Curriculum Vitae: Rosa Williams

January 13 2022

1. PERSONAL INFORMATION:

Rosa Nina Williams
Professor & Head of WestRock Observatory (CCSSC)
Home Address: 6224 Bayonne Drive, Columbus, GA 31909.
Home Phone: 706-987-6510

2. EDUCATION:

Ph.D., Astronomy, University of Illinois at Urbana-Champaign, 1999
Thesis: "Supernova Remnants in the Large Magellanic Cloud"
M.S., Astronomy, University of Illinois at Urbana-Champaign, 1994
B.S., Physics (Magna Cum Laude), University of Texas at Austin, 1990

3. ACADEMIC APPOINTMENTS AND OTHER SIGNIFICANT WORK EXPERIENCE:

- Nov. 2016 – present: Professor/ Head, WestRock Observatory (CCSSC), Columbus State University (full-time)
- Nov. 2011 – Nov. 2016: Associate Professor/ Head, WestRock Observatory (CCSSC), Columbus State University (full-time)
- Aug. 2007-Nov. 2011: Assistant Prof./Head, Mead Observatory (CCSSC)., Columbus State University (full-time)
- Sep. 2003 – July 2007: Research Scientist/Instructor, University of Illinois (full-time)
- Sep. 2001 – Aug. 2003: Postdoctoral Researcher, University of Massachusetts (full-time)
- Sep. 1999 – Aug. 2001: NRC Postdoctoral Fellow, NASA's Goddard Space Flight Center (GSFC) (full-time)
- Mar. 1999 – Aug. 1999: Postdoctoral Researcher, University of Illinois (full-time)
- Aug. 1991 – Feb. 1999: Research & Teaching Assistant, University of Illinois (part-time)
- May 1987 – Aug. 1990: Scientific Programmer, Computer Sciences Corporation (full-time summers, part-time otherwise)
- Jan. 1986 – May 1987: Student Intern, NASA's GSFC (part-time)

4. FIELD(S) or AREA(S) OF SPECIAL INTEREST WITHIN DISCIPLINE OR PROFESSION:

Astronomy: Interstellar Medium, particularly supernova remnants, but including other diffuse phenomena such as superbubbles, HII regions and planetary nebulae. My primary focus is on objects in the Magellanic Cloud galaxies.

5. MEMBERSHIP:

Member, American Astronomical Society
Member, International Astronomical Union
Member, Astronomers Without Borders

6 SERVICE TO COMMUNITY

- Head, WestRock Observatory, Coca-Cola Space Science Center
  - Includes educational outreach to area schools as well as significant outreach activities with the general public. Projects include over 20 "public Astronomy Nights" and multiple school demonstrations each year; online webcasting and remote access to the Mead Observatory telescope; a project producing 10-minute instructional scientific video podcasts; and other talks and programs to the community or news organizations.
- Event supervisor for annual Science Olympiad and Future Teachers Academy
- Mentor for high school and undergraduate research projects

7. SPECIAL AWARDS, FELLOWSHIPS AND OTHER HONORS:

- Proposal Award Recognition, 2021
- Nominated for Educator of the Year Award, 2020
- Nominated for Faculty Mentorship Award, 2020
- Nominated for Educator of the Year Award, 2013

8. MAJOR COMMITTEES:

- Member, Columbus State University's Womens Issues Advisory Committee
- Faculty Senate representative 2017-2020

9. PROFESSIONAL GROWTH AND DEVELOPMENT:

- I maintain an active research program, keeping up productive collaborations with scientists at other institutions. These have resulted in authorship or co-authorship on several publications and presentations. Due to my familiarity with my particular sub-field of astronomy, I have been asked to give "invited

review" lectures, review journal articles, serve on proposal review committees, and similar professional activities.

- I have joined with a group of collaborators to propose and carry out an extensive survey of the Large and Small Magellanic Clouds using the Dark Energy Camera on the 4-meter Mount Blanco telescope. Data from this project are currently being reduced and analyzed.
- I have taken part in a large collaboration to map the Large Magellanic Cloud in X-rays using the European XMM-Newton satellite. The website for this project is online at http://www2011.mpe.mpg.de/lmc_xmmlp/ . I have been a co-author on three papers to date based on data produced by this collaborative project, the latest being the Maggi et al. 2016 paper cited below.
- I have created a database of results from research on supernova remnants in the Magellanic Clouds, with an associated database of results (online at http://mcsnr.org/). This project was given an International Astronomical Union official designation for objects included in the catalog and has been cited in several papers. As a part of this database project, I am currently moving forward with an agreement to include data and results from the Maggi et al. paper into this database.
- I have taken part in significant grant proposal activity, including a Space Science Center Institute of Museum and Library Services grant for observatory upgrades; and regular awards from NASA's Space Grant program for student research and travel.

10. PROFESSIONAL ACTIVITIES:

Peer-Reviewed Publications (student contributors underlined):

- Williams, R.N.M., Cruzen, S.T., & Johnson, M., "The Westrock Observatory: a Facility for Education and Outreach in Astronomy", *Communicating Astronomy with the Public,* under revision after referee "revise and resubmit"
- Maggi, P., Haberl, F., Kavanagh, P.J. , Sasaki, M., Bozzetto, L.M., Filipovic, M.D. , Vasilopoulos, G., Pietsch, W., Points, S.D., Chu, Y.-H., Dickel, J., Ehle, M, **Williams, R.** and Greiner, J. 2016, "The population of X-ray supernova remnants in the Large Magellanic Cloud," *Astronomy and Astrophysics*, 585, 162.
- Bozzetto, L. M., Kavanagh, P. J.; Maggi, P.; Filipović, M. D.; Stupar, M.; Parker, Q. A.; Reid, W. A.; Sasaki, M.; Haberl, F.; Urošević, D.; Dickel, J.; Sturm, R.; **Williams, R.**; Ehle, M.; Gruendl, R.; Chu, Y.-H.; Points, S.; Crawford, E. J. 2014, "Multi-frequency study of a new Fe-rich supernova remnant in the Large Magellanic Cloud, MCSNR J0508-6902", *Monthly Notices of the Royal Astronomical Society*, 439, 1110
- Zhang, Ning-Xiao; Chu, You-Hua; **Williams, R.M.**; Jiang, Bing; Chen, Yang; Gruendl, R. A. 2014, "Physical Nature of the [S II]-bright Shell Nebulae N70 and N185," *Astrophysical Journal*, 792, 58

- Caulet, A. & **Williams, R. M.**, 2012, "Infrared Spectral Mapping of Supernova Remnants: I. Dust in N63A and Its Environment," *Astrophysical Journal*, 2012, 761, 107
- Seward, F. D., Charles, P. A.; Foster, D. L.; Dickel, J. R.; Romero, P. S.; Edwards, Z. I.; Perry, M.; **Williams, R. M**. 2012, "DEM L241, a Supernova Remnant Containing a High-mass X-Ray Binary", *Astrophysical Journal,* 759, 123
- Klimek, M., Points, S. P., Smith, R. C., Shelton, R.L., & **Williams, R. M.** 2010, "An X-ray Investigation of Three Supernova Remnants in the Large Magellanic Cloud," *Astrophysical Journal*, 725, 2281-2289
- Seward, F. D., **Williams, R.N.M**., Chu, Y.-H., Gruendl, R. A. & Dickel, J. R. 2010, "A New Chandra Observation of SNR 0540-697," *Astronomical Journal*, 140, 177-183
- Maddox, L. A., **Williams, R. M**., Dunne, B. & Chu, Y-H. 2009, "Nonthermal X-ray Emission in the N11 Superbubble in the Large Magellanic Cloud", *Astrophysical Journal*, 699, 911-916
- Bilikova, J., **Williams, R.N.M.**, Chu, Y.-H., Gruendl, R.A., & Lundgren, B.F. 2007, "Supernova Remnants in the Magellanic Clouds. IX. Multiwavelength Analysis of the Physical Structure of N49", *Astronomical Journal*, 134, 2308-2317
-

Presentations at Professional Meetings (student contributors underlined)

- Brown, J., O'Keeffe, B., Caughey, A., Johnson, M. and Williams, R.N.M., "Progressive Research and Outreach at the Westrock Observatory" (poster at American Astronomical Society 227th meeting, Jan. 2016)
- Invited talk for Georgia Space Grant Consortium meeting, "Space Grant at CSU/CCSSC: Launching Students into Astronomy", Georgia Tech, September 10, 2015 (with Dr. Shawn Cruzen).
- Hood, J., Carpenter, N., McCarty, C., Samford, J., Johnson, M., Cruzen, S. and R. Williams, R.M., "Mead Observatory" (Poster at American Astronomical Society 223rd meeting, Jan. 2014)
- Hood, J., Carpenter, N., McCarty, C., Brown, J., and Caughy, A., "Solar GRAM poster" (Poster at Georgia Regional Astronomy Meeting, October 2013)
- Williams, R. N. M., Dickel, J. R., Chu, Y., Points, S., Winkler, F., Johnson, M., Lodder, K., & Edwards, Z. 2011, "Status and Statistics of the Multi-wavelength Magellanic Cloud SNR Database", BAAS, 43, 256.29 (poster at American Astronomical Society 217th meeting, Jan. 2011)
- Johnson, M. J., Williams, R. N. M., & Edwards, Z. 2011, "Infrared Spectral Mapping of Supernova Remnants: II. N49: A First Look", BAAS, 43, 256.30 (poster at AAS 217)
- Williams, R. N. M., Dickel, J. R., Chu, Y., Points, S., Winkler, F., Johnson, M., Lodder, K. 2010, "A Multiwavelength Database of Magellanic Cloud Supernova Remnants", BAAS, 41, 470 (poster at American Astronomical Society 215th meeting, Jan. 2010)

- Seward, F.D., Williams, R., Chu, Y., Dickel, J., & Gruendl, R. 2010, "A Chandra Observation of SNR 0540-697", AAS/High Energy Astrophysics Division, 11, 18.05 (poster at AAS 215)
- Second author on talk by Dickel & Williams at the Summer 2009 professional Chandra X-ray Center meeting, "Supernova Remnants and Pulsar Wind Nebulae in the Chandra Era," in Boston, MA, July 8-10 2009, as well as additional author on two posters presented there
- **Invited Review** talk, "Supernova Remnants in the Magellanic Clouds", for International Astronomical Union Symposium 256 in Keele, United Kingdom, July 2008; paper published in The Magellanic System: Stars, Gas and Galaxies, IAU Symposium 256, p. 443
- Williams, R. N. Murphy, Johnson, M. J., Caulet, A., Chu, Y.-H., & Gruendl, R. A. 2008, "Using Spitzer to Search For Dust Signatures in Evolved Supernova Remnants", BAAS 38, 914 (poster at American Astronomical Society 211th meeting, Jan. 2008)
- Maddox, L.A., Williams, R. N. M., & Chu, Y.-H. 2007, "Suzaku Detection of Nonthermal X-ray Emission in the LMC Superbubble N11", BAAS, 38, 1004 (poster at American Astronomical Society 211th meeting, Jan. 2008)

Attached Narrative: Teaching Activities

- Due to the nature of my position, I have a half-time teaching load in return for my extensive public outreach activities as Head of the Westrock Observatory for the Coca-Cola Space Science Center. I have, however, consistently met or exceeded that teaching load, including many "independent study" research projects with undergraduates, and supervising extra laboratory courses to meet student demand.
- I helped to develop the proposal for a new department of Earth and Space Sciences; for a Bachelor of Sciences in Earth and Space Science; and for a specific track in that degree in Astrophysics and Planetary Geology. I developed and taught two new advanced courses for this major, and helped to arrange long-term schedules for class offerings.
- I have received excellent peer reviews and student evaluations for my teaching, with significant waiting lists for my classes. Several students have chosen to enroll in the new major after taking class or research work with me.
- I make heavy use of "active learning" techniques, as current pedagogical study suggests is most effective. I make use of technological tools such as smartboard presentations, animations, in-class demonstrations of physical principles, and online teaching tools. I make full use of the facilities of the Coca-Cola Space Science Center in my teaching, including use of the planetarium, telescopes, and other equipment available there. Where possible, I involve students in hands-on observation and peer-group discussion.

- I have been active in including undergraduate students in my research work via Independent Study courses, and having them present results at local ("CSU Tower Day") and professional American Astronomical Society meetings.