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## LOREN D. ANDERSON

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### Education

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Ph.D., Astronomy, Boston University, Boston, MA      September 2003 — August 2009  
Dissertation: “Galactic H II Regions: Evolution and Galactic Structure”  
Advisor: Dr. Thomas Bania

B.A., Astronomy & Physics, Whitman College, Walla Walla, WA      September 1998 — May 2002  
Senior Project: Automated Galaxy Morphology Classification  
Advisor: Dr. Andrea Dobson

### Current Position

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Professor, Department of Physics & Astronomy      August 2023 – present  
Associate Professor, Department of Physics & Astronomy      August 2017 – July 2023  
Assistant Professor, Department of Physics & Astronomy      July 2011 – July 2017  
West Virginia University, Morgantown, WV

Adjunct Scientist      October 2016 – present  
Green Bank Observatory, Green Bank, WV

### Previous Positions

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Postdoctoral Researcher      September 2009 – June 2011  
Laboratoire d’Astrophysique de Marseille, Marseille, France  
Supervisor: Dr. Annie Zavagno

Adjunct Scientist      September 2011 – September 2016  
NRAO

### First Author Refereed Publications

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- (1) “Resolution of the Distance Ambiguity for Galactic H II Regions”.  
Anderson, L. D., & Bania, T. M. (2009), *ApJ*, 690, 706. arXiv:0810.5570.
- (2) “The Molecular Properties of Galactic H II Regions”.  
Anderson, L. D., Bania, T. M., Jackson, J. M., Clemens, D. P., Heyer, M., Simon, R., Shah, R. Y.,  
& Rathborne, J. M. (2009), *ApJS*, 181, 255. arXiv:0810.3685.
- (3) “The physical properties of the dust in the RCW120 H II region as seen by *Herschel*”.  
Anderson, L. D., Zavagno, A., Rodón, J. A., Russeil, D., Abergel, A., Ade, P., André, P., Arab, H.,

Baluteau, J.-P., Bernard, J.-P., Blagrove, K., Bontemps, S., Boulanger, F., Cohen, M., Compiègne, M., Cox, P., Dartois, E., Davis, G., Emery, R., Fulton, T., Gry, C., Habart, E., Huang, M., Joblin, C., Jones, S. C., Kirk, J. M., Lagache, G., Lim, T., Madden, S., Makiwa, G., Martin, P., Miville-Deschênes, M.-A., Molinari, S., Moseley, H., Motte, F., Naylor, D. A., Okumura, K., Pinheiro Gonçalves, D., Polehampton, E., Saraceno, P., Sauvage, M., Sidher, S., Spencer, L., Swinyard, B., Ward-Thompson, D., & White, G. J. (2010), *A&A*, 518, L99. arXiv:1005.1565.

(4) “X-ray Shadowing Experiments Toward Infrared Dark Clouds”.

Anderson, L. D., Snowden, S. L., & Bania, T. M. (2010), *ApJ*, 721, 1319. arXiv:1008.0416.

(5) “The Green Bank Telescope H II Region Discovery Survey. II. The Source Catalog”.

Anderson, L. D., Bania, T. M., Balser, D. S., & Rood, R. T. (2011), *ApJS*, 194, 32. arXiv:1103.5085.

(6) “Distinguishing between H II regions and planetary nebulae with Hi-GAL, WISE, MIPS GAL, and GLIMPSE”.

Anderson, L. D., Zavagno, A., Barlow, M. J., García-Lario, P., & Noriega-Crespo, A. (2012), *A&A*, 537, A1. arXiv:1110.3303.

(7) “The dust properties of bubble H II regions as seen by *Herschel*”.

Anderson, L. D., Zavagno, A., Deharveng, L., Abergel, A., Motte, F., André, P., Bernard, J.-P., Bontemps, S., Hennemann, M., Hill, T., Rodón, J. A., Roussel, H., & Russeil, D. (2012), *A&A*, 542, A10. arXiv:1203.5721.

(8) “The Green Bank Telescope H II Region Discovery Survey. III. Kinematic Distances”.

Anderson, L. D., Bania, T. M., Balser, D. S., & Rood, R. T. (2012), *ApJ*, 754, 62. arXiv:1205.4228.

(9) “The *WISE* Catalog of Galactic H II Regions”.

Anderson, L. D., Bania, T. M., Balser, D. S., Cunningham, V., Wenger, T. V., Johnstone, B. M., & Armentrout, W. P. (2014), *ApJS*, 212, 1. arXiv:1312.6202.

(10) “Mopra CO Observations of the Bubble H II Region RCW120”.

Anderson, L. D., Deharveng, L., Zavagno, A., Tremblin, P., Lowe, V., Cunningham, M. R., Jones, P., Mullins, A. M., & Redman, M. P. (2015), *ApJ*, 800, 101. arXiv:1412.6470.

(11) “Untangling the Recombination Line Emission from H II Regions with Multiple Velocity Components”.

Anderson, L. D., Hough, L. A., Wenger, T. V., Bania, T. M., & Balser, D. S. (2015), *ApJ*, 810, 42. arXiv:1507.05575.

(12) “Finding Distant Galactic H II Regions”.

Anderson, L. D., Armentrout, W. P., Johnstone, B. M., Bania, T. M., Balser, D. S., Wenger, T. V., & Cunningham, V. (2015), *ApJS*, 221, 26. arXiv:1510.07347.

(13) “Galactic Supernova Remnant Candidates Discovered by THOR”.

Anderson, L. D., Wang, Y., Bihr, S., Rugel, M., Beuther, H., Bigiel, F., Churchwell, E., Glover, S. C. O., Goodman, A. A., Henning, T., Heyer, M., Klessen, R. S., Linz, H., Longmore, S. N., Menten, K. M., Ott, J., Roy, N., Soler, J. D., Stil, J. M., & Urquhart, J. S. (2017), *A&A*, 605,

A58. arXiv:1705.10927.

(14) “A Green Bank Telescope Survey of Large Galactic H II Regions”.

Anderson, L. D., Armentrout, W. P., Luisi, M., Bania, T. M., Balser, D. S., & Wenger, T. V. (2018), *ApJS*, 234, 33. arXiv:1710.07397.

(15) “A Galactic Plane Defined by the Milky Way H II Region Distribution”.

Anderson, L. D., Wenger, T. V., Armentrout, W. P., Balser, D. S., & Bania, T. M. (2019), *ApJ*, 871, 145. arXiv:1812.02244.

(16) “The Origin of [CII] 158  $\mu\text{m}$  Emission toward the H II Region Complex S235”.

Anderson, L. D., Makai, Z., Luisi, M., Andersen, M., Russeil, D., Samal, M. R., Schneider, N., Tremblin, P., Zavagno, A., Kirsanova, M. S., Ossenkopf-Okada, V., & Sobolev, A. M. (2019), *ApJ*, 882, 11. arXiv:1904.12029.

(17) “Unusual Galactic H II Regions at the Intersection of the Central Molecular Zone and the Far Dust Lane”.

Anderson, L. D., Sormani, M. C., Ginsburg, A., Glover, S. C. O., Heywood, I., Rammala, I., Schuller, F., Csengeri, T., Urquhart, J. S., & Bronfman, L. (2020), *ApJ*, 901, 51. arXiv:2008.04258.

(18) “The GBT Diffuse Ionized Gas Survey (GDIGS): Survey Overview and First Data Release”.

Anderson, L. D., Luisi, M., Liu, B., Wenger, T. V., Balser, D. S., Bania, T. M., Haffner, L. M., Linville, D. J., & Mascoop, J. L. (2021), *ApJS*, 254, 28. arXiv:2103.10466.

(19) “Methods for Averaging Spectral Line Data”.

Anderson, L. D., Liu, B., Balser, D. S., Bania, T. M., Haffner, L. M., Linville, D. J., Luisi, M., & Wenger, T. V. (2023), “arXiv”, arXiv:2310.09076.

(20) “The Galactic Center Lobe as an H II Region”.

Anderson, L. D., Luisi, M., Liu, B., Linville, D. J., Benjamin, R. A., Hurley-Walker, N., McClure-Griffiths, N. M., & Zucker, C. (2024), “arXiv”, arXiv:2405.11054. arXiv:2405.11054.

### Refereed Publications as Co-author

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(1) “Tracing Multiple Generations of Active Galactic Nucleus Feedback in the Core of Abell 262”.

Clarke, T. E., Blanton, E. L., Sarazin, C. L., Anderson, L. D., Gopal-Krishna, Douglass, E. M., & Kassim, N. E. (2009), *ApJ*, 697, 1481. arXiv:0903.0844.

(2) “Initial highlights of the HOBYS key program, the Herschel imaging survey of OB young stellar objects”.

Motte, F., Zavagno, A., Bontemps, S., Schneider, N., Hennemann, M., di Francesco, J., André, P., Saraceno, P., Griffin, M., Marston, A., Ward-Thompson, D., White, G., Minier, V., Men’shchikov, A., Hill, T., Abergel, A., Anderson, L. D., Aussel, H., Balog, Z., Baluteau, J.-P., Bernard, J.-P., Cox, P., Csengeri, T., Deharveng, L., Didelon, P., di Giorgio, A.-M., Hargrave, P., Huang, M., Kirk, J., Leeks, S., Li, J. Z., Martin, P., Molinari, S., Nguyen-Luong, Q., Olofsson, G., Persi, P., Peretto, N., Pezzuto, S., Roussel, H., Russeil, D., Sadavoy, S., Sauvage, M., Sibthorpe, B., Spinoglio, L., Testi, L., Teyssier, D., Vavrek, R., Wilson, C. D., & Woodcraft, A. (2010), *A&A*, 518, L77.

- (3) “Physical properties of the Sh2-104 H II region as seen by *Herschel*”.  
Rodón, J. A., Zavagno, A., Baluteau, J.-P., Anderson, L. D., Polehampton, E., Abergel, A., Motte, F., Bontemps, S., Ade, P., André, P., Arab, H., Beichman, C., Bernard, J.-P., Blagrave, K., Boulanger, F., Cohen, M., Compiègne, M., Cox, P., Dartois, E., Davis, G., Emery, R., Fulton, T., Gry, C., Habart, E., Halpern, M., Huang, M., Joblin, C., Jones, S. C., Kirk, J., Lagache, G., Lin, T., Madden, S., Makiwa, G., Martin, P., Miville-Deschênes, M.-A., Molinari, S., Moseley, H., Naylor, D., Okumura, K., Orioux, F., Pinheiro Gonçalves, D., Rodet, T., Russeil, D., Saraceno, P., Sidher, S., Spencer, L., Swinyard, B., Ward-Thompson, D., & White, G. (2010), *A&A*, 518, L80. arXiv:1005.3070.
- (4) “Star formation triggered by the Galactic H II region RCW120. First results from the *Herschel* Space Observatory”.  
Zavagno, A., Russeil, D., Motte, F., Anderson, L. D., Deharveng, L., Rodón, J. A., Bontemps, S., Abergel, A., Baluteau, J.-P., Sauvage, M., André, P., Hill, T., & White, G. J. (2010), *A&A*, 518, L81. arXiv:1005.1615.
- (5) “*Herschel*-SPIRE spectroscopy of G29.96–0.02: Fitting the full SED”.  
Kirk, J. M., Polehampton, E., Anderson, L. D., Baluteau, J.-P., Bontemps, S., Joblin, C., Jones, S. C., Naylor, D. A., Ward-Thompson, D., White, G. J., Abergel, A., Ade, P., André, P., Arab, H., Bernard, J.-P., Blagrave, K., Boulanger, F., Cohen, M., Compiègne, M., Cox, P., Dartois, E., Davis, G., Emery, R., Fulton, T., Gry, C., Habart, E., Huang, M., Lagache, G., Lim, T., Madden, S., Makiwa, G., Martin, P., Miville-Deschênes, M.-A., Molinari, S., Moseley, H., Motte, F., Okumura, K., Pinheiro Gonçalves, D., Rodón, J. A., Russeil, D., Saraceno, P., Sidher, S., Spencer, L., Swinyard, B., & Zavagno, A. (2010), *A&A*, 518, L82. arXiv:1005.1846.
- (6) “Dust temperature tracing the ISRF intensity in the Galaxy”.  
Bernard, J.-P., Paradis, D., Marshall, D. J., Montier, L., Lagache, G., Paladini, R., Veneziani, M., Brunt, C. M., Mottram, J. C., Martin, P., Ristorcelli, I., Noriega-Crespo, A., Compiègne, M., Flagey, N., Anderson, L. D., Popescu, C. C., Tuffs, R., Reach, W., White, G., Benedettini, M., Calzoletti, L., Digiorgio, A. M., Faustini, F., Juvela, M., Joblin, C., Joncas, G., Miville-Deschenes, M.-A., Olmi, L., Traficante, A., Piacentini, F., Zavagno, A., & Molinari, S. (2010), *A&A*, 518, L88.
- (7) “*Herschel* observations of the W43 “mini-starburst””.  
Bally, J., Anderson, L. D., Battersby, C., Calzoletti, L., Digiorgio, A. M., Faustini, F., Ginsburg, A., Li, J. Z., Nguyen Luong, Q., Molinari, S., Motte, F., Pestalozzi, M., Plume, R., Rodon, J., Schilke, P., Schlingman, W., Schneider-Bontemps, N., Shirley, Y., Stringfellow, G. S., Testi, L., Traficante, A., Veneziani, M., & Zavagno, A. (2010), *A&A*, 518, L90. arXiv:1005.4092.
- (8) “Galactic cold cores: *Herschel* study of first Planck detections”.  
Juvela, M., Ristorcelli, I., Montier, L. A., Marshall, D. J., Pelkonen, V.-M., Malinen, J., Ysard, N., Tóth, L. V., Harju, J., Bernard, J.-P., Schneider, N., Verebelyi, E., Anderson, L., André, P., Giard, M., Krause, O., Lehtinen, K., Macias-Perez, J., Martin, P., McGehee, P. M., Meny, C., Motte, F., Paganì, L., Paladini, R., Reach, W., Valenziano, L., Ward-Thompson, D., & Zavagno, A. (2010), *A&A*, 518, L93.
- (9) “Evolution of interstellar dust with *Herschel*. First results in the photodissociation regions of NGC7023”.

Abergel, A., Arab, H., Compiègne, M., Kirk, J. M., Ade, P., Anderson, L. D., André, P., Baluteau, J.-P., Bernard, J.-P., Blagrove, K., Bontemps, S., Boulanger, F., Cohen, M., Cox, P., Dartois, E., Davis, G., Emery, R., Fulton, T., Gry, C., Habart, E., Huang, M., Joblin, C., Jones, S. C., Lagache, G., Lim, T., Madden, S., Makiwa, G., Martin, P., Miville-Deschênes, M.-A., Molinari, S., Moseley, H., Motte, F., Naylor, D., Okumura, K., Pinheiro Gonçalves, D., Polehampton, E., Rodon, J., Russeil, D., Saraceno, P., Sauvage, M., Sidher, S., Spencer, L., Swinyard, B., Ward-Thompson, D., White, G. J., & Zavagno, A. (2010), *A&A*, 518, L96.

(10) “Mapping the column density and dust temperature structure of IRDCs with *Herschel*”. Peretto, N., Fuller, G. A., Plume, R., Anderson, L. D., Bally, J., Battersby, C., Beltran, M. T., Bernard, J.-P., Calzoletti, L., Digiorgio, A. M., Faustini, F., Kirk, J. M., Lenfestey, C., Marshall, D., Martin, P., Molinari, S., Montier, L., Motte, F., Ristorcelli, I., Rodón, J. A., Smith, H. A., Traficante, A., Veneziani, M., Ward-Thompson, D., & Wilcock, L. (2010), *A&A*, 518, L98. arXiv:1005.1506.

(11) “Clouds, filaments, and protostars: The *Herschel* Hi-GAL Milky Way”. Molinari, S., Swinyard, B., Bally, J., Barlow, M., Bernard, J.-P., Martin, P., Moore, T., Noriega-Crespo, A., Plume, R., Testi, L., Zavagno, A., Abergel, A., Ali, B., Anderson, L., André, P., Baluteau, J.-P., Battersby, C., Beltrán, M. T., Benedettini, M., Billot, N., Blommaert, J., Bontemps, S., Boulanger, F., Brand, J., Brunt, C., Burton, M., Calzoletti, L., Carey, S., Caselli, P., Cesaroni, R., Cernicharo, J., Chakrabarti, S., Chrysostomou, A., Cohen, M., Compiègne, M., de Bernardis, P., de Gasperis, G., di Giorgio, A. M., Elia, D., Faustini, F., Flagey, N., Fukui, Y., Fuller, G. A., Ganga, K., Garcia-Lario, P., Glenn, J., Goldsmith, P. F., Griffin, M., Hoare, M., Huang, M., Ikhenade, D., Joblin, C., Joncas, G., Juvela, M., Kirk, J. M., Lagache, G., Li, J. Z., Lim, T. L., Lord, S. D., Marengo, M., Marshall, D. J., Masi, S., Massi, F., Matsuura, M., Minier, V., Miville-Deschênes, M.-A., Montier, L. A., Morgan, L., Motte, F., Mottram, J. C., Müller, T. G., Natoli, P., Neves, J., Olmi, L., Paladini, R., Paradis, D., Parsons, H., Peretto, N., Pestalozzi, M., Pezzuto, S., Piacentini, F., Piazzi, L., Polychroni, D., Pomarès, M., Popescu, C. C., Reach, W. T., Ristorcelli, I., Robitaille, J.-F., Robitaille, T., Rodón, J. A., Roy, A., Royer, P., Russeil, D., Saraceno, P., Sauvage, M., Schilke, P., Schisano, E., Schneider, N., Schuller, F., Schulz, B., Sibthorpe, B., Smith, H. A., Smith, M. D., Spinoglio, L., Stamatellos, D., Strafella, F., Stringfellow, G. S., Sturm, E., Taylor, R., Thompson, M. A., Traficante, A., Tuffs, R. J., Umana, G., Valenziano, L., Vavrek, R., Veneziani, M., Viti, S., Waelkens, C., Ward-Thompson, D., White, G., Wilcock, L. A., Wyrowski, F., Yorke, H. W., & Zhang, Q. (2010), *A&A*, 518, L100. arXiv:1005.3317.

(12) “Star formation triggered by HII regions in our Galaxy. First results for N49 from the *Herschel* infrared survey of the Galactic plane”. Zavagno, A., Anderson, L. D., Russeil, D., Morgan, L., Stringfellow, G. S., Deharveng, L., Rodón, J. A., Robitaille, T. P., Mottram, J. C., Schuller, F., Testi, L., Billot, N., Molinari, S., di Giorgio, A., Kirk, J. M., Brunt, C., Ward-Thompson, D., Traficante, A., Veneziani, M., Faustini, F., & Calzoletti, L. (2010), *A&A*, 518, L101. arXiv:1005.1591.

(13) “*Herschel*-SPIRE observations of the Polaris flare: Structure of the diffuse interstellar medium at the sub-parsec scale”. Miville-Deschênes, M.-A., Martin, P. G., Abergel, A., Bernard, J.-P., Boulanger, F., Lagache, G., Anderson, L. D., André, P., Arab, H., Baluteau, J.-P., Blagrove, K., Bontemps, S., Cohen, M., Compiègne, M., Cox, P., Dartois, E., Davis, G., Emery, R., Fulton, T., Gry, C., Habart, E., Huang,

M., Joblin, C., Jones, S. C., Kirk, J., Lim, T., Madden, S., Makiwa, G., Menshchikov, A., Molinari, S., Moseley, H., Motte, F., Naylor, D. A., Okumura, K., Pinheiro Gonçalves, D., Polehampton, E., Rodón, J. A., Russeil, D., Saraceno, P., Schneider, N., Sidher, S., Spencer, L., Swinyard, B., Ward-Thompson, D., White, G. J., & Zavagno, A. (2010), *A&A*, 518, L104. arXiv:1005.2746.

(14) “*Herschel*-SPIRE spectroscopy of the DR21 molecular cloud core”.

White, G. J., Abergel, A., Spencer, L., Schneider, N., Naylor, D. A., Anderson, L. D., Joblin, C., Ade, P., André, P., Arab, H., Baluteau, J.-P., Bernard, J.-P., Blagrove, K., Bontemps, S., Boulanger, F., Cohen, M., Compiègne, M., Cox, P., Dartois, E., Davis, G., Emery, R., Fulton, T., Gom, B., Griffin, M., Gry, C., Habart, E., Huang, M., Jones, S., Kirk, J. M., Lagache, G., Leeks, S., Lim, T., Madden, S., Makiwa, G., Martin, P., Miville-Deschênes, M.-A., Molinari, S., Moseley, H., Motte, F., Okumura, K., Pinheiro Gonçalves, D., Polehampton, E., Rodet, T., Rodón, J. A., Russeil, D., Saraceno, P., Sidher, S., Swinyard, B. M., Ward-Thompson, D., & Zavagno, A. (2010), *A&A*, 518, L114. arXiv:1005.2874.

(15) “SPIRE spectroscopy of the prototypical Orion Bar photodissociation region”.

Habart, E., Dartois, E., Abergel, A., Baluteau, J.-P., Naylor, D., Polehampton, E., Joblin, C., Ade, P., Anderson, L. D., André, P., Arab, H., Bernard, J.-P., Blagrove, K., Bontemps, S., Boulanger, F., Cohen, M., Compiègne, M., Cox, P., Davis, G., Emery, R., Fulton, T., Gry, C., Huang, M., Jones, S. C., Kirk, J., Lagache, G., Lim, T., Madden, S., Makiwa, G., Martin, P., Miville-Deschênes, M.-A., Molinari, S., Moseley, H., Motte, F., Okumura, K., Pinheiro Gonçalves, D., Rodon, J., Russeil, D., Saraceno, P., Sidher, S., Spencer, L., Swinyard, B., Ward-Thompson, D., White, G. J., & Zavagno, A. (2010), *A&A*, 518, L116.

(16) “First detection of the methyldiyne cation ( $^{13}\text{CH}^+$ ) fundamental rotational line with the *Herschel*/SPIRE FTS”.

Naylor, D. A., Dartois, E., Habart, E., Abergel, A., Baluteau, J.-P., Jones, S. C., Polehampton, E., Ade, P., Anderson, L. D., André, P., Arab, H., Bernard, J.-P., Blagrove, K., Bontemps, S., Boulanger, F., Cohen, M., Compiègne, M., Cox, P., Davis, G., Emery, R., Fulton, T., Gry, C., Huang, M., Joblin, C., Kirk, J. M., Lagache, G., Lim, T., Madden, S., Makiwa, G., Martin, P., Miville-Deschênes, M.-A., Molinari, S., Moseley, H., Motte, F., Okumura, K., Pinheiro Gonçalves, D., Rodón, J. A., Russeil, D., Saraceno, P., Sidher, S., Spencer, L., Swinyard, B., Ward-Thompson, D., White, G. J., & Zavagno, A. (2010), *A&A*, 518, L117. arXiv:1005.1916.

(17) “The Green Bank Telescope Galactic H II Region Discovery Survey”.

Bania, T. M., Anderson, L. D., Balser, D. S., & Rood, R. T. (2010), *ApJL*, 718, L106. arXiv:1006.5929.

(18) “A gallery of bubbles. The nature of the bubbles observed by *Spitzer* and what ATLAS-GAL tells us about the surrounding neutral material”.

Deharveng, L., Schuller, F., Anderson, L. D., Zavagno, A., Wyrowski, F., Menten, K. M., Bronfman, L., Testi, L., Walmsley, C. M., & Wienen, M. (2010), *A&A*, 523, A6. arXiv:1008.0926.

(19) “Giving physical significance to the Hi-GAL data: determining the distance of cold dusty cores in the Milky Way”.

Russeil, D., Pestalozzi, M., Mottram, J. C., Bontemps, S., Anderson, L. D., Zavagno, A., Beltrán, M. T., Bally, J., Brand, J., Brunt, C., Cesaroni, R., Joncas, G., Marshall, D., Martin, P., Massi, F., Molinari, S., Moore, T., Noriega-Crespo, A., Olmi, L., Thompson, M. A., Wienen, M., &

Wyrowski, F. (2011), *A&A*, 526, A151.

(20) “Clustering Properties of Far-infrared Sources in Hi-GAL Science Demonstration Phase Fields”. Billot, N., Schisano, E., Pestalozzi, M., Molinari, S., Noriega-Crespo, A., Mottram, J. C., Anderson, L. D., Elia, D., Stringfellow, G., Thompson, M. A., Polychroni, D., & Testi, L. (2011), *ApJ*, 735, 28. arXiv:1104.4808.

(21) “Filaments and ridges in Vela C revealed by *Herschel*: from low-mass to high-mass star-forming sites”.

Hill, T., Motte, F., Didelon, P., Bontemps, S., Minier, V., Hennemann, M., Schneider, N., André, P., Men’shchikov, A., Anderson, L. D., Arzoumanian, D., Bernard, J.-P., di Francesco, J., Elia, D., Giannini, T., Griffin, M. J., Könyves, V., Kirk, J., Marston, A. P., Martin, P. G., Molinari, S., Nguyen Luong, Q., Peretto, N., Pezzuto, S., Roussel, H., Sauvage, M., Sousbie, T., Testi, L., Ward-Thompson, D., White, G. J., Wilson, C. D., & Zavagno, A. (2011), *A&A*, 533, A94. arXiv:1108.0941.

(22) “H II Region Metallicity Distribution in the Milky Way Disk”.

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(77) “Molecular envelope around the H II region RCW120”. Kirsanova, M. S., Pavlyuchenkov, Y. N., Wiebe, D. S., Boley, P. A., Sali, S. V., Kalenskii, S. V., Sobolev, A. M., & Anderson, L. D. (2019), *MNRAS*, 488, 5641. arXiv:1908.05394.

(78) “Electron Densities and Nitrogen Abundances in Ionized Gas Derived Using [N II] Fine-structure and Hydrogen Recombination Lines”.

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(79) “The HI/OH/Recombination line survey of the inner Milky Way (THOR): data release 2 and HI overview”.

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(80) “Cloud formation in the atomic and molecular phase: HI self absorption (HISA) towards a giant molecular filament”.

Wang, Y., Bihr, S., Beuther, H., Rugel, M. R., Soler, J. D., Ott, J., Kainulainen, J., Schneider, N., Klessen, R. S., Glover, S. C. O., McClure-Griffiths, N. M., Goldsmith, P. F., Johnston, K. G., Menten, K. M., Ragan, S., Anderson, L. D., Urquhart, J. S., Linz, H., Roy, N., Smith, R. J., Bigiel, F., Henning, T., & Longmore, S. N. (2020), *A&A*, 634, A139. arXiv:2001.00953.

(81) “The GBT Diffuse Ionized Gas Survey: Tracing the Diffuse Ionized Gas around the Giant H II Region W43”.

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(82) “The MUSTANG Galactic Plane Survey (MGPS90) Pilot”.

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(83) “The PDR structure and kinematics around the compact H II regions S235A and S235C with [C II], [<sup>13</sup>C II], [O I], and H<sup>13</sup>CO+ line profiles”.

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(96) “A global view on star formation: The GLOSTAR Galactic plane survey. II. Supernova remnants in the first quadrant of the Milky Way”.

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(98) “The SEDIGISM survey: The influence of spiral arms on the molecular gas distribution of the inner Milky Way”.

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(99) “Self-absorption in [C II],  $^{12}\text{CO}$ , and H I in RCW120. Building up a geometrical and physical model of the region”.

Kabanovic, S., Schneider, N., Ossenkopf-Okada, V., Falasca, F., Güsten, R., Stutzki, J., Simon, R., Buchbender, C., Anderson, L., Bonne, L., Guevara, C., Higgins, R., Koribalski, B., Luisi, M., Mertens, M., Okada, Y., Röllig, M., Seifried, D., Tiwari, M., Wyrowski, F., Zavagno, A., & Tielens, A. G. G. M. (2022), “A&A”, 659, A36. arXiv:2112.11336.

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(101) “Polarized Emission from Four Supernova Remnants in the THOR Survey”.

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(103) “Turbulent Structure in Supernova Remnants G46.8-0.3 and G39.2-0.3 from THOR Polarimetry”.

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(104) “Cold atomic gas identified by H I self-absorption. Cold atomic clouds toward giant molecular filaments”.

Syed, J., Beuther, H., Goldsmith, P. F., Henning, T., Heyer, M., Klessen, R. S., Stil, J. M., Soler, J. D., Anderson, L. D., Urquhart, J. S., Rugel, M. R., Johnston, K. G., & Brunthaler, A. (2023), “A&A”, 679, A130. arXiv:2310.02077.

(105) “The GBT Diffuse Ionized Gas Survey (GDIGS): Discrete Sources”.

Linville, D. J., Luisi, M., Anderson, L. D., Liu, B., Bania, T. M., Balser, D. S., Wenger, T. V., Haffner, L. M., & Mascoop, J. L. (2023), “ApJ”, 959, 110. arXiv:2310.01607.

(106) “The SRAO MeerKAT 1.3 GHz Galactic Plane Survey”.

Goedhart, S., Cotton, W. D., Camilo, F., Thompson, M. A., Umana, G., Bietenholz, M., Woudt, P. A., Anderson, L. D., Bordiu, C., Buckley, D. A. H., Buemi, C. S., Bufano, F., Cavallaro, F., Chen, H., Chibueze, J. O., Egbo, D., Frank, B. S., Hoare, M. G., Ingallinera, A., Irabor, T., Kraan-Korteweg, R. C., Kurapati, S., Leto, P., Loru, S., Mutale, M., Obonyo, W. O., Plavin, A., Rajohnson, S. H. A., Rigby, A., Riggi, S., Seidu, M., Serra, P., Smart, B. M., Stappers, B. W., Steyn, N., Surnis, M., Trigilio, C., Williams, G. M., Abbott, T. D., Adam, R. M., Asad, K. M. B., Baloyi, T., Bauermeister, E. F., Bennet, T. G. H., Bester, H., Botha, A. G., Brederode, L. R. S., Buchner, S., Burger, J. P., Cheetham, T., Cloete, K., de Villiers, M. S., de Villiers, D. I. L., du

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(107) “Low-frequency absorption and radio recombination line features of the Galactic Center Lobe”.

Hurley-Walker, N., Anderson, L. D., Luisi, M., McClure-Griffiths, N. M., Benjamin, R. A., Kuhn, M. A., Linville, D. J., Liu, B., & Zucker, C. (2024), “arXiv”, arXiv:2405.11546. arXiv:2405.11546.

(108) “Spectrum and polarization of the Galactic center radio transient ASKAP J173608.2-321635 from THOR-GC and VLITE”.

Weatherhead, K. J., Stil, J. M., Rugel, M., Peters, W. M., Anderson, L., Barnes, A., Beuther, H., Clarke, T. E., Dzib, S. A., Goldsmith, P., Menten, K. M., Nyland, K. E., Sormani, M. C., & Urquhart, J. (2024), “arXiv”, arXiv:2405.13183. arXiv:2405.13183.

## External Grants

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### As PI

“Toward a Complete Census of Galactic Supernova Remnants” Summer 2023 – Fall 2027  
NSF AAG, \$331 k

“H II Region Dynamics Revealed by [C II] Emission” Fall 2022 – Fall 2024  
*SOFIA* archival award, \$71 k

“REU Site: Undergraduate Astrophysics Research in Appalachia at West Virginia University”  
Summer 2021–Summer 2022  
NSF REU, \$339 k

“Understanding the Ionized Gas of our Galaxy” Fall 2018 – Fall 2023  
NSF AAG, \$512 k

“[C II] Emission from Galactic H II Regions” Winter 2018 – Summer 2020  
*SOFIA* Proposal, \$30 k

“H II Region Dynamics Revealed by [C II] Emission” Spring 2017 – Spring 2018  
*SOFIA* Proposal, \$40 k

“Linking Galactic and Extragalactic Star Formation” Fall 2015 – Fall 2018  
NSF AAG, \$364 k

“Tracing Galactic Metallicity with *Herschel*” Fall 2013 – Fall 2015  
*Herschel* Proposal, \$26 k

“A Complete Census of Galactic H II Regions with WISE” Summer 2012 – Fall 2016  
NASA ADAP, \$255 k

### As Co-I

“ASTHROS” Summer 2018 – Summer 2025  
NASA, \$6.3 M

“RET Site in Engineering and Computer Science: Digital Signal Processing in Radio Astronomy”  
NSF RET, \$578 k Winter 2017 – Winter 2019

### Courses Taught

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ASTR106, Descriptive Astronomy, WVU Fall 2011, 2012, 2013, 2014, & 2015  
Introductory astronomy course for non-science majors. Used in-class workbook, clicker questions, and YouTube videos to break up lectures and to stimulate discussion. Class size of  $\sim 200$ .

ASTR367, Astrophysics I, WVU Fall 2019 & Fall 2023  
The study of stellar structure, binaries, and stellar evolution. Class had presentation, paper, and test components. Class size of  $\sim 15$ .

ASTR368, Astrophysics II, WVU Spring 2014, 2016, 2020, 2022, & 2024  
The study of galaxies, cosmology, and the planets. Class had presentation, paper, and test components. Class size of  $\sim 10$ .

ASTR469, Observational Astronomy, WVU Spring 2013, 2015, 2017, 2021, & 2023  
Introduction to the methods of data taking and analysis used by professional astronomers. Emphasis on programming and data visualization. Class trip to Green Bank and final class project using rooftop observatory. Class size of  $\sim 10$ .

ASTR693A, Astrophysics Graduate Seminar, WVU Fall/Spring 2017-present  
One-credit per semester course I helped develop to train incoming graduate students interested in astronomy. Aims to bring students with physics backgrounds up to speed on astronomy techniques. Team-taught, and I usually teach a module or two per semester. Class size of  $\sim 5$

ASTR701, Computational Astrophysics, WVU Fall 2021  
Course focused on developing algorithmic and statistical astrophysical methods. Used Python for the coding and LaTeX for reports. Four projects using astrophysical data, with statistics of MCMC and Bayesian analyses. Class size of  $\sim 10$ .

ASTR793A, The Interstellar Medium, WVU Fall 2014, 2016, 2018, 2020, & Spring 2023  
Developed for WVU. Physics of gas and dust between stars, and how they are observed. Treatment of radiative transfer, spectroscopy, and quantum mechanics not found in other courses. Class had

weekly student presentations, homework, and test components. Class size of  $\sim 10$ .

PHYS101, Introductory Physics, WVU Fall 2017  
 Physics for non-majors, covering kinematics, fluids, and waves. Weekly homework assignments through WebAssign, as well as the use of Clickers. Class size of  $\sim 150$ .

## Students and Postdocs Advised

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### Undergraduates

Virginia Cunningham, Undergraduate, WVU Summer 2011 – Spring 2014  
 Cross-correlated WISE infrared point sources with radio continuum emission to locate compact Galactic H II regions, investigated the vertical scale-height of the H II region distribution and the Sun's height above the plane, and derived clustering properties of Galactic H II regions using Minimum Spanning Tree algorithm. Co-author of Anderson et al. (2014) and Anderson et al. (2015c). Winner of Goldwater Fellowship (2014). Winner of NASA WV Space Grant Consortium scholarship (2013-2014). Winner of WVU Joseph T. Galusky Scholarship (2013 and 2014). Was astronomy grad student at U. Maryland.

Alexis Johnson, Undergraduate, WVU Summer 2011 – Fall 2011  
 Visually determined clustering properties of WISE H II region catalog sources.

Derek Brown, Undergraduate, WVU Summer 2011  
 Analyzed GBT data of methanol masers towards extremely distant star formation regions.

Ryan Culp, Undergraduate, WVU Fall 2015 – Spring 2018  
 Analyzed carbon recombination line emission from a large sample of GBT observations of H II regions. Winner of NASA WV Space Grant Consortium scholarship (2015, 2016, 2017, & 2018). Grad student in geology at U. Alabama.

David Dunkham, Undergraduate, WVU Summer 2016 – Fall 2016  
 Reduced *Herschel* spectra toward H II regions. Went on research trip to Puebla, Mexico, to learn data reduction with the LMT.

Ryan Battels, Undergraduate, WVU Summer 2019 – Fall 2020  
 Created a database of formaldehyde clouds from GBT data.

Austin Pivlovich, Undergraduate, WVU Fall 2019 – Fall 2020  
 Created a database of methanol clouds from GBT data.

Justin Bauknecht, Undergraduate, WVU Fall 2019 – Fall 2020  
 Analyzed *SOFIA* data of [CII] from three H II regions

Riley Owens, Undergraduate, University of Cincinnati Summer 2021–Summer 2023  
 REU student. Performed automatic Gaussian decomposition of radio recombination data in the Cygnus region. Stayed on as a post-bac student working on analysis of low-frequency radio recombination line data.

Chloe Hess, Undergraduate, Carnegie Mellon University Summer 2022  
 REU student. Calibrated P-band ( $\sim 400$  MHz) VLA data from a Galactic plane survey aimed at the analysis of supernova remnants.

Myles Thorton-Sherman, Undergraduate, Colby College Summer 2023  
 REU student. Created a catalog of H<sub>2</sub>CO clouds from GDIGS data using dendrograms.

Victoria Blanton, Undergraduate, WVU Spring 2022–present  
 Taking over from Chloe on the reduction of P-band VLA data aimed at the analysis of supernova remnants. EXCEL scholar.

Abyss Halley, Undergraduate WVU Fall 2023–present  
 Aiding the search for new Galactic supernova remnants in MeerKAT 1.2 GHz data.

### Graduates

Brittany Johnstone, Ph.D. Student, WVU Summer 2012 – Spring 2014  
 Derived infrared and radio properties of a large sample of Galactic H II regions, determined correlations between the infrared and radio data. Co-author of Anderson et al. (2014) and Anderson et al. (2015c).

Logan Hough, Masters Student, WVU Fall 2012 – Spring 2013  
 Analyzed GBT data probing the warm ionized medium surrounding inner-Galaxy H II regions, and derived distribution and properties of the warm ionized medium. Second author of Anderson et al. (2015b).

William Armentrout, Ph.D. Student, WVU Fall 2012 – Summer 2018  
 Created model for Galactic H II region distribution based on extragalactic data from galaxies similar to the Milky Way. Determined mean star formation rates as a function of Galactocentric radius. Reduced and analyzed VLA data of newly discovered H II regions in the most distant known Galactic spiral arm. Co-author of Anderson et al. (2014) and Anderson et al. (2015c) and first author of Armentrout et al. (2017) and Armentrout et al., (2021). Currently a postdoc at the Green Bank Observatory.

Matteo Luisi, Ph.D. Student, WVU Fall 2014 – Spring 2019  
 Analyzed GBT data of H II region NGC 7538 to determine fraction of photons leaking from the region and impact of these photons on local interstellar medium. Taking and reducing recombination line mapping data of the Galactic plane. First author on Luisi et al. (2016), Luisi et al., (2017), Luisi et al., (2018), Luisi et al., (2019), Luisi et al., (2020), and Luisi et al., (2021), as well as co-author on many publications.

Joshua Mascoop, Ph.D. Student, WVU Fall 2015 – Spring 2024  
 Working on analysis of the H II region luminosity function at infrared and radio wavelengths, the Milky Way luminosity at infrared wavelengths, and VLA low-frequency data of supernova remnants. First author on Mascoop et al. (2020) and co-author on Makai et al. (2017) and Anderson et al. (2021).

Dylan Linville, Ph.D. Student, WVU Fall 2018 –Present  
 Completed an automatic Gaussian decomposition of GBT RRL data. Working on discrete emission sources in the same data set. Co-author on Anderson et al. (2021) and author of Linville et al. (2023). Winner of NRAO Reber fellowship (2023-2024)

Timothy Faerber, Ph.D. Student, WVU Summer 2021–Present  
 Analyzing *SOFIA* [CII] data towards a large sample of Galactic H II regions to look for signs of expansion.

### Postdocs

Zoltan Makai, WVU Spring 2016 – Spring 2018  
 Determined infrared and radio fluxes for large sample of first-Galactic quadrant H II regions. Analyzed correlations between *SOFIA* [CII] data of H II region S235 and other tracers of star formation. Lead author of Makai et al. (2017) and co-author of Anderson et al. (2019)

Bin Liu, WVU Spring 2016 – Spring 2018  
 Worked on final data reduction for SIGGMA Galactic plane recombination line survey. Taking and reducing recombination line mapping data of the Galactic plane. Co-author on Anderson et al. (2021)

Matteo Luisi, WVU Spring 2019 – Spring 2021  
 Worked on observations and reduction of GBT Diffuse Ionized Gas (GDIGS) data. Involved with *SOFIA* Legacy project “Feedback” (PIs X. Tielens & N. Schneider). Also worked on *SOFIA* data for three Galactic bubble H II regions. Authorship described above.

### Professional Activities

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NRAO User’s Committee Member (Assistant Chair 2015-2016; Chair 2016-2017) 2014 – 2018  
 APEX SEDIGISM survey consortium member (PI F. Schuller)  
 ATCA SHRDS survey consortium member (PI J. Dickey)  
 Arecibo SIGGMA survey (current PI)  
 VLA THOR survey consortium member (PI H. Beuther)  
*Herschel* Hi-GAL survey consortium member (PI S. Molinari)  
*Herschel* HOBYS survey consortium member (PIs A. Zavagno, S. Bontemps, & F. Motte)  
 GBT HRDS survey (PI)  
 GBT GDIGS survey (PI)  
 GBT KEYSTONE survey consortium member (PI J. DiFrancenso)  
 GBT MGPS survey consortium member (PI A. Ginsburg)  
 NASA ASTHROS consortium member (PI J. Pineda)  
 SOFIA FEEDBACK consortium member (PIs N. Schneider & A Tielens)  
 Panel reviewer for NASA ADAP, NSF AST, *SOFIA*, and NRAO  
 Regular reviewer for ApJ, AJ, MNRAS, PASJ, PASA, and A&A

### Web Pages Developed

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The WISE Catalog of Galactic H II Regions ([astro.phys.wvu.edu/wise/](http://astro.phys.wvu.edu/wise/))  
 Interactive web page for WISE catalog using Google Maps and Google Sheets

The GBT Diffuse Ionized Gas Survey ([astro.phys.wvu.edu/gdigs/](http://astro.phys.wvu.edu/gdigs/))  
Data server for GDIGS

H II region outreach project ([astro.phys.wvu.edu/hiimap/](http://astro.phys.wvu.edu/hiimap/))  
Lightweight site that allows students to search for new H II regions to be observed with the GBT

The Green Bank Telescope H II Region Discovery Survey (<http://www.go.nrao.edu/hrds/>)  
Interactive web page for HRDS data products