

CURRICULUM VITAE

MARK JEFFREY HENRIKSEN

Education

- Ph.D. University of Maryland, Astrophysics
Dissertation Advisor: Dr. Richard F. Mushotzky,
LHEA/NASA/GSFC/UMD
- M.M. Catholic University of America, Washington, D.C., Music Performance
- B.S. University of California, Los Angeles, Physics
Honors College

Experience in Higher Education

- 1999-present Associate Professor, Physics Department, University of Maryland, Baltimore County
- 1999-2005 Founding Director, Joint Center for Astrophysics, University of Maryland, Baltimore County
- 1999-2005 Astrophysicist, Laboratory for High Energy Astrophysics, NASA/Goddard Space Flight Center
- 1999 Associate Professor Department of Physics University of North Dakota
- 1995-1999 Assistant Professor, Department of Physics, University of North Dakota
- 1994-1995 Research Associate, Department of Physics and Astronomy, University of Alabama
- 1994 Visiting Assistant Professor, University of California, Los Angeles, Department of Astronomy
- 1992-1993 Post-doc, Department of Physics and Astronomy, University of Alabama

Experience in Other than Higher Education

- 1989-1991 Post-doctoral Research Associate, Applied Research Corporation, MD, Hubble Space Telescope Faint Object Spectrograph Team, research in UV observations of AGN, post-launch calibrations of HST FOS
- 1986-1988 Post-doctoral Research Associate, Space Telescope Science Institute, MD, research in large scale structure, support pre-launch preparations for Hubble Space Telescope
- 1978-1980 Research Assistant, Harvard-Smithsonian Center for Astrophysics, Worked on Einstein Observatory, the first X-ray imaging telescope in space, research in X-ray astronomy

Honors Received

- 1996,1999 Early Career Award, National Science Foundation
- NASA Group Achievement Award, Hubble Space Telescope Faint Object Spectrograph Instrument Development Team
- Certificate of Recognition, GSFC, Hubble Space Telescope
- NASA Graduate Student Research Fellowship
- UCLA, Member - Honors College, Dean's List multiple times

Publications

Peer-Reviewed Works (76%, first author)

Articles

1. "The Complex Structure of the Abell 548–Abell 3367 Region", 2024, Henriksen, M.J.; Ahmed, L., *Astronomy*, 3, 289-303.
2. "Exploiting Machine Learning and Disequilibrium in Galaxy Clusters to Obtain a Mass Profile", 2024, Henriksen, Mark J., Panda, Prajwal, *The Astrophysical Journal (Letters)*, 961, L36.
3. "Simulation of the Dependence of Tidal Interaction on Galaxy Type in Compact Groups", 2024, Henriksen, Mark J., Mejia, Mateo, *IJAA*, Vol 14, No. 2
4. "A New Habitability Index", Henriksen, Mark, J., Piltoyan, Natalie, 2023, *European Journal of Applied sciences*, 11, 5
5. "RXTE Observation of the Non-thermal Emission from the Early Stage Merger in Abell 1750", Henriksen, Mark,J., 2022, *Astrophysical Journal*, 933, 34
6. "Dark X-Ray Galaxies in the Abell 1367 Galaxy Cluster", Henriksen, Mark J., Dusek, Scott., 2021, *Astrophysical Journal (Letters)* ,917 L33
7. "The Origin of Intergalactic Light in Compact Groups of Galaxies.", Henriksen, Mark J., *Universe*. 2021; 7(8):303.
8. "A Lack of Evidence for Global Ram-Pressure Induced Star Formation in the Merging Cluster Abell 3266", Henriksen, M.J., Dusek, Scott., 2021, *IJAA*, 11, 1.
9. "Hard X-ray Emission from the NGC 5044 Group", 2011, Henriksen, M., 2011, *ApJ*, 726,
10. "The X-ray View of Abell 3120", Henriksen, M., Finoguenov, A., 2009, *ApJ*, 701, 122.
11. "A Puzzling Merger in A3266: The Hydrodynamic Picture from XMM-Newton", Finoguenov, A., Henriksen, M, & Minati, F., 2006, Jones, C., Briel, U., *ApJ*, 643, 790.
12. "Post-merger Oscillations of Galaxy Clusters and Their Relation to "Cold Fronts", Tittley, E. & Henriksen, M., 2005, *ApJ*, 618, 227.

13. "XMM-Newton Study of A3562 and Its Immediate Shapley Environs", Finoguenov, A., Henriksen, M., Briel, U., de Plaa, J., & Kaastra, J., 2004, 611, 811.
14. "The Origin of a Soft X-ray Component in the Abell 754 Cluster", Henriksen, M., Hudson, D., Tittley, E., 2004, ApJ, 610, 762.
15. "Diffuse Non-thermal X-ray Emission: Evidence for Cosmic-ray Acceleration at the Shock front in IC 1262", Hudson, D. & Henriksen, M., 2003, ApJ, 595, L1.
16. "X-ray Observations of the IC1262 Galaxy Cluster, Hudson, D., Henriksen, M., and Colafrancesco, S., 2003, ApJ, 583, 706.
17. "Chandra Observations of the Abell 3266 Galaxy Cluster Merger", Henriksen, M., and Tittley, E., 2002, ApJ, 577, 701.
18. "Filamentary Gas in the A3395/A3391 Supercluster", Tittley, E., and Henriksen, M., 2001, ApJ, 563, 673.
19. "X-ray Observation of A1367 with the Rossi X-ray Timing Explorer", Henriksen, M., and Mushotzky, R., 2001, ApJ, 553, 84.
20. "Reconstructing the Merger History of the A3266 Galaxy Cluster", Henriksen, M., Donnelly, H., and Davis, D., 2000, ApJ, 529, 692.
21. "RXTE and ASCA Constraints on Non-thermal Emission from the A2256 Galaxy Cluster", Henriksen, M., 1999, ApJ, 511, 666.
22. "A2111: A Butcher-Oemler Cluster with a Non-isothermal Atmosphere and Normal Metallicity", Henriksen, M., and Wang, Q. Daniel, Ulmer, M., 1999, MNRAS, 307, 67.
23. "An X-ray Survey of Galaxies in Pairs", Henriksen, M., and Cousineau, S., 1999, ApJ, 511, 595.
24. "RXTE Observations of A754: Constraining the Hottest Temperature Component and the Magnetic Field", Valinia, A., Henriksen, M., Loewenstein, M., Roettiger, K., Mushotsky, R., Madjesky, G., 1999, ApJ, 515, 42.
25. "The Effect of Cluster Magnetic Fields on Ω ", Henriksen, M., in "Dark Matter 98", Ed. D. Cline, Physics Reports.
26. "X-ray Constraints on Magnetic Fields in Clusters of Galaxies", Henriksen, M., 1998, Publications of the Astronomical Society of Japan, 59, 398.
27. "A754: A Non-head On Collision of Subclusters", Henriksen, M., and Markevitch, M., 1996, ApJ (Letters), 466, L79
28. "An Optical and X-ray Study of Clusters in Formation", Henriksen, M., and Jones, C., 1996, ApJ, 465, 666.
29. "Non-isothermal X-ray Emission from Clusters of Galaxies", Henriksen, M., and White III, R., 1996, ApJ, 465, 515.
30. "Tidal Triggering of Star Formation by the Cluster Potential", Henriksen, M., and Byrd, G., 1996, ApJ, 459, 82.
31. "The Baryon Fraction in Groups of Galaxies from X-ray Measurements", Henriksen, M.,

- Mamon, G., 1994, ApJ (Letters), 421, L63.
32. "Dark Matter in Hierarchical Cluster Evolution", Henriksen, M., 1994, ApJ, 425, 35.
 33. "Cooling Flows and Cluster Evolution", Henriksen, M., 1993, ApJ (Letters), 407, L13.
 34. "X-ray Spectral Observations of Clusters of Galaxies Undergoing Merger Events", Henriksen, M., 1993, ApJ (Letters), 414, L5.
 35. "An Empirical Approach to Analyzing the X-ray Surface Brightness Distribution of Clusters of Galaxies", Henriksen, M., Comments on Astrophysics, 1993, 17, 131.
 36. "The Effect of Geometry and Incomplete Sampling of Peculiar Velocity of Superclusters", Henriksen, M., Smith, T., 1992, AJ, 103, 1729.
 37. "Verification of a Subsample of the Abell Survey Using X-ray Data", Henriksen, M., 1992, AJ, 103, 1051.
 38. "Is the Universe Filled With Bubbles?", Bahcall, N., Henriksen, M., and Smith, E., 1989, ApJ (Letters), 346, L45.
 39. "Are the Virial Masses of Clusters Smaller Than We Think?", Cowie, L., Henriksen, M., and Mushotzky, R., 1987, ApJ, 317, 593.
 40. "The X-ray Spectrum of the Coma Cluster of Galaxies", Henriksen, M., and Mushotzky, R., ApJ, 302, 287.
 41. "The X-ray Structure of the 3C295 Cluster of Galaxies: A Cooling Flow at Redshift 0.5", Henry, J., and Henriksen, M., 1986, ApJ, 301, 689.
 42. "The Physical Implications of an Isothermal Model for the Hot Intracluster Medium", Henriksen, M., and Mushotzky, R., 1985, ApJ, 284, 491.
 43. "An X-ray Survey of Variable Radio Bright Quasars", Henriksen, M., Marshall, F., and Mushotzky, R., 1985, ApJ, 292, 441.
 44. "Observations of the Two Components of the A98 Cluster", Henry, J., Henriksen, M., Charles, P., and Thorstensen, J., 1981, ApJ (Letters), 243, L137.

Peer-Reviewed Works

Conference Proceedings

45. (INVITED) "X-ray Measurements of the Dark Matter Content of Galaxy Clusters", Henriksen, M., in Dark Matter in Astro- and Particle Physics, Proceedings of the International Conference DARK 2000, held in Heidelberg, Germany, 10-14 July, 2000. Edited by H.V.Klapdor-Kleingrothaus. Berlin Heidelberg: Springer-Verlag, 2001., p.73
46. "The Dark Matter Content of Groups and Clusters of Galaxies Measured from X-ray Observations", Henriksen, M., 1995, in "Critique of Sources of Dark Matter in the Universe", World Scientific Press, Ed. By D. Cline, 96.

Non-Peer Reviewed Works

Conference Proceedings

47. Exploiting Disequilibrium in the Abell 2146 Galaxy Clusters to Derive a Radial Mass

Profile, Mark J Henriksen, Prajwal Panda, 2023, APS Meeting, Abstract:F01.00030

48. "The X-ray View of Abell 3120", 2009, Henriksen, M., & Finoguenov, A., BAAS, 21430702
49. "Chandra Observations of Abell 222/223", 2006, Davis, D. S., & Henriksen, M. J., BAAS, 2097708
50. (INVITED) "Imaging Non-Thermal X-ray Emission From Galaxy Clusters: Results and Implications", Henriksen, M., Hudson, D., 2004, Journal of the Korean Astronomical Society, 37, 299.
51. (INVITED) "Soft (1 keV) Gas in Galaxy Clusters", Henriksen, M., 2003, To appear in: Soft X-ray Emission from Galaxy Clusters and Related Phenomena", Kluwer Press, The Netherlands, 2004, p.11, Ed. R. Lieu.
52. "Cluster Mergers, Core Oscillations, and Cold Fronts", Tittley, E. R.; Henriksen, M., 2003, HEAD, 35, 1306.
53. "BeppoSax Observations of the Abell 1750 & IC1262 Galaxy Clusters", Hudson, D.S. & Henriksen, M.J., 2001, BAAS, 199.6105
54. "The Soft Gamma-ray Spectrum of Galaxy Clusters", Henriksen, M., and Chiang, J., Gamma 2001: Gamma-Ray Astrophysics, held 4-6 April, 2001 in Baltimore, MD. Edited by Steven Ritz, Neil Gehrels, and Chris R. Shrader. AIP Conference Proceedings, Vol. 587. Melville, NY: American Institute of Physics, 2001., p.416
55. "Post-merger Oscillations of Galaxy Clusters and Their Relation to "Cold Fronts", Tittley, E. & Henriksen, M., 2001, BAAS, 199.6109
56. "Chandra Observations of the Abell 3266 Galaxy Cluster", Henriksen, M., and Tittley, E., 2001, New Century of X-ray Astronomy, ASP Conference Proceedings Vol. 251. Edited by H. Inoue and H. Kunieda. ISBN: 1-58381-091-9. San Francisco: Astronomical Society of the Pacific, 2001., p.452
57. "Observing Aligned Filaments", Tittley, E., Henriksen, M., Constructing the Universe with Clusters of Galaxies, IAP 2000 meeting, Paris, France, July 2000, Florence Durret & Daniel Gerbal Eds., available on CD-Rom and at <http://www.iap.fr/Conferences/Colloque/coll2000/> contributions Reference: 5.1.10
58. "Spatially Derived Limits on Non-thermal Emission From the Abell 2199 Galaxy Cluster", Ronquest, M. and Henriksen, M., 2000, BAAS, 196.5107.
59. "The Evolution of Galaxies and Clusters", Henriksen, M., 1999, BAAS, 195.1906.
60. "RXTE and ASCA Constraints on Non-thermal Emission from the A2256 Galaxy Cluster", C. Delzer and Henriksen, M. , 1999 BAAS 193.3806.
61. "Constraining the Hottest Temperature Component of A754 with RXTE", Valinia, A., Henriksen, M., Mushotzky, R., Loewenstein, M., Roettiger, K., Madejski, G., 1998, BAAS, 192.4201.
62. "Detection and Analysis of Sources in X-Ray Galaxy Clusters", Smith, D., Henriksen, M., 1998, BAAS, 192.3707.
63. "An X-ray Survey of Galaxies in Pairs", Cousineau, S., Henriksen, M., 1997, BAAS, 190.4308.

64. "New Limits on Magnetic Fields in Galaxy Clusters", Henriksen, M., 1998, BAAS, 190.0307.
65. (INVITED) "The Effect of Cluster Evolution on Galaxy Evolution", Henriksen, M., 1998, in "Proceedings: 18th Texas Symposium in Relativistic Astrophysics", Ed. by Olinto, Frieman, and Schramm, World Scientific Press, 461.
66. "HRI Observations of the A2384 Cluster of Galaxies", Henriksen, M., 1996 in "Rontgenstrahlung from the Universe", Ed. by Zimmermann, Trumper, and Yorke, MPE Report 263, 587.
67. (INVITED) "ASCA Atlas of Cluster Temperatures", Markevitch, M., Sarazin, C., and Henriksen, M., 1997, X-Ray Imaging and Spectroscopy of Cosmic Hot Plasmas, Proceedings of an International Symposium on X-ray Astronomy ASCA Third Anniversary, 11-14 March, 1996, Waseda University, Tokyo. Edited by F. Makino and K. Mitsuda, p.912
68. "ASCA Observations of the Merging Cluster A754", Henriksen, M., and Markevitch, M., 1996, in "X-ray Imaging and Spectroscopy of Cosmic Hot Plasmas.60
69. "The Contribution of Galaxies to the X-ray Spectra of Clusters of Galaxies", Henriksen, M., and Silk, J., 1996, in "Clusters, Lensing, and the Future", Ed. By Trimble and Reisenegger, ASP Conference Series, 88, 213.
70. "The Effect of a Partially Virialized ICM on the Baryon Fraction Derived from X-ray Measurements", Henriksen, M., 1995, in "Dark Matter", Cambridge University Press, Ed. by S. Holt, and C. Bennett, 280.
71. "ROSAT Observations of Clusters in Bimodal Systems", Henriksen, M., BAAS, 185.74.
72. "Non-isothermal Gas in Clusters of Galaxies", Henriksen, M., and Merrill W., 1993, BAAS, 185.5304.
73. "Hierarchical Cluster Formation: Mergers, Dark Matter Evolution, and Cooling Flow Formation", Henriksen, M., 1993, in "Galaxy Clusters and Large Scale Structure in the Universe", Ed. by Giuricin, Mardirossian, and Mezzetti, SISSA Ref. 86/93/A.
74. "Faint Object Spectrograph Observations of the Ultraviolet Emission from PKS 0454-220", Henriksen, M., et al., 1991, BAAS, 23.1423.
75. "The Lyman Alpha Forest at Low Redshift: FOS Observations of the QSO PKS1211+143", with Junkkarinen, V. (Principal Author), 1991, BAAS, 23.1425.
76. "FOS Observations of UV Lines in the Z= 0.4745, 0.4833 Absorption System in PKS 0454-220", with Cohen, R. (Principal Author), 1991, BAAS, 23.1426.
77. "A Study of the Broad Emission-Line Fluxes and Profiles of 3C273 Using Observations Made with the FOS", with Burbidge, E.M. (Principal Author), 1991, BAAS, 23.
78. "Performance and Calibration Status of the HST Faint Object Spectrograph", 1991, Hartig, G., Battacharya, B., Bohlin, R.; Kinney, A., Downes, R., Armus, L., Caganoff, S., Kriss, G., Henriksen, M.; Anderson, S., Bulletin of the American Astronomical Society, Vol. 22, p.1282.
79. "Non-isothermal X-ray Emission from Clusters of Galaxies: Evidence of an Intracluster Medium Heated by Galaxy Ejection?", Henriksen, M., 1991, in "Physical

Cosmology”, Ed. by Blanchard, Celnikier, Lachieze-Rey, and Tran Thanh Van, Editions Frontieres, 535.

80. "Phenomenological Models for the Large Scale Structure", Bahcall, N. A. & Henriksen, M., 1987, Bulletin of the American Astronomical Society, Vol. 19, p.1107.
81. "Spectral Constraints on Models of Gas in Clusters of Galaxies", Henriksen, M., and Mushotzky, R., 1985, Reviews in Space Science, 40.
82. "The X-ray Emitting Gas in Clusters of Galaxies", Henriksen, M., 1985, BAAS, 17.906.
83. "The X-ray Structure of the 3C295 Cluster: A Cooling Flow at a Redshift of 0.5", Henriksen, M., and Henry, J., 1985, BAAS, 17.601.
84. "Spectral constraints on models of gas in clusters of Galaxies", 1985, Henriksen, M. J. & Mushotzky, R., Presented at the 18th ESLAB Symp. on X-Ray Astronomy, The Hague, 5-9, Nov. 1984.
85. "X-ray Spectra of Low Luminosity Clusters of Galaxies", Henriksen, M., and Mushotzky, R., 1984, BAAS, 16.882.
86. "An X-Ray Survey of Variable Radio Bright Quasars", 1984, Henriksen, M. J., Marshall, F. E., Mushotzky, R. F., 1984, BAAS, 16R.481.
87. "The Physical Characteristics of the Hot Gas in Clusters of Galaxies", Henriksen, M. J., Mushotzky, R. F., Szymkowiak, E., 1983, BAAS, 15R.978.

Non-Peer Reviewed Works

Books

88. Study Guide for Astronomy”, Henriksen, M., 1997, J. Wiley and Sons.
89. "Through the Eyes of Our Ancestors: Introductory Exercise in Astronomy”, 1998, Cousineau, S., and Henriksen, M., J. Wiley and Sons.

Reviews of Work

(Reviewed in the Journal *Nature*):

<https://www.nature.com/articles/s41550-021-01526-6>

“Dark X-Ray Galaxies in the Abell 1367 Galaxy Cluster”, Henriksen, Mark J., Dusek, Scott., 2021, Astrophysical Journal (Letters) , 917, L33.

(Reviewed in The Journal *Nature*):

<http://www.nature.com/news/2006/060612/full/060612-3.html>

“Goodness gracious, great ball of fire”, based on: “XMM Newton A3266: The Best Laboratory for the Stripping Process”, Finoguenov, A., Henriksen, M, & Minati, F., 2006, Jones, C., Briel, U., ApJ, 743, 790.

(Reviewed in the Journal, *Nature*):

“Are the Virial Masses of Clusters Smaller Than We Think?”, Cowie, L., Henriksen, M., and Mushotzky, R., 1987, *ApJ*, 317, 593.

(Reviewed in *Sky and Telescope*):

“The Baryon Fraction in Groups of Galaxies from X-ray Measurements”, Henriksen, M., Mamon, G., 1994, *ApJ* (Letters), L63.

New Scientist: Article Preview - “Universe will expand forever”, 18 December 1993