

## **Dr. B. Sargent**

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### **Curriculum Vitae**

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| <b>Current Position</b>   | Research Scientist/PI<br>SETI Institute<br>339 Bernardo Ave, Suite 200<br>Mountain View, CA 94043                                                                                                                                                           | February 2026 – present      |
| <b>Previous Positions</b> | Affiliate<br>SETI Institute<br>339 Bernardo Ave, Suite 200<br>Mountain View, CA 94043                                                                                                                                                                       | October 2025 – January 2026  |
|                           | Associate Research Scientist<br>Johns Hopkins University<br>The William H. Miller III Department of Physics & Astronomy<br>Center for Astrophysical Sciences<br>Bloomberg Center for Physics and Astronomy<br>3400 N. Charles Street<br>Baltimore, MD 21218 | September 2019 – August 2025 |
|                           | STScI Scientist<br>Space Telescope Science Institute<br>3700 San Martin Drive<br>Baltimore, MD 21218                                                                                                                                                        | July 2016 – September 2025   |
|                           | Research Scientist<br>Center for Imaging Science and Laboratory for Multiwavelength Astrophysics<br>Rochester Institute of Technology<br>54 Lomb Memorial Drive<br>Rochester, NY 14623                                                                      | March 2015 - July 2016       |
|                           | Postdoctoral Scholar<br>Center for Imaging Science and Laboratory for Multiwavelength Astrophysics<br>Rochester Institute of Technology<br>54 Lomb Memorial Drive<br>Rochester, NY 14623                                                                    | March 2012 – February 2015   |

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- Education**      Ph.D. in Physics and Astronomy, University of Rochester, granted 3/2009;  
                          - Dissertation “*Spitzer*-IRS Spectroscopic Studies of Dust Composition of Protoplanetary Disks”  
                          - advisor: Dr. William J. Forrest  
                          M.A. in Physics, University of Rochester; 3/2005  
                          B.S. in Mathematics, Davidson College; 5/2002
- Research Interests**      Star- & Planet-Formation; Protoplanetary Disks; Debris Disks; Asymptotic Giant Branch Stars; Red Supergiant Stars; Circumstellar, Interstellar Dust; Infrared Spectroscopy; Radiative Transfer; Astronomical Spectroscopy of Gases; Supernova Remnants; & Massive Stars

**B. Sargent**  
**Selected Publications**

1.            *The Two-Zone Temperature Distribution Model: Inferences on the Structure and Composition of Dusty Protoplanetary Disks*, Grimbale, William; Kastner, Joel; **Sargent, B.**; & Stassun, Keivan, 2025, *The Astrophysical Journal*, 995, 86.
2.            *The compact object and innermost ejecta of SN 1987A*, J. Larsson; C. Fransson; P. J. Kavanagh; **B. Sargent**; et al., 2025, *ApJ*, 991, 130
3.            *Extended source fringe flats for the JWST MIRI Medium Resolution Spectrometer*, Crouzet, N.; Mueller, M.; **Sargent, B.**; Lahuis, F.; Kester, D.; Yang, G.; Argyriou, I.; Gasman, D.; Kavanagh, P. J.; Labiano, A.; Larson, K.; Law, D. R.; Álvarez-Márquez, J.; Brandl, B. R.; Glasse, A.; Patapis, P.; Roelfsema, P. R.; Tychoniec, Ł.; van Dishoeck, E. F.; & Wright, G. S., 2025, *Astronomy & Astrophysics*, 698, A77
4.            *Sequencing Silicates in the Spitzer Infrared Spectrograph Debris Disk Catalog. I. Methodology for Unsupervised Clustering*, Lu, Cicero X.; Mittal, Tushar; Chen, Christine H.; Li, Alexis Y.; Worthen, Kadin; **Sargent, B. A.**; et al., 2025, *The Astrophysical Journal Supplement*, 276, 65
5.            *Unraveling the Dusty Environment around RT Vir*, Preston, Michael D.; Speck, Angela K.; Dillon, Sean; & **Sargent, B.**, 2025, *ApJ*, 979, 242

6. *A JWST MIRI MRS View of the  $\eta$  Tel Debris Disk and Its Brown Dwarf Companion*, Chai, Yiwei; Chen, Christine H.; Worthen, Kadin; Li, Alexis; Sefilian, Antranik A.; Balmer, William; Hines, Dean C.; Law, David R.; **Sargent, B. A.**; et al., 2024, ApJ, 976, 167
7. *Embedded Young Stellar Objects near H72.97-69.39: A Forming Super Star Cluster in N79*, Nayak, Omnarayani; Nally, Conor; Hirschauer, Alec S.; Jones, Olivia C.; Jaspers, Jeroen; Lenkić, Laura; Meixner, Margaret; Habel, Nolan; Reiter, Megan; Chu, Laurie; Kavanagh, Patrick J.; Robberto, Massimo; **Sargent, B. A.**, 2024, ApJ, 975, 262
8. *MIRI MRS Observations of Beta Pictoris. II. The Spectroscopic Case for a Recent Giant Collision*, Chen, Christine H.; Lu, Cicero X.; Worthen, Kadin; Law, David R.; **Sargent, B. A.**; et al., 2024, ApJ, 973, 139
9. *Young Stellar Objects in NGC 346: A JWST NIRCам/MIRI Imaging Survey*, Habel, Nolan; Nally, Conor; Lenkić, Laura; Meixner, Margaret; De Marchi, Guido; Kavanagh, Patrick J.; Fahrion, Katja; Nayak, Omnarayani; Hirschauer, Alec S.; Jones, Olivia C.; Biazzo, Katia; Brandl, Bernhard R.; Jaspers, J.; Pontoppidan, Klaus M.; Robberto, Massimo; Rogers, C.; Sabbi, E.; **Sargent, B. A.**; Soderblom, David R.; & Zeidler, Peter, 2024, ApJ, 971, 108
10. *Thermal Evolution of Alumina through Dehydration of Aluminum Hydroxide*, Cly, Cody; et al., 2024, Microscopy and Microanalysis, 30, 260
11. *Optical Properties of Aluminum Oxide Compared with Asymptotic Giant Branch Environments from Amorphous to Crystalline Structures*, Shohan, Rakibul A.; et al., 2024, Microscopy and Microanalysis, 30, 245
12. *Imaging of I Zw 18 by JWST. I. Detecting Dusty Stellar Populations*, Hirschauer, Alec S.; Crouzet, Nicolas; Habel, Nolan; Lenkić, Laura; Nally, Conor; Jones, Olivia C.; Bortolini, Giacomo; Boyer, Martha L.; Justtanont, Kay; Meixner, Margaret; Östlin, Göran; Wright, Gillian S.; Azzollini, Ruyman; Blommaert, Joris A. D. L.; Brandl, Bernhard; Decin, Leen; Nayak, Omnarayani; Royer, Pierre; **Sargent, B. A.**; & van der Werf, Paul, 2024, Astronomical Journal, 168, 23
13. *JWST MIRI and NIRCам unveil previously unseen infrared stellar populations in NGC 6822*, Nally, Conor; Jones, Olivia C.; Lenkić, Laura; Habel, Nolan; Hirschauer, Alec S.; Meixner, Margaret; Kavanagh, P. J.; Boyer, Martha L.; Ferguson, Annette M. N.; **Sargent, B. A.**; Nayak, Omnarayani; & Temim, Tea, 2024, Monthly Notices of the Royal Astronomical Society, 531, 183
14. *MIRI MRS Observations of  $\beta$  Pictoris. I. The Inner Dust, the Planet, and the Gas*, Worthen, Kadin; Chen, Christine H.; Law, David R.; Lu, Cicero X.; Hoch, Kielan; Chai, Yiwei; Sloan, G. C.; **Sargent, B. A.**; et al., 2024, ApJ, 964, 168

15. *Emission lines due to ionizing radiation from a compact object in the remnant of Supernova 1987A*, Fransson, C.; Barlow, M. J.; Kavanagh, P. J.; Larsson, J.; Jones, O. C.; **Sargent, B.**; et al.. 2024, *Science*, 383, 898
16. *Ejecta, Rings, and Dust in SN 1987A with JWST MIRI/MRS*, Jones, O. C.; Kavanagh, P. J.; Barlow, M. J.; Temim, T.; Fransson, C.; Larsson, J.; Blommaert, J. A. D. L.; Meixner, M.; Lau, R. M.; **Sargent, B.**; et al., 2023, *ApJ*, 958, 95
17. *JWST MIRI flight performance: The Medium-Resolution Spectrometer*, Argyriou, Ioannis; et al., 2023, *A&A*, 675, A111
18. *The James Webb Space Telescope Mission*, Gardner, Jonathan P.; et al., 2023, *Publications of the Astronomical Society of the Pacific*, 135, 068001
19. *JWST NIRSpec Observations of Supernova 1987A-From the Inner Ejecta to the Reverse Shock*, Larsson, J.; Fransson, C.; **Sargent, B.**; et al., 2023, *ApJ Letters*, 949, L27
20. *The Mid-infrared Instrument for JWST and Its In-flight Performance*, Wright, Gillian S.; et al., 2023, *PASP*, 135, 048003
21. *The Science Performance of JWST as Characterized in Commissioning*, Rigby, Jane; et al., 2023, *PASP*, 135, 048001
22. *The First JWST Spectrum of a GRB Afterglow: No Bright Supernova in Observations of the Brightest GRB of all Time, GRB 221009A*, Levan, A. J.; Lamb, G. P.; Schneider, B.; Hjorth, J.; Zafar, T.; de Ugarte Postigo, A.; **Sargent, B.**; et al., 2023, *ApJL*, 946, L28
23. *The JWST Early-release Science Program for Direct Observations of Exoplanetary Systems II: A 1 to 20  $\mu\text{m}$  Spectrum of the Planetary-mass Companion VHS 1256-1257 b*, Miles, Brittany E.; Biller, Beth A.; Patapis, Polychronis; Worthen, Kadin; Rickman, Emily; Hoch, Kielan K. W.; Skemer, Andrew; Perrin, Marshall D.; Whiteford, Niall; Chen, Christine H.; & **Sargent, B.**; et al., 2023, *ApJ*, 946, 6
24. *CO line observations of OH/IR stars in the inner Galactic Bulge: Characteristics of stars at the tip of the AGB*, Olofsson, H.; Khouri, T.; **Sargent, B. A.**; et al., 2022, *A&A*, 665, 82
25. *Trends in Silicates in the beta Pictoris Disk*, Lu, Cicero X.; Chen, Christine H.; **Sargent, B. A.**; et al., 2022, *ApJ*, 933, 54
26. *The Near-Infrared Spectrograph (NIRSpec) on the James Webb Space Telescope. III. Integral-field spectroscopy*, Böker, T.; Arribas, S.; Lützgendorf, N.; Alves de Oliveira, C.; Beck, T. L.; Birkmann, S.; Bunker, A. J.; Charlot, S.; de Marchi, G.;

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27. *MIRISIM: a simulator for the Mid-Infrared Instrument on JWST*, Klaassen, P. D.; Geers, V. C.; Beard, S. M.; O'Brien, A. D.; Cossou, C.; Gastaud, R.; Coulais, A.; Schreiber, J.; Kavanagh, P. J.; Topinka, M.; Azzollini, R.; De Meester, W.; Bouwman, J.; Glasse, A. C. H.; Glauser, A. M.; Law, D. R.; Cracraft, M.; Murray, K.; **Sargent, B.**; Jones, O. C.; & Wright, G. S., 2021, *MNRAS*, 500, 2813
  28. *Alumina Polymorphism in the Circumstellar Dust Shells of Asymptotic Giant Branch Stars*, **Sargent, Benjamin A.**, 2018, *ApJL*, 866, L1.
  29. *Discovery of a Group of Receding, Variable Halo Stars toward Norma*, Chakrabarti, Sukanya; et al., 2017, *ApJ*, 844, 159.
  30. *The mass-loss rates of red supergiants at low metallicity: detection of rotational CO emission from two red supergiants in the Large Magellanic Cloud*, Matsuura, Mikako; **Sargent, B.**; et al., 2016, *MNRAS*, 462, 2995.
  31. *The Mid-infrared Evolution of the FU Orionis Disk*, Green, Joel D.; et al., 2016, *ApJ*, 832, 4.
  32. *Silicate Composition of the Interstellar Medium*, Fogerty, S.; Forrest, W.; Watson, D. M.; **Sargent, B. A.**; & Koch, I., 2016, *ApJ*, 830, 71.
  33. *The evolved-star dust budget of the Small Magellanic Cloud: the critical role of a few key players*, Srinivasan, S.; Boyer, M. L.; Kemper, F.; Meixner, M.; **Sargent, B. A.**; & Riebel, D., 2016, *MNRAS*, 457, 2814.
  34. *The Dustiest Post-Main Sequence Stars in the Magellanic Clouds*, Jones, Olivia C.; et al., 2015, *ApJ*, 811, 145.
  35. *A Combined Spitzer and Herschel Infrared Study of Gas and Dust in the Circumbinary Disk Orbiting V4046 Sgr*, Rapson, Valerie A.; et al., 2015, *ApJ*, 810, 62.
  36. *Emission from Water Vapor and Absorption from Other Gases at 5–7.5  $\mu\text{m}$  in Spitzer-IRS Spectra of Protoplanetary Disks*, **Sargent, B. A.**; et al., 2014, *ApJ*, 792, 83.
  37. *CO  $J = 2-1$  Emission from Evolved Stars in the Galactic Bulge*, **Sargent, Benjamin A.**; et al., 2013, *ApJ*, 765, 20
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39. *The mass-loss return from evolved stars to the Large Magellanic Cloud. V. The GRAMS carbon-star model grid*, Srinivasan, S.; **Sargent, B. A.**; & Meixner, M., 2011, A&A, 532, 54
  40. *The SAGE-Spec Spitzer Legacy program: The life-cycle of dust and gas in the Large Magellanic Cloud. Point source classification I*, Woods, Paul M.; Oliveira, J. M.; Kemper, F.; van Loon, J. Th.; **Sargent, B. A.**; et al., 2011, MNRAS, 411, 1597.
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  43. *Herschel Observations of a Newly Discovered UX Ori Star in the Large Magellanic Cloud*, Clayton, Geoffrey C.; **Sargent, B.**; et al., 2010, ApJ, 722, 1131.
  44. *Cold Dust in Three Massive Evolved Stars in the LMC*, Boyer, M. L.; **Sargent, B.**; et al., 2010, A&A, 518, 142.
  45. *The Mass-loss Return from Evolved Stars to the Large Magellanic Cloud. II. Dust Properties for Oxygen-Rich Asymptotic Giant Branch Stars*, **Sargent, Benjamin A.**; Srinivasan, S.; Meixner, M.; Kemper, F.; Tielens, A. G. G. M.; Speck, A. K.; Matsuura, M.; Bernard, J.-Ph.; Hony, S.; Gordon, Karl D.; Indebetouw, R.; Marengo, M.; Sloan, G. C.; & Woods, Paul M., 2010, ApJ, 716, 878.
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  47. *Dust Processing and Grain Growth in Protoplanetary Disks in the Taurus/Auriga Star-Forming Region*, **Sargent, B. A.**; Forrest, W. J.; Tayrien, C.; McClure, M. K.; Watson, Dan. M.; Sloan, G. C.; Li, A.; Manoj, P.; Bohac, C. J.; Furlan, E.; Kim, K.H.; & Green, J. D., 2009, ApJS, 182, 477.
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49. *Towards a spectral technique for determining material geometry around evolved stars: application to HD 179821*, Nordhaus, J.; Minchev, I.; **Sargent, B.**; et al., 2008, *MNRAS*, 388, 716.
  50. *A Sub-AU Outwardly Truncated Accretion Disk around a Classical T Tauri Star*, McClure, M.K.; Forrest, W.J.; **Sargent, B.A.**; et al., 2008, *ApJ*, 683, 187.
  51. *The development of a protoplanetary disk from its natal envelope*, Watson, D.; Bohac, C.; Hull, C.; Forrest, W.; Furlan, E.; Najita, J.; Calvet, N.; D'Alessio, P.; Hartmann, L.; **Sargent, B.**; Green, J.; Kim, K.H.; & Houck, J., 2007, *Nature*, 448, 1026.
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  53. *Spitzer IRS Spectroscopy of IRAS-discovered Debris Disks*, Chen, C.; **Sargent, B.**; et al., 2006, *ApJS*, 166, 351. *Erratum*: Chen et al., 2008, *ApJS*, 177, 417.
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  55. *Dust Processing in Disks around T Tauri Stars*, **Sargent, B.**; Forrest, W.; D'Alessio, P.; Li, A.; Najita, J.; Watson, D.; Calvet, N.; Furlan, E.; Green, J.; Kim, K.H.; Sloan, G.; Chen, C.; Hartmann, L.; & Houck, J., 2006, *ApJ*, 645, 395.
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  58. *Polycyclic Aromatic Hydrocarbons Orbiting HD 233517, an Evolved Oxygen-rich Red Giant*, Jura, M.; Bohac, C.; **Sargent, B.**; et al., 2006, *ApJ*, 637, 45.
  59. *Mid-infrared Spectroscopy of Disks around Classical T Tauri Stars*, Forrest, W.; **Sargent, B.**; Furlan, E.; D'Alessio, P.; Calvet, N.; Hartmann, L.; Uchida, K.; Green, J.; Watson, D.; Chen, C.; Kemper, F.; Keller, L.; Sloan, G.; Herter, T.; Brandl, B.; Houck, J.; Barry, D.; Hall, P.; Morris, P.; Najita, J.; & Myers, P., 2004, *ApJS*, 154, 443.