

Erika D. Grundstrom

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Education

Ph.D. Astronomy	Georgia State University	2007
Advisor: Dr. Douglas R. Gies	Thesis: <i>Hot Stars With Disks</i>	
M.S. Physics	Georgia State University	2006
B.S. Astronomy	University of Minnesota	2001
B.S. Physics	University of Minnesota	2000

Positions Held

Learning Sciences Institute & Astronomy Postdoctoral Fellow 2007–present

Department of Physics & Astronomy, Vanderbilt University

Department of Physics, Fisk University (starting 2009)

Conduct research on massive stars (single and in binaries) using spectroscopy, on evaluating outreach activities, and on student perceptions of long timescales and vast distances

Director of Astronomy Outreach & Dyer Observatory Liason 2009–present

Department of Physics & Astronomy, Vanderbilt University

Train graduate students to engage in outreach activities and using a portable planetarium and the Dyer Observatory facilities

Astronomy Instructor 2008–present

Department of Physics & Astronomy, Vanderbilt University

Teach ASTR 250 (astronomy seminar) to 9-12 undergraduates

Taught ASTR 210 (Solar System astronomy) to 22 undergraduates

Program for Talented Youth, Vanderbilt University

Weekend Academy (Sp09) - Astronomy & Physics for 15 gifted 9th-10th graders

Summer Academy (Su09) - Astronomy for 15 gifted 9th-10th graders

Saturday Academy (Fa09) - Astronomy for 18 gifted 5th-6th graders

Graduate Research Assistant 2004–2007

Department of Physics & Astronomy, Georgia State University

Conducted research on massive stars (singular and in binary systems) and supervised two undergraduate research projects

Astronomy Co-Instructor 2004–2007

Department of Physics & Astronomy, Georgia State University

Part of teaching team for ASTR 6300 - developed homework and projects for a teaching pedagogy course for graduate students

Graduate Teaching Assistant	2002–2006
<i>Department of Physics & Astronomy, Georgia State University</i>	
Taught ASTR 1010 & 1020 labs to 19 sections of 5 – 25 students	
Astronomy Instructor	2005
<i>Department of Physics & Astronomy, Georgia State University</i>	
Taught ASTR 1010 to 45 students - developed homework, exams, projects and also various demonstrations for greater learning	
Lead Lab Coordinator	2004–2005
<i>Department of Physics & Astronomy, Georgia State University</i>	
Leader of 3-person team of Lab Coordinators - lab teaching, manual rewriting, scheduling, TA meeting leader, logistics	
Undergraduate Teaching Assistant	1999–2002
<i>Department of Astronomy, University of Minnesota</i>	
Taught ASTR 1001 labs to 11 sections of 20 – 24 students	
Undergraduate Research Assistant	2000–2002
<i>Department of Astronomy, University of Minnesota</i>	
Conducted research on synchrotron radiation from extragalactic radio sources	
<i>Department of Physics, University of Minnesota</i>	1999
Conducted research on water vortex dynamics	

Awards

Astronomical Society of the Pacific Simple Effective Education and Dissemination (SEED) Grants For Astronomy Researchers (\$2500)	2009
American Astronomical Society International Travel Grant (\$900)	2009
Center for the Integration of Research, Teaching and Learning - Vanderbilt STEM Teaching as Research Small Grants (\$3000)	2008
Vanderbilt Learning Sciences Institute Postdoctoral Fellowship (\$100,000)	2007
GSU Physics & Astronomy Outstanding Graduate Teaching Assistant Award	2005
Georgia Partnership for Reform in Science and Mathematics (PRISM) Mini-Grant for use in teaching innovation (\$8800)	2005
GSU Physics & Astronomy Outstanding Graduate Teaching Assistant Award	2004

Students Supervised

Diana Gudkova – Berea College	2007
Johnathan Helsel – Grady High School	2006

Observing Experience

Kitt Peak National Observatory	2004–2008
0.9-m Coudé Feed Telescope with Spectrograph, 30 nights	
Cerro Tololo Inter-American Observatory (via SMARTS)	2007–2008
1.5-m Telescope with Spectrograph, 2 nights + 4 queue nights	
InfraRed Telescope Facility	2006
3.0-m Telescope with the SpeX instrument, 2 nights	
Kitt Peak National Observatory	2005
2.1-m Telescope with Spectrograph, 7 nights	

Meetings Attended

American Astronomical Society Meetings	2002–2009
#199, 203, 206, 208, 209, 211, 212, 213, 214	
International Astronomical Union General Assembly XXVII	2009
Cultural Astronomy Summer School	2009
University of Wyoming Astronomy Education Research Invited Symposium	2008
Professional Skills Development Workshop for Women Physicists	2008
NASA CAE Workshop: Advanced Strategies for Creating a Learner-Centered	2007
Introductory Astronomy Course: A Teaching Excellence Workshop	
Michelson Summer Workshop - Frontiers in Interferometry	2006
NASA CAE Teaching Excellence in Introductory Astronomy Workshop	2006
Partnership for Reform in Science and Mathematics Critical Site Visit	2005
Partnership for Reform in Science and Mathematics Institute Workshop	2005
Cosmos in the Classroom	2004
Michelson Interferometry Summer School	2003
Synthesis Imaging Summer School (NRAO)	2002
Astronomical Society of the Pacific Annual Meeting	2001

Public Outreach

Vanderbilt University Dept. of Physics & Astronomy Director of Astronomy Outreach and Dyer Observatory Liason Training students to do public outreach with telescopes and planetarium.	2009—present
Vanderbilt's Dyer Observatory Kids Exploration Night Coordinator, Instructor during summer camps	2008—present
Invited Speaker, various organizations Presented astronomy and physics lectures and hands-on learning activities to a variety of groups, ranging from elementary school students to senior citizens both in person and via videoconference.	1998—present
Dyer Observatory, the Currey Ingram Academy, and 50-Forward Partnership Co-developed and -taught astronomy activities for 8th graders with learning differences.	2008
Nashville Public Schools Co-developed and -taught astronomy activities to 6th grade classes. Activities were designed to fulfill Tennessee curriculum requirements.	2007
Hard Labor Creek Observatory, operated by GSU Open House Coordinator Co-hosted 10 public open houses.	2002—2007 2004—2007
Astronomy Club at Georgia State University President Vice President	2002—2007 2004—2007 2003—2004
Georgia Science Olympiad Co-developed and managed Astronomy events for 7 th -8 th grade students.	2003—2006
The Rooftop Observatory, operated by the U of MN Hosted and co-hosted over 15 public nights, many also involving area Girl/Boy Scout troops (to whom we gave special presentations).	1999—2002
Society of Physics Students, U of MN chapter Outreach Co-Director Co-developed, set up and performed several demonstrations and lectures for groups ranging from K—12 to college students to adults.	1998—2001 2000—2001

Refereed Publications

1. Grundstrom, E. D., & Taylor, R. S., *Inscriptional Representations of the Moon by Non-scientists*, submitted to AERA
2. Grundstrom, E. D., Gies, D. R., Hillwig, T. C., McSwain, M. V. Smith, N., Gehrz, R. D., Kaufer, A., & Stahl, O., *A Spectroscopic Study of the Mass Outflow in the Massive Interacting Binary RY Scuti*, 2007, ApJ, 667, 505
3. Grundstrom, E. D., Boyajian, T. S., Finch, C., Gies, D. R., Huang, W., McSwain, M. V., O'Brien, D. P., Riddle, R. L., Trippe, M. L., Williams, S. J., Wingert, D. W., & Zaballa, R. A., *Joint H α and X-ray Observations of Massive X-ray Binaries III. The Be X-ray Binaries HDE 245770 = A 0535 +26 and X Persei*, 2007, ApJ, 660, 1398
4. Grundstrom, E. D., Caballero-Nieves, S. M., Gies, D. R., Huang, W., McSwain, M. V., Rafter, S. E., Riddle, R. L., Williams, S. J., & Wingert, D. W., *Joint H α and X-ray Observations of Massive X-ray Binaries II. The Be X-Ray Binary and Microquasar LS I +61 303*, 2007, ApJ, 656, 437
5. Grundstrom, E. D., Blair, J. L., Gies, D. R., Huang, W., McSwain, M. V., Raghavan, D., Riddle, R. L., Subasavage, J. P., Wingert, D. W., Levine, A. M., & Remillard, R. A., *Joint H α and X-ray Observations of Massive X-ray Binaries I. The B-Supergiant System LS I +65 010 = 2S 0114+650*, 2007, ApJ, 656, 431
6. Grundstrom, E. D. & Gies, D. R., *Estimating Be Star Disk Radii using H α Equivalent Widths*, 2006, ApJ, 651, L53
7. Aragona, C., McSwain, M. V., Grundstrom, E. D., Marsh, A. N., Roettenbacher, R. M., Hessler, K. M., Boyajian, T. S., & Ray, P. S., *The Orbits of the Gamma-ray Binaries LS I +61 303 and LS 5039*, 2009, ApJ, 698, 514
8. Peters, G. J., Gies, D. R., Grundstrom, E. D., & McSwain, M. V., *Detection of a Hot Subdwarf Companion to the Be Star FY Canis Majoris*, 2008, ApJ, 686, 1280
9. Gies, D. R., Dieterich, S., Richardson, N. D., Riedel, A. R., Team, B. L., McAlister, H. A., Bagnuolo, W. G., Jr., Grundstrom, E. D., Steff, S., Rivinius, Th., & Baade, D., *A Spectroscopic Orbit for Regulus*, 2008, ApJL, 682, L117
10. McSwain, M. V., Huang, W., Gies, D. R., Grundstrom, E. D., & Townsend, R. H. D., *The B and Be Star Population of NGC 3766*, 2008, ApJ, 672, 590
11. Boyajian, T. S., Gies, D. R., Dunn, J. P., Farrington, C. D., Grundstrom, E. D., Huang, W., McSwain, M. V., Williams, S. J., Wingert, D. W., Fullerton, A. W., & Bolton, C. T., *The Long Period, Massive Binaries HD 37366 and HD 54662: Potential Targets for Long Baseline Optical Interferometry*, 2007, ApJ, 664, 1121
12. Boyajian, T. S., Gies, D. R., Baines, E. K., Barai, P., Grundstrom, E. D., McSwain, M. V., Parks, J. R., Riddle, R. L., Ryle, W. T., & Wingert, D. W., *Radial Velocities of Six OB Stars*, 2007, PASP, 119, 742

13. McSwain, M. V., Ransom, S. M., Boyajian, T. S., Grundstrom, E. D., & Roberts, M. S. E., *Runaway Massive Binaries and Cluster Ejection Scenarios*, ApJ, 2007, 660, 740
14. McSwain, M. V., Boyajian, T. S., Grundstrom, E. D., & Gies, D. R., *A Spectroscopic Study of Field and Runaway OB Stars*, ApJ, 2007, 655, 473
15. Gies, D. R., Bagnuolo, Jr., W. G., Baines, E. K., ten Brummelaar, T. A., Farrington, C. D., Goldfinger, P. J., Grundstrom, E. D., Huang, W., McAlister, H. A., Mérand, A., Sturmann, J., Sturmann, L., Touhami, Y., Turner, N. H., Wingert, D. W., Berger, D. H., McSwain, M. V., Aufdenberg, J. P., Ridgway, S. T., Cochran, A. L., Lester, D. F., Sterling, N. C., Bjorkman, J. E., Bjorkman, K. S., & Koubský, P., *CHARA Array K'-band Measurements of the Angular Dimensions of Be Star Disks*, 2007, ApJ, 654, 527
16. McAlister, H. A., ten Brummelaar, T. A., Gies, D. R., Huang, W., Bagnuolo, Jr., W. G., Shure, M. A., Sturmann, J., Sturmann, L., Turner, L. H., Taylor, S. F., Berger, D. H., Baines, E. K., Grundstrom, E., Ogden, C., Ridgway, S. T., & van Belle, G., *First Results from the CHARA Array. I. An Interferometric and Spectroscopic Study of the Fast Rotator α Leonis (Regulus)*, 2005, ApJ, 628, 439
17. Boyajian, T. S., Beaulieu, T. D., Gies, D. R., Grundstrom, E., Huang, W., McSwain, M. V., Riddle, R. L., Wingert, D. W., & De Becker, M., *The Massive Runaway Stars HD 14633 and HD 15137*, 2005, ApJ, 621, 978
18. Grundstrom, E. D., Gies, D. R., Boyajian, T. S., Gudkova, D., & Williams, S. J., *A Spectroscopic Survey of Be Stars I: Measurements and Stellar Properties*, in preparation
19. Grundstrom, E. D., Gies, D. R., Gudkova, D., Boyajian, T. S., & Williams, S. J., *A Spectroscopic Survey of Be Stars II: Disk Properties and Variability*, in preparation
20. Taylor, R. S. & Grundstrom, E. D., *Representational affordances and constraints: Challenges for astronomy instruction on the Earth-Moon System*, in preparation
21. Gies, D. R., Roberts, Jr., L. C., Mason, B. D., Berger, D. H., McSwain, M. V., Parks, R. J., & Grundstrom, E. D., *Multi-color Photometry of the Open Cluster Collinder 419*, in preparation

Contributed Papers

1. Roberts, M. S. E., Brogan, C., Ransom, S., Lyutikov, M., de Oa Wilhelmi, E., Djannati-Atai, A., Terrier, R., Dougherty, S. M., Grundstrom, E. D., Hessels, J. W. T., Johnston, S., McSwain, M. V., Ray, P. S., Wood, K. S., Pooley, G. G., & Weinstein, A., 2008, “The Full Spectrum Galactic Terrarium: MHz to TeV Observations of Various Critters”, in *High Energy Gamma Ray Astronomy: Proceedings of the 4th International Meeting on High Energy Gamma-Ray Astronomy*, (AIP Conference Series) ed. F. A. Aharonian, W. Hofmann, and F. Rieger, 1085
2. McSwain, M. V., Ransom, S. M., Boyajian, T. S., Grundstrom, E. D., & Roberts, M. S. E., 2007, “The Ejection of Runaway Massive Binaries”, in *Binary Stars as Critical Tools and Tests in Contemporary Astrophysics* (IAU Symposium No. 240), ed. W. I. Hartkopf, P. Harmanec, and E. F. Guinan, 315
3. Gies, D. R., Baines, E. K., Berger, D. H., Farrington, C., Grundstrom, E. D., Huang, W., McAlister, H. A., ten Brummelaar, T. A., & McSwain, M. V., 2007, “CHARA Array Observations of Be Stars and Regulus”, in *Active OB Stars: Laboratories for Stellar & Circumstellar Physics* (A.S.P. Conf. Ser.), ed. S. Stefl, S. Owocki, and A. Okazaki (San Francisco: ASP), 361

Published Abstracts

1. Grundstrom, E., Aragona, C., Boyajian, T. S., Gies, D. R., Marsh, A. N., McSwain, M. V., Roettenbacher, R. M., Williams, S. J., & Wingert, D. W., *Spectroscopic H α Survey of Field Be Stars: 2004-2008*, 2009, AAS 214, #431.06
2. Grundstrom, E. & Taylor, R. S., *Inscriptional Representations of the Moon by Non-scientists*, 2009, AAS 214, #401.06
3. Grundstrom, E., Williams, S. J., & Matson, R., *Spectroscopic Investigations of Be Stars: Non-radial Pulsation Candidates*, 2009, AAS 213, #409.20
4. Grundstrom, E. & Taylor, R. S., *Enhancing Astronomy Education Through Cross-Age Student Tutoring* 2009, AAS 213, #430.04
5. Taylor, R. S. & Grundstrom, E. D., *Inquiry and Epistemology in Astronomy: Examination of middle school students' epistemological beliefs and learning about the Earth-Moon system*, 2009, AAS 213, #613.02
6. Aragona, C., McSwain, M. V., Grundstrom, E. D., Bolton, C. T., Ray, P. S., Ransom, S. M., Roberts, M. S. E., Dougherty, S., Hartman, J. M., & Pooley, G., *Optical Spectroscopy of Gamma-ray Binaries*, 2009, AAS 213, #410.08
7. Schaefer, G., Gies, D. R., Baines, E., Boyajian, T., Coud du Foresto, V., Farrington, C. D., Goldfinger, P. J., Grundstrom, E., McAlister, H. A., Mrand, A., Monnier, J. D., Pedretti, E., Richardson, N., Ridgway, S. T., Sturmman, J., Sturmman, L., ten Brummelaar, T., Thureau, N., Touhami, Y., Turner, N. H., & Zhao, M., *Imaging the Disk of Zeta Tau Using the CHARA Array*, 2009, AAS 213, #409.09

8. Grundstrom, E., Slater, T., & Stassun, K., *Uncovering Astronomy Students' Understandings of the Age of the Universe: A Literature Review*, 2008, AAS 212, #40.04
9. Roberts, M., Bolton, T., Brogan, C., Djannati-Atai, A., Dougherty, S., Grundstrom, E., Hessels, J., Lyutikov, M., McSwain, G., Ransom, S., Ray, P., Terrier, R., & Weinstein, A., *The Full Spectrum Terrarium: Looking at Galactic Critters Glowing in MHz to TeV Light*, 2008, HEAD 10, #41.04
10. Peters, G. J., Gies, D. R., Grundstrom, E. D., & McSwain, M. V., *Detection of a Hot Subdwarf Companion to the Be Star FY Canis Majoris*, 2007, AAS 211, #3.20
11. Grundstrom, E., Gies, D. R., & Wilson, J. W., *Teaching Astronomy Graduate Students About Teaching at the 101 Level*, 2006, AAS 209, #157.04
12. Grundstrom, E., Gies, D. R., Boyajian, T. S., Williams, S. R., & Wingert, D. W., *Be Star Spectra: Disk Variability and Radial Velocity Variations*, 2006, AAS 209, #81.04
13. McSwain, M. V., Boyajian, T. S., Grundstrom, E., & Gies, D. R., *Ejection of Runaway Binary Stars*, 2006, IAU S240, #179
14. Grundstrom, E., Gies, D. R., Blair, J., Caballero-Nieves, S., Finch, C., O'Brien, D., Rafter, S., Raghavan, D., Subasavage, J., Trippe, M., Williams, S., Zaballa, R., Huang, W., McSwain, M. V., & Wingert, D. W., *Spectroscopy of Be X-ray Binaries*, 2006, AAS 208, #4.10
15. McSwain, M. V., Boyajian, T. S., Grundstrom, E., & Gies, D. R., *A Search for Quiet Massive X-ray Binaries*, 2005, AAS 207, #114.02
16. Grundstrom, E., Gies, D. R., & McSwain, M. V., *Orbital Variability of H α Emission in the Massive Binary RY Scuti*, 2005, AAS 206, #40.07
17. Grundstrom, E., Baines, E., & Gies, D. R., *Innovative Astronomy Teaching Using Lecture Activities*, 2005, AAS 206, #2.09
18. Ruiz, B., Grundstrom, E., Marshall, K., McFarland, J. P., McSwain, M. V., Osterman, M. A., Veerabathina, N., & Wingert, D. W., *Urban Astronomy: The Astronomy Club at Georgia State University*, 2003, AAS 203, #19.11
19. Grundstrom, E., Rudnick, L., & Blundell, K. M., *Shapes of Synchrotron Spectra from Fanaroff-Riley II Sources*, 2001, AAS 199, #57.01
20. Grundstrom, E., Pinnick, E. & Kakalios, J., *Rotating Cylinders in a Water Tank: Vortex Diffraction Effects*, 2001, APS MAR01, #15.009

Invited and Contributed Oral Presentations

1. Berea College, Berea, KY, April 2009, "Be Stars: How Do We Know What We Know?"
2. University of Alabama, Huntsville, AL, March 2009, "RY Scuting Along: Studying a Messy Binary"
3. AURA Observatory, La Serena, Chile, March 2008, "RY Scuting Along: Studying a Messy Binary"
4. Central Michigan University, Mount Pleasant, MI, February 2008, "RY Scuting Along: Studying a Messy Binary"
5. 2008 American Astronomical Society Meeting, Austin, TX, January 2008, "Hot Stars With Disks"
6. Vanderbilt University, Nashville, TN, March 2007, "Stars That Give: Joint H-alpha and X-ray Observations of Massive X-Ray Binaries"
7. Georgia Partnership for Reform in Science and Mathematics Critical Site Visit, Marietta, GA, June 2005, "Using Lecture Activities in the Astronomy Classroom"
8. Georgia Partnership for Reform in Science and Mathematics Report, Atlanta, GA, May 2005, "The Effectiveness of Lecture Activities in the College Astronomy Classroom"
9. Georgia Partnership for Reform in Science and Mathematics Leadership Meeting, Atlanta, GA, March 2005, "Fun Astronomy Lecture Activities Courtesy of a PRISM Mini-Grant"