

John (Jeb) I. Bailey, III

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Education

University of Michigan, Ann Arbor, Michigan USA 2009 – 2016

- Ph.D., Astronomy and Astrophysics Advisor: Professor Mario Mateo
- Dissertation: **Multiplexed High-Precision Radial Velocities: Searching for Hot Jupiters in Southern Open Star Clusters**

University of Alabama in Huntsville, Huntsville, Alabama USA 2004 – 2008

- B.S., Physics; B.S., Mathematics (*summa cum laude*) Advisor: Professor Russel White
- Honors Thesis: **A Novel Method for Finding Young Planets**

Research

Leiden Observatory *JWST/MIRI MRS Calibration Scientist* 2/2016 – present

- JWST/MIRI IFU Advanced Spectral Extraction lead
- bRing - The β Pictoris b ring Transit Monitor software and control lead

University of Michigan *Doctoral Candidate* 9/2009 – 12/2015

- Michigan/Magellan Fiber System (M2FS) Project Lead for electronics, controls, and software
- Invented M2FS fiber slit mechanism to make dissertation science technically feasible.
- Created robotic fiber polisher for M2FS
- Conducted a precision radial velocity survey of two open clusters to study kinematics and identify potential exoplanets.

Grants

- LKBF Research Travel Grant (x2) – \$1800
- Horace H. Rackham Travel Grant (x2) – \$2800
- Horace H. Rackham Research Grant – \$3000

Teaching/Outreach

Leiden/ESA Astrophysics Program for Students Coordinator Summer 2017

- *Managed summer school for 23 students from around globe*

Master's Project Advisor Fall 2016

- *Supervised three students during their successful pre-candidacy work on the bRing instrument*

Graduate Instructor Spring 2010

- *The Solar System and the Search for Life Beyond Earth*

Graduate Instructor Fall 2010

- *The Cosmos Through the Constellations*

US Space and Rocket Center Teaching Exchange Spring 2009

- *Space Camp instructor for students aged 9 - 13*

Laboratory Instructor

Spring 2006

- *Introductory Physics with Calculus*

Service & Committees

- 2016 – ongoing: bRing β Pictoris b ring Transit Monitor team member
- 2016 – ongoing: JWST-MIRI EC calibration working group member
- 2016 – ongoing: JWST-MIRI exoplanet science working group member
- 2010 – ongoing: M2FS instrument team member

Scientific Computing

- Author of the Young Stars Analysis Suite, a Python & IDL software package designed to reduce and analyze optical and infrared spectra
- Author of Python software designed for observation planning and data reduction with the Michigan/Magellan Fiber System

Awards

- 2009-2010: Michigan Astronomy Ford Fellowship
- 2007-2008: Alabama Space Grant Scholar
- 2007-2008: Gerhard B. Heller Scholar
- 2006-2007: Harry F. Hillman Scholar
- 2005-2006: Gerhard B. Heller Scholar
- 2005: Elected to Phi Kappa Phi
- 2004: Elected to Alpha Lambda Delta
- 2003-2007: UAH Platinum Award of Academic Distinction

Accepted Observing Proposals

Date	Facility	Time	Purpose
2016A	Clay/M2FS	<i>2 nights</i>	Continue cluster exoplanet survey
2015A	Clay/M2FS	<i>3 nights</i>	Expand cluster exoplanet survey to two additional clusters
2014B	Clay/M2FS	<i>4 nights</i>	Continue NGC 2516 & NGC 2422 program
2014A	Clay/M2FS	<i>4 nights</i>	Continue NGC 2516 & NGC 2422 program in search of exoplanets
2013B	Clay/M2FS	<i>3 nights</i>	Observe 240 FGK stars in NGC 2516 & NGC 2422

Refereed Publications

1. **Bailey, J. I., III**, Mateo, M., White, R. J., Shectman, S. A., & Crane, J. [RV Variability and Stellar Properties of FGK Stars in the Cores of NGC 2516 and NGC 2422](#) 2017, MNRAS, submitted
2. Jiang, L., Wu, J., Bian, F., Chiang, Y., Ho, L. C., Shen, Y., Zheng, Z., **Bailey, J. I., III**, Blanc, G. A., Crane, J. D., Fan, X., Mateo, M., Olszewski, E. W., Oyarzún, G. A., Wang, R., Wu, X. [A Giant Protocluster of Galaxies at Redshift 5.70](#), 2017, Science, submitted
3. Stuijk, R., **Bailey, J. I., III**, Dorval, P., Talens, G. J. J., Laginja, I., Mellon, S. N., Lomberg, B. B. D., Crawford, S. M., Ireland, M. J., Mamejek, E. E., Kenworthy, M. A. [bRing: An observatory dedicated to monitoring the \$\beta\$ Pictoris b Hill sphere transit](#) 2017, AA, accepted
4. Dupree, A. K., Dotter, A., Johnson, C. I., Marino, A. F., Milone, A. P., **Bailey, J. I., III**, Crane, J. D., Mateo, M., Olszewski, E. W. [NGC 1866: First Spectroscopic Detection of Fast-rotating Stars in a Young LMC Cluster](#) 2017, ApJL, 846, L1
5. Jiang, L., Shen, Y., Bian, F., Zheng, Z., Wu, J., Oyarzún, G. A., Blanc, G. A., Fan, X., Ho, L. C., Infante, L., Wang, R., Wu, X., Mateo, M., **Bailey, J. I., III**, Crane, J. D., Olszewski, E. W., Shectman, S., Thompson, I., Walker, M. G. [A Magellan M2FS Spectroscopic Survey of Galaxies at \$5.5 < z < 6.8\$: Program Overview and a Sample of the Brightest Ly \$\alpha\$ Emitters](#), 2017, ApJ, 846, 134
6. Tucker, E., Walker, M.G., Mateo, M., Olszewski, E.W., **Bailey, J. I., III**, Crane, J. D., Shectman, S. A. [Magellan/M2FS Spectroscopy of Galaxy Clusters: Stellar Population Model and Application to Abell 267](#) 2017, AJ, 154, 113
7. Kounkel, M., Hartmann, L., Mario Mateo, M., **Bailey, J. I. III**. [Kinematics of the Optically Visible YSOs Toward the Orion B Molecular Cloud](#) 2017, ApJ, 844, 138
8. Oyarzún, G. A., Blanc, G. A., González, V., Mateo, M., Bailey, J. I., III [A Comprehensive Study of Ly \$\alpha\$ Emission in the High-redshift Galaxy Population](#) 2017, ApJ, 843, 133
9. Johnson, C. I., Caldwell, N., Rich, R. M., Mateo, M., **Bailey, J. I., III**, Olszewski, E. W., Walker, M. G. [Chemical Complexity in the EU-Enhanced Monometallic Globular NGC 5896](#) 2017, ApJ, 842, 24
10. Johnson, C. I., Caldwell, N., Rich, R. M., Mateo, M., **Bailey, J. I., III**, Clarkson, W. I., Olszewski, E., Walker, M. G. [A Chemical Composition Survey of the Iron-Complex Globular Cluster NGC 6273 \(M 19\)](#), 2017, ApJ, 836, 138
11. **Bailey, J. I., III**, Mateo, M., White, R. J., Shectman, S. A., Crane, J., & Olszewski, E. [Multiplexing Precision RVs: Searching for Close in Gas Giants in Open Clusters](#) 2016, AJ, 152, 9
12. Roederer, I. U., Mateo, M., **Bailey, J. I., III**, Song, Y., Bell, E.F., Crane, J. D., Loebman, S., Nidever, D. L., Olszewski, E. O., Shectman, S. A., Thompson, I. B., Valluri, M., Walker, M. G., [Detailed Chemical Abundances in the r-Process-Rich Ultra-Faint Dwarf Galaxy Reticulum 2](#), 2016, AJ, 151, 82
13. Oyarzún, G. A., Blanc, G. A., González, V., Mateo, M., **Bailey, J.I., III**, Finkelstein, S. L., Lira, P., Crane, J. D., & Olszewski, E. W. [How Lyman Alpha Emission Depends on Galaxy Stellar Mass](#), 2016, ApJL, 821, L14
14. Kounkel, M., Hartmann, L. W., Tobin, J. J., Mateo, M., **Bailey, J. I., III**, & Spencer, M. [Spectroscopic Binaries in the Orion Nebula Cluster and NGC 2264](#), 2016, ApJ, 821, 8
15. Walker, M. G., Mateo, M., Olszewski, E. W., Kuposov, S., Belokurov, V., Jethwa, P., Nidever, D. L., Bonnavard, V., **Bailey, J. I., III**, Bell, E. F., & Loebman, S. R. [Magellan/M2FS Spectroscopy of Tucana 2 and Grus 1](#), 2016, ApJ, 819, 53
16. Messina, S., Serrano, M. M., Artemenko, S., **Bailey, J. I., III**, Savushkin, A., & Nelson, R. H. [The visual binary AG Tri in \$\beta\$ Pictoris Association: can a planet cause very different rotation periods of its components?](#), 2015, ApSS, 360, 17
17. Hendricks, B., Boeche, C., Johnson, C. I., Frank, M. J., Koch, A, Mateo, M., **Bailey, J. I., III**, [Evidence for a chemical enrichment coupling of globular clusters and field stars in the Fornax dSph](#), 2016, A&A, 585, A86

18. Roederer, I. U., Mateo, M., **Bailey, J. I., III**, Walker, M. G., Spencer, M., Olszewski, E. W., Crane, J. D., Shectman, S. A., & Thompson, I. B. [Detailed Chemical Abundances in NGC 5824: Another Metal-Poor Globular Cluster with Internal Heavy Element Abundance Variations](#), 2016, MNRAS, 455, 2417
19. Bonnavard, V., Combet, C., Maurin, D., Geringer-Sameth, A., Koushiappas, S. M., Walker, M. G., Mateo, M., Olszewski, E. W., **Bailey, J. I., III** [Dark Matter Annihilation and Decay Profiles for the Reticulum II Dwarf Spheroidal Galaxy](#), 2015, ApJL, 808, L36
20. Walker, M. G., Mateo, M., Olszewski, E. W., **Bailey, J. I., III**, Koposov, S. E., Belokurov, V., Evans, N. W. [Magellan/M2FS Spectroscopy of the Reticulum 2 Dwarf Spheroidal Galaxy](#), 2015, ApJ, 808, 108
21. Johnson, C. I., Rich, R. M., Pilachowski, C. A., Caldwell, N., Mateo, M.; **Bailey, J. I., III**, Crane, J. D. [A Spectroscopic Analysis of the Galactic Globular Cluster NGC 6273 \(M19\)](#), 2015, AJ, 150, 63
22. Davison, C., White, R. J., Henry, T. J., Riedel, A. R., Jao, W., **Bailey, J. I., III**, Quinn, S. N., Cantrell, J. R., Subasavage, J. P., Winters, J. G. [A 3D Search for Companions to 12 Nearby M-Dwarfs](#), 2015, AJ, 149, 106
23. Johnson, C. I., McDonald, I., Pilachowski, C. A., Mateo, M., **Bailey, J. I., III**, Cordero, M. J., Zijlstra, A. A., Crane, J., Thompson, I., Shectman, S. A., Olszewski, E., & Walker, M. [AGB Sodium Abundances in the Globular Cluster 47 Tucanae \(NGC 104\)](#), 2015, AJ, 149, 71
24. Davison, C. L., White, R. J., Jao, W.-C., Henry, T. J., **Bailey, J. I., III**, Quinn, S. N., Cantrell, J. R., Riedel, A. R., Subasavage, J. P., Winters, J. G., & Crockett, C. J. [The Closest M-dwarf Quadruple System to the Sun](#), 2014, AJ, 147, 29
25. **Bailey, J. I., III**, White, R. J., Blake, C. H., Charbonneau, D., Barman, T. S., Tanner, A. M., Torres, G. [Precise Infrared Radial Velocities from Keck/NIRSPEC and the Search for Young Planets](#) 2012, ApJ, 749, 16
26. Tanner, A., White, R., **Bailey, J. I., III**, Blake, C., Blake, G., Cruz, K., Burgasser, A. J., & Kraus, A. [Keck NIRSPEC Radial Velocity Observations of Late-M Dwarfs](#) 2012, ApJS, 203, 10
27. Konopacky, Q. M., Ghez, A. M., Barman, T. S., Rice, E. L., **Bailey, J. I., III**, White, R. J., McLean, I. S. & Duchêne, G. [High-precision Dynamical Masses of Very Low Mass Binaries](#) 2010, ApJ, 711, 1087

SPIE Publications

Please note: It is accepted practice for instrumentation papers to be published in SPIE proceedings. These papers reflect final, canonical references and are cited as such, with no subsequent related articles appearing in refereed journals.

1. Stuik, R., **Bailey, J. I., III**, Dorval, P., Talens, G. J., Mellon, S., Lomberg B., Crawford, S., Mamajek, E., Kenworthy, M., Verwayen, P., Ireland, M. [Installation and operation of the Beta Pictoris b ring project “bRing”](#) 2018, SPIE, accepted
2. A. Labiano, Azzollini, R., **Bailey, J. I., III**, Beard, S., Dicken, D., García-Marín, M., Geers, V., Glasse, A., Glauser, A., Gordon, K., Justtanont, K., Klaassen P., Lahuis F., Law D., Morrison, J., Müller, M., Rieke, G., Vandenbussche, B., Wright, G. [The MIRI Medium Resolution Spectrometer Calibration Pipeline](#) 2016, SPIE, 99102W
3. **Bailey, J. I., III**, Mateo, M., Crane, J. D. [Achieving decameter velocity precision with a multi-object spectrograph](#) 2014, SPIE, 9147
4. **Bailey, J. I., III**, Mateo, M. L., Bagish, A. P., Crane, J. D., Slater, C. T. [An adjustable slit mechanism for a fiber-fed multi-object spectrograph](#) 2012, SPIE, 8446
5. Mateo, M., **Bailey, J. I., III**, Crane, J. D. Shectman, S., Thompson, I., Roederer, I., Bigelow, B., Gunnels, S. [M2FS: The Michigan/Magellan Fiber System](#) 2012, SPIE, 8446

Other Works

1. Mellon, A., Stuik, R., **Bailey, J. I., III**, Dorval, P., Talens, G. J., Laginja, I., Lomberg B., Crawford, S., Ireland, M. J., Kenworthy, M., Mamajek, E., [bRing: An observatory dedicated to monitoring the \$\beta\$ Pictoris b Hill sphere transit](#), 2018, AAS, submitted
2. **Bailey, J. I., III**, Mateo, M., White, R. J., Crane, J. D., Shectman, S. A., M2FS Instrument Team. [Multiplexing Precision Radial Velocities with the Michigan/Magellan Fiber System: Searching for Hot Jupiters in Southern Open Star Clusters](#), 2017, AAS, 229, 403.03
3. Pilachowski, C. A., Johnson, C. I., Rich, R. M., Caldwell, N., Mateo, M., **Bailey, J. I., III**, Crane, J. D. [The Composition of the Bulge Globular Cluster NGC 6273](#), 2017, IAU, 316, 341
4. **Bailey, J. I., III**, Mateo, M., Crane, J. D., Shectman, S. A., M2FS Instrument Team. [M2FS: Today and Tomorrow & Multiplexing Precision RVs in Open Clusters](#), 2016, MSF, 4
5. Kounkel, M., Hartmann, L., Tobin, J. J., Mateo, M., **Bailey, J. I., III**, Spencer, M., [VizieR Online Data Catalog: Spectroscopic binary population of ONC and NGC2264](#), 2016, Vizier
6. Walker, M. G., Mateo, M.; Olszewski, E. W., Koposov, S., Belokurov, V., Jethwa, P., Nidever, D. L., Bonnavard, V., **Bailey, J. I., III**, Bell, E. F., Loebman, S. R. [VizieR Online Data Catalog: Magellan/M2FS spectroscopy of Tucana 2 and Grus 1](#), 2016, Vizier
7. Hendricks, B., Boeche, C., Johnson, C. I., Frank, M. J., Koch, A., Mateo, M., **Bailey, J. I., III** [VizieR Online Data Catalog: Fornax dSph H4 globular cluster stars](#), 2016, Vizier
8. Davison, C., White, R. J., Henry, T. J., Jao, W., **Bailey, J. I., III**, Cantrell, J. R., Riedel, A. R. [A Companion Assessment of Equatorial Stars with both Astrometry and Radial Velocity](#), 2013, AAS, 221, 149.15
9. Davison, C., White, R., Henry, T., **Bailey, J. I., III**, Jao, W., Riedel, A., Cantrell, J. [CAESAR: Companion Assessment of Equatorial Stars with Astrometry and Radial Velocity](#) 2011, ASPC, 448, 825
10. Tanner, A., White, R., **Bailey, J. I., III**, Barman, T. [NIRSPEC Radial Velocity Measurements of Late-M Dwarfs](#) 2011, ASPC, 448, 961
11. White, R., **Bailey, J. I., III**, Blake, C., Charbonneau, D., Barman, T., Tanner, A. [Limits on the Hot Jupiter Planet Frequency at 10 Million Years](#) 2010, AEPR, 22
12. **Bailey, J. I., III**, White, R. J., Blake, C., Charbonneau, D., Barman, T. [Attaining High-Precision Infrared Radial Velocities: A Powerful Tool for Finding Young Planets](#) 2009, AAS, 213, 402.03