." Barbara S. Ryden, 1993, *ApJ*, **418**, 4-10
20. "Self-similar Expansion of Axisymmetric Voids." Barbara S. Ryden, 1994, *ApJ*, **423**, 534-38
21. "The Flattening Distribution of Dwarf Elliptical Galaxies in the Virgo Cluster." Barbara S. Ryden & Donald M. Terndrup, 1994, *ApJ*, **425**, 43-50
22. "A Comparison of the Intrinsic Shapes of Globular Clusters in Four Different Galaxies." Cheongho Han & Barbara S. Ryden, 1994, *ApJ*, **433**, 80-87
23. "Measuring q_0 from the Distortion of Voids in Redshift Space." Barbara S. Ryden, 1995, *ApJ*, **452**, 25-32

24. "Formation of Massive Counterrotating Disks in Spiral Galaxies." Aniruddha R. Thakar & Barbara S. Ryden, 1996, *ApJ*, **461**, 55-71

25. "The Intrinsic Shapes of Stellar Systems." Barbara S. Ryden, 1996, *ApJ*, **461**, 146-154

26. "Voids in Real Space and in Redshift Space." Barbara S. Ryden & Adrian L. Melott, 1996, *ApJ*, **470**, 160-171

27. "The Shapes of Dense Cores and Bok Globules." Barbara S. Ryden, 1996, *ApJ*, **471**, 822-31

28. "NGC 4138 – A Case Study in Counterrotating Disk Formation." Aniruddha R. Thakar, Barbara S. Ryden, Katherine P. Jore, & Adrick H. Broeils, 1997, *ApJ*, **479**, 702-22

29. "Quasar Clustering and Spacetime Geometry." Piotr A. Popowski, David H. Weinberg, Barbara S. Ryden, & Patrick S. Osmer, 1998, *ApJ*, **498**, 11-25

30. "A Comparison of the Intrinsic Shapes of Two Different Types of Dwarf Galaxies: Blue Compact Dwarfs and Dwarf Ellipticals." Eon-Chang Sung, Cheongho Han, Barbara S. Ryden, Mun-Suk Chun, & Ho-Il Kim, 1998, *ApJ*, **499**, 140-148

31. "The Intrinsic Shapes of Low-Surface-Brightness Dwarf Irregular Galaxies and Comparison to Other Types of Dwarf Galaxies." Eon-Chang Sung, Cheongho Han, Barbara S. Ryden, Richard J. Patterson, Mun-Suk Chun, Ho-Il Kim, Woo-Baik Lee, & Dong-Jin Kim, 1998, *ApJ*, **505**, 199-206

32. "SPH Simulations of Counterrotating Disk Formation in Spiral Galaxies." Aniruddha R. Thakar & Barbara S. Ryden, 1998, *ApJ*, **506**, 93-115

33. "Detailed Surface Photometry of Dwarf Elliptical and Dwarf S0 Galaxies in the Virgo Cluster." Barbara S. Ryden, Donald M. Terndrup, Richard W. Pogge, & Tod R. Lauer, 1999, *ApJ*, **517**, 650-660

34. "The Size and Shape of Voids in Three-dimensional Galaxy Surveys." Jason Schmidt, Barbara S. Ryden, & Adrian L. Melott, 2001, *ApJ*, **546**, 609-619

35. "Structural Evolution in Elliptical Galaxies: The Age - Shape Relation." Barbara S. Ryden, Duncan A. Forbes, & A. I. Terlevich, 2001, *MNRAS*, **326**, 1141-1148

36. "The Shapes of Galaxies in the Sloan Digital Sky Survey." S. M. Khairul Alam & Barbara S. Ryden, 2002, *ApJ*, **570**, 610

37. "From Correlations of Galaxy Properties to the Physics of Galaxy Formation: A Theoretical Framework." Alberto Conti, Barbara S. Ryden, & David H. Weinberg, 2002, *AJ*, submitted

38. "The Influence of Triaxial Halos on Collisionless Galactic Disks." Jeremy Tinker & Barbara S. Ryden, 2002, *ApJ*, submitted

39. "The Effect of Galaxy Biasing on the Properties of Voids." Louis E. Strigari & Barbara S. Ryden, 2002, in preparation

Other works

1. "The Forms of Galaxy Haloes in Universes Dominated by Heavy Neutral Particles." B. S. Ryden & J. E. Gunn, 1984, *BAAS*, **16**, 487 (abstract)

2. "The Formation of Galactic Halos in Universes Dominated by Cold Dark Matter." Barbara S. Ryden & James E. Gunn, 1987, in *Dark Matter in the Universe, IAU Symposium 117*, ed. J. Kormendy & G. R. Knapp (Dordrecht: Reidel), p. 364 (abstract)

3. "The Milky Way and Mankind: from Myth to Science." Barbara S. Ryden, 1987, *Star Date*, **15**, January, p. 6-8

4. *Galaxy Formation by Gravitational Collapse in a Universe Dominated by Cold Dark Matter*, Barbara Sue Ryden, 1987, Ph. D. thesis, Princeton University

5. "The Phantom Moon of Venus." Barbara Ryden, 1987, *Star Date*, **15**, August, p. 4-5

6. “The Astronomical Odyssey of Monsieur Le Gentil.” Barbara S. Ryden, 1988, *Griffith Observer*, **52**, February, p. 3-10
7. “The Area of Isodensity Contours in Gaussian and non-Gaussian Fields.” Barbara S. Ryden, 1988, *PASP*, **100**, 1360-63
8. “The Astronomer and the Guillotine.” Barbara Ryden, 1989, *Star Date*, **17**, Jan.-Feb., p. 16-18
9. “The Great Moon Hoax.” Barbara S. Ryden, 1989, *Star Date*, **17**, May/June, p. 16-17
10. “The Galaxy Next Door.” Barbara Ryden, 1989, *Star Date*, **17**, Sept./Oct., p. 21-22
11. “The Earl and the Leviathan.” Barbara S. Ryden, 1989, *Griffith Observer*, **53**, Nov., p. 2-14
12. “Silent Star: The Life of John Goodricke.” Barbara Ryden, 1989, *Star Date*, **17**, Nov./Dec., p. 8-9
13. “Spots on the Sun.” Barbara Ryden, 1990, *Star Date*, **18**, Jan./Feb., p. 19-20
14. “Alfonso the Wise.” Barbara Ryden, 1990, *Star Date*, **18**, Mar./Apr., p. 16-17
15. “Adam Schall: An Astronomer in China.” Barbara Ryden, 1990, *Star Date*, **18**, May/June, p. 16-17
16. “The Trials and Triumphs of Mary Somerville.” Barbara Ryden, 1990, *Star Date*, **18**, Sept./Oct., p. 8-9
17. “The Origin of the Telescope.” Barbara Ryden, 1990, *Star Date*, **18**, Nov./Dec., p. 8-9
18. “Domain Walls and Large Scale Structure.” Barbara S. Ryden, 1991, in *Proceedings of the Workshop on Large-Scale Structures and Peculiar Motions in the Universe*, ed. D. W. Latham & L. N. da Costa (San Francisco: Astronomical Society of the Pacific), p. 327-31
19. “On the Intrinsic Shape of Elliptical Galaxies.” B. S. Ryden, 1991, *BAAS*, **23**, 1457 (abstract)
20. “The Formation and Evolution of Domain Walls.” W. H. Press, B. S. Ryden, & D. N. Spergel, 1991, in *High Energy Astrophysics. American and Soviet Perspectives*, ed. W. H. G. Lewin, et al. (Washington, DC: National Academy Press), p. 322-28
21. “Cosmology, Galaxy Formation.” Barbara Ryden, 1992, in *The Astronomy and Astrophysics Encyclopedia*, ed. S. P. Maran (New York: Van Nostrand Reinhold), p. 156-57
22. “The Amazing Cassinis.” Barbara Ryden, 1994, *Star Date*, **22**, Jan./Feb., p. 16-18
23. “Expansion of Axisymmetric Voids.” Barbara S. Ryden, 1994, in *Cosmic Velocity Fields*, ed. F. R. Bouchet & M. Lachièze-Rey (Gif-sur-Yvette, France: Editions Frontières), p. 573-4 (abstract)
24. “The Cosmological Distortion of Voids in Redshift Space.” B. S. Ryden, 1994, *BAAS*, **26**, 1407 (abstract)
25. “Sticky Particle Simulations of Counterrotating Disk Formation.” A. R. Thakar & B. S. Ryden, 1994, *BAAS*, **26**, 1441 (abstract)
26. “Cosmological Distortions in Redshift Space.” B. S. Ryden, 1995, *BAAS*, **27**, 849 (abstract)
27. “NGC 4138 - A Smoking Gun for Counterrotating Disk Formation.” A. R. Thakar, B. S. Ryden, K. P. Jore, & A. H. Broeils, 1995, *BAAS*, **27**, 1442 (abstract)
28. “The Shapes of Dense Molecular Cloud Cores.” B. S. Ryden, 1996, *BAAS*, **28**, 886 (abstract)
29. “Captain Cook and Mister Green.” Barbara Ryden, 1997, *Star Date*, **25**, Mar./Apr., p. 4-9
30. “Dwarf Elliptical and Dwarf S0 Galaxies in the Virgo Cluster.” Barbara S. Ryden, Donald M. Terndrup, Richard W. Pogge, & Tod R. Lauer, 1997, in *The Second Stromlo Symposium: The Nature of Elliptical Galaxies*, ed. M. Arnaboldi, G. S. Da Costa, & P. Saha (San Francisco: Astronomical Society of the Pacific), p. 283-6
31. “Star-crossed Constellations.” Barbara Ryden, 1997, *Star Date*, **25**, Nov./Dec., p. 15-19
32. “SPH Simulations of Counterrotating Disk Formation in Spirals.” A. R. Thakar & B. S. Ryden, 1997, *BAAS*, **29**, 1332 (abstract)
33. “A Rock-Solid Case.” Barbara Ryden, 1998, *Star Date*, **26**, Nov./Dec., p. 4-7

34. "The Formation of Kinematically Decoupled Bulges and Cores in Spirals." A. R. Thakar & B. S. Ryden, 1998, *BAAS*, **30**, 1408 (abstract)

35. "The Shapes of Elliptical Galaxies with Massive Dark Objects and Central Density Cusps." Barbara S. Ryden, 1999, in *Galaxy Dynamics*, ed. D. Merritt, J. A. Sellwood, & M. Valluri (San Francisco: Astronomical Society of the Pacific), p. 142-45

36. "A Theoretical Framework for Interpreting Principal Component Analysis of the Properties of Galaxies." A. Conti, B. S. Ryden, & D. H. Weinberg, 1999, *BAAS*, **31**, 1387 (abstract)

37. "Tough Little German Sister." Barbara Ryden, 2000, *Star Date*, **28**, May/June, p. 4-9

38. "The Size and Shape of Voids in Three-Dimensional Galaxy Surveys." J. D. Schmidt, B. S. Ryden, & A. L. Melott, 2000, *BAAS*, **32**, 684 (abstract)

39. "The Age – Shape Relation for Elliptical Galaxies." B. S. Ryden, D. A. Forbes, & A. I. Terlevich, 2000, *BAAS*, **32**, 717 (abstract)

40. "The Morphological Evolution of Merger Remnants." Barbara Ryden & Jeremy Tinker, 2002, in *The Shapes of Galaxies and Their Halos*, ed. P. Natarajan (Singapore: World Scientific), p. 132-39

41. "Evolution of Merger Remnants with Supermassive Black Holes." Jeremy Tinker & Barbara Ryden, 2002, in *Astrophysical Supercomputing Using Particles, IAU Symposium 208*, ed. J. Makino & P. Hut, in press

42. *Introduction to Cosmology.* Barbara Ryden, 2003 (San Francisco: Addison Wesley Longman), in press

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