

# Kevin Flaherty

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## Employment:

- July 2018 - present      Lecturer in Astronomy and Observatory Supervisor,  
*Williams College*
- August 2013 - July 2018      Postdoctoral Research Associate, *Wesleyan University*  
Advisor: Dr. Meredith Hughes
- August 2011 - August 2013      Instrument Test Scientist for NIRCam on JWST, *University of Arizona*
- August 2005 - August 2011      Graduate Research Assistant, *University of Arizona*  
Advisor: Dr. George Rieke

## Education and Awards:

- 2011      PhD, Steward Observatory, *University of Arizona*  
Advisor: Dr. George Rieke  
Thesis: *Evolution and Variability of Circumstellar Material Around Young Stellar Objects*
- 2005      B.S. Summa Cum Laude, Physics and Astronomy, *University of Rochester*  
Advisor: Dr. Judith Pipher  
Stoddard Prize for Best Senior Thesis in Physics and Astronomy  
Astronomical Society of New York Undergraduate Student Research Prize  
John F. Flagg award for Physics and Astronomy Student with highest GPA

## Teaching and Mentoring Experience:

- Summer 2017      Advisor to REU student A. Bulatek (Macalester College, class of 2020)
- 2016-2018      Founder and organizer of STEM Diversity Journal Club, Wesleyan University
- 2015      Advisor to D. Brown (Glastonbury High School, class of 2016, current undergraduate at Boston University)
- Spring 2015      Instructor for *Astr 105: Descriptive Astronomy*, Wesleyan University

Summer 2014	Advisor to REU student L. DeMarchi (Colgate, class of 2016, current PhD candidate at Syracuse University)
Summer 2012	Instructor for <i>Astr 170B1: The Physical Universe</i> , University of Arizona
Spring 2009	Participated in semester-long Introductory Astronomy Teaching Workshop, run by the Center for Astronomy Education, University of Arizona
Spring 2008, Spring 2011	Teaching Assistant, University of Arizona
Fall 2004, Spring 2005	Teaching Assistant, University of Rochester

### **Successful Grants & Proposals:**

2018	PI, ALMA proposal, <i>Constraining the Vertical and Radial Structure of the Turbulence around DM Tau</i>
2017	PI, ALMA proposals, <i>Measuring the Planet Potential of a 45 Myr old Low Mass Star and Measuring the Mass Budget of Proto-Tatooine Systems</i>
2016	PI, ALMA proposal, <i>Turbulence in a Sample of Protoplanetary Disks</i>
2015	PI, Spitzer proposal, <i>Studying Inner Protoplanetary Disk Structure through its Rapid and Gradual Variability</i> , \$10k
2013	PI, Spitzer proposal, <i>Understanding Protoplanetary Disk Structure through the Timescale of its Variability</i> , \$5k
2012	PI, Joint Spitzer/CXO proposal, <i>Connecting Young Stellar Object Variability Across the Great Observatories: A Combined Spitzer and Chandra Study of Variability in IC 348</i> , \$39k
2010	TC, Spitzer Proposal, <i>An Exploration of Unique Mid-Infrared Variability around Transition Disks and Class I stars in IC 348</i>

PI and CoI on over a dozen successful proposals to ground-based facilities, including ALMA, the MMT, Gemini, the IRTF and the UA Bok 2.3m Telescope

### **Colloquia/Talks:**

2018	Amherst College Colloquium, Amherst, MA
2018	Star and Planet Formation in the Southwest 2, Tucson, AZ
2018	231st AAS Meeting, Washington, DC
2017	Chemistry & Space Sciences Forum, New Haven, CT
2017	CT Exoplanet Picnic, Middletown, CT
2017	UMASS Amherst research seminar
2017	Brown Astrophysics Seminar Series
2017	MA-CT Regional Star Formation Meeting
2017	229 <sup>th</sup> AAS Meeting, Grapevine, TX

2016 Protoplanetary Discussions conference, Edinburgh, UK  
 2016 AAAS meeting: Planet Formation Through Radio Eyes session  
 2015 Radio and Geoastronomy Lunch Talk, Harvard Smithsonian CfA  
 2015 Boston University research seminar  
 2014 Columbia University research seminar  
 2014 UMASS Amherst research seminar  
 2013 Yale Stellar Tea  
 2012 Lowell Observatory Colloquium  
 2011 Radio and Geoastronomy Lunch Talk, Harvard Smithsonian CfA  
 2011 Signposts of Planets conference, Baltimore, MD  
 2011 Star and Planet Formation Seminar, STSCI  
 2011 MPIA special colloquium, Heidelberg, Germany  
 2011 FLASH lunch talk, NOAO  
 2010 YSO Variability splinter session, Cool Stars 16, Seattle

### **Professional Service and Outreach:**

2016 Spitzer TAC  
 2015 Astronomical Society of Greater Hartford presentation  
 2015 Astronomy on Tap presentation, New Haven  
 Fall 2014 - Summer 2018 Wesleyan Kid's and Space Night presenter  
 2010 Graduate student liaison during UA Astronomy Faculty search  
 Fall 2008 - Spring 2009 Project ASTRO  
 2008 LOC member for Stromfest, a conference celebrating the life and research of Karin and Steve Strom  
 2008-present Referee for MNRAS, PASP, ApJ and AJ

### **Publication List:**

First Author Papers

(13) *The Planet Formation Potential around a 45 Myr Accreting M Dwarf*

**Flaherty, K.M.**, Hughes, A.M., Mamjek, E., Murphy, S.J.

Astrophysical Journal, 2018, accepted

(12) *Turbulence in the TW Hya Disk*

**Flaherty, K.M.**, Hughes, A.M., Teague, R., Simon, J.B., Andrews, S.M., Wilner, D.J.

Astrophysical Journal, 2018, 856, 117

(11) *A Three-Dimensional View of Turbulence: Constraints on Turbulent Motions in the HD 163296 Protoplanetary Disk Using DCO<sup>+</sup>*

**Flaherty, K.M.**, Hughes, A.M., Rose, S.C., Simon, J.B., Qi, C., Andrews, S.M., Kospal, A., Wilner, D.J., Chiang, E., Armitage, P.J., Bai, X.  
Astrophysical Journal, 2017, 843, 150

(10) *Spitzer Observations of Long Term Infrared Variability Among Young Stellar Objects in Chamaeleon I*

**Flaherty, K.M.**, DeMarchi, L., Muzerolle, J., Balog, Z., Herbst, W., Megeath, S.T., Furlan, E., Gutermuth, R.  
Astrophysical Journal, 2016, 833, 104

(9) *Resolved CO Gas Interior to the Dust Rings of the HD 141569 Debris Disk*

**Flaherty, K.M.**, Hughes, A.M., Andrews, S.M., Qi, C., Wilner, D.J., Boley, A.C., White, J.A., Harney, W., Zachary, J.  
Astrophysical Journal, 2016, 818, 97

(8) *Weak Turbulence in the HD 163296 Protoplanetary Disk Revealed by ALMA*

**Flaherty, K.M.**, Hughes, A.M., Rosenfeld, K.A., Andrews, S.M., Chiang, E., Simon, J.B., Kerzner, S., Wilner, D.J.  
Astrophysical Journal, 2015, 813, 99

(7) *Connecting X-ray and Infrared Variability among Young Stellar Objects: Ruling out Potential Sources of Disk Fluctuations*

**Flaherty, K.M.**, Muzerolle, J., Wolk, S.J., Rieke, G.H., Gutermuth, R., Balog, Z., Herbst, W., Megeath, S.T., Furlan, E.  
Astrophysical Journal, 2014, 793, 2

(6) *Kinks and Dents in Protoplanetary Disks: Rapid Infrared Variability as Evidence for Large Structural Perturbations*

**Flaherty, K.M.**, Muzerolle, J., Rieke, G., Gutermuth, R., Balog, Z., Herbst, W., Megeath, S.T.  
Astronomical Journal, 2013, 145, 66

(5) *Infrared Variability of Evolved Protoplanetary Disks: Evidence for Scale Height Variations in the Inner Disk*

**Flaherty, K.M.**, Muzerolle, J., Rieke, G., Gutermuth, R., Balog, Z., Herbst, W., Megeath, S.T., Kun, M.  
Astrophysical Journal, 2012, 748, 71

(4) *The Highly Dynamic Behavior of the Innermost Dust and Gas in the Transition Disk Variable LRL 31*

**Flaherty, K.M.**, Muzerolle, J., Rieke, G., Gutermuth, R., Balog, Z., Herbst, W., Megeath, S.T., Kun, M.  
Astrophysical Journal, 2011, 732, 83

(3) *Modeling Mid-Infrared Variability of Circumstellar Disks with Non-axisymmetric Structure*

**Flaherty, K.M.** & Muzerolle, J.  
Astrophysical Journal, 2010, 719, 1733

(2) *Evidence for Early Circumstellar Disk Evolution in NGC 2068/71*

**Flaherty, K.M.** & Muzerolle, J.  
Astronomical Journal, 2008, 135, 966

(1) *Infrared Extinction toward Nearby Star-forming Regions*

**Flaherty, K.M.**, Pipher, J.L., Megeath, S.T., Winston, E.M., Gutermuth, R.A., Muzerolle, J., Allen, L.E., Fazio, G.G.  
Astrophysical Journal, 2007, 663, 1069

#### Other Refereed Publications

(26) *A New Model for Weak Turbulence in Protoplanetary Disks*

Simon, J.B., Bai, X., **Flaherty, K.**, Hughes, A.M.  
Astrophysical Journal, 2018, 865, 10

(25) *ALMA 1.3 Millimeter Map of the HD 95086 System*

Su, K.Y.L., Macgregor, M.A., Booth, M., Wilner, D.J., **Flaherty, K.**, Hughes, A.M., Phillips, N.M., Malhotra, R., Hales, A.S., Morrison, S., Ertel, S., Matthews, B.C., Dent, W.R.F., Casassus, S.  
Astronomical Journal, 2017, 154, 225

(24) *Radial Surface Density Profiles of Gas and Dust in the Debris Disk around 49 Ceti*

Hughes, A.M., Lieman-Sifry, J., **Flaherty, K.**, Daley, C.M., Roberge, A., Kospal, A., Moor, A., Kamp, I., Wilner, D.J., Andrews, S.M., Kastner, J.H., Abraham, P.  
Astrophysical Journal, 2017, 839, 86

(23) *IN-SYNC V. Stellar Kinematics and Dynamics in the Orion A Molecular Cloud*

Da Rio, N., Tan, J.C., Covey, K.R., Cottaar, M., Foster, J.B., Cullen, N.C., Tobin, J.J., Kim, J.S., Meyer, M.R., Nidever, D.L., Stassun, K.G., Chojnowski, S.D., **Flaherty, K.M.**, Majewski, S., Skrutskie, M.F., Zasowski, G., Pan, K.  
Astrophysical Journal 2017, 845, 105

(22) *ALMA Observations of Asymmetric Molecular Gas Emission from a Protoplanetary Disk in the Orion Nebula*

Factor, S.M., Hughes, A.M., **Flaherty, K.M.**, Mann, R.K., Di Francesco, J., Williams, J.P., Ricci, L., Matthews, B.C., Bally, J., Johnstone, D.  
Astronomical Journal 2017, 153, 233

(21) *A “Rosetta Stone” for protoplanetary disks: The synergy of multi-wavelength observations*

Sicilia-Aguilar, A., Banzatti, A., Carmona, A., Stolker, T., Kama, M., Mendigutia, I., Garufi, A., **Flaherty, K.**, van der Marel, N., Greaves, J.  
PASA 2016, 33, 59

(20) *Debris Disks in the Scorpius-Centaurus OB Association Resolved by ALMA*

Lieman-Sifry, J., Hughes, A.M., Carpenter, J.M., Gorti, U., Hales, A., **Flaherty, K.M.**  
Astrophysical Journal 2016, 828, 25

(19) *ALMA Observations of HD 141569’s Circumstellar Disk*

White, J.A., Boley, A.C., Hughes, A.M., **Flaherty, K.M.**, Ford, E., Wilner, D., Corder, S., Payne, M.  
Astrophysical Journal, 2016, 829, 1

(18) *IN-SYNC IV: The Young Stellar Population in the Orion A Molecular Cloud*

Da Rio, N., Tan, J.C., Covey, K.R., Cottaar, M., Foster, J.B., Cullen, N.C., Tobin, J.J., Kim, J.S., Meyer, M.R., Nidever, D.L., Stassun, K.G., Chojnowski, S.D., **Flaherty, K.M.**, Majewski, S., Skrutskie, M.F., Zasowski, G., Pane, K.  
Astrophysical Journal 2016, 818, 59

(17) *The Spitzer Space Telescope Survey of the Orion A & B Molecular Clouds - Part II: the Spatial Distribution and Demographics of Dusty Young Stellar Objects*

Megeath, S.T., Gutermuth, R., Muzerolle, J., Kryukova, E., Hora, J.L., Allen, L.E., **Flaherty, K.M.**, Hartmann, L., Meyers, P.C., Pipher, J.L., Stauffer, J., Young, E.T., Fazio, G.G.  
Astronomical Journal, 2016, 151, 5

(16) *Signatures of MRI-driven Turbulence in Protoplanetary Disks: Predictions for ALMA Observations*

Simon, J.B., Hughes, A.M., **Flaherty, K.M.**, Bai, X-N, Armitage, P.  
Astrophysical Journal, 2015, 808, 180

(15) *Structural Changes of the Sublimation Wall in Protoplanetary Disks due to Varying Accretion Illumination: a Mechanism for Rapid Infrared Variability*

Nagel, E., **Flaherty, K.M.**, Muzerolle, J.  
Astrophysical Journal, 2015, 808, 147

(14) *The Eleventh and Twelfth Data Releases of the Sloan Digital Sky Survey: Final Data from SDSS-III*

Alam, S., et al. (304 total authors)  
Astrophysical Journal Supplement Series, 2015, 219, 12

(13) *IN-SYNC III. The Dynamical State of IC 348 — A Super-viral Velocity Dispersion and a Puzzling Sign of Convergence*

Cottaar, M., Covey, K.R., Foster, J.B., Meyer, M.R., Tan, J.C., Nidever, D.L.,  
Chojnowski, S.D., da Rio, N., **Flaherty, K.M.**, Frinchaboy, P.M., Majewski, S.,  
Skrutskie, M.F., Wilson, J.C., Zasowski, G.  
Astrophysical Journal, 2015, 807, 27

(12) *IN-SYNC II. Virial Stars from Subvirial Cores — the Velocity Dispersion of Embedded Pre-main-sequence Stars in NGC 1333*

Foster, J.B., Cottaar, M., Covey, K.R., Arce, H.G., Meyer, M.R., Nidever, D.L., Stassun,  
K.G., Tan, J.C., Chojnowski, S.D., da Rio, N., **Flaherty, K.M.**, Rebull, L., Frinchaboy,  
P.M., Majewski, S.R., Skrutskie, M., Wilson, J.C., Zasowski, G.  
Astrophysical Journal, 2015, 799, 136

(11) *Time-monitoring Observations of Bry Emission from Young Stars*

Eisner, J.A., Rieke, G.H., **Flaherty, K.M.**, Stone, J.M., Arnold, T.J., Cortes, S.R., Cox,  
E., Hawkins, C., Cole, A., Zajac, S., Rudolph, A.L.  
MNRAS, 2015, 447, 202

(10) *Young Stellar Object Variability (YSOVAR): Long Timescale Variations in the Mid-Infrared*

Rebull, L.M., Cody, A.M., Covey, K.R., Gunther, H.M., Hillenbrand, L.A., Plavchan, P.,  
Poppenhaeger, K., Stauffer, J.R., Wolk, S.J., Gutermuth, R., Morales-Calderon, M.,  
Song, I., Barrado, D., Bayo, A., James, D., Hora, J.L., Vrba, F.J., Alves de Oliveira, C.,  
Bouvier, J., Carey, S.J., Carpenter, J.M., Favata, F., **Flaherty, K.**, Forbrich, J.,

Hernandez, J., McCaughrean, M.J., Megeath, S.T., Micela, G., Smith, H.A., Tereby, S., Turner, N., Allen, L., Ardila, D., Bouy, H., Guieu, S.  
Astronomical Journal, 2014, 148, 92

(9) *IN-SYNC I: Homogeneous Stellar Parameters from High-resolution APOGEE Spectra for Thousands of Pre-Main Sequence Stars*

Cottaar, M., Covey, K.R., Meyer, M.R., Nidever, D.L., Stassun, K.G., Foster, J.B., Tan, J.C., Chojnowski, S.D., da Rio, N., **Flaherty, K.M.**, Frinchaboy, P.M., Skrutskie, M., Majewski, S.R., Wilson, J.C., Zasowski, G.  
Astrophysical Journal, 2014, 794, 125

(8) *The Extraordinary Far-Infrared Variation of a Protostar: Herschel/PACS Observations of LRL 54361*

Balog, Z., Muzerolle, J., **Flaherty, K.M.**, Detre, O.H., Bouwman, J., Furlan, E., Gutermuth, R., Juhasz, A., Bally, J., Nielbock, M., Klaas, U., Krause, O., Henning, T., Marton, G.  
Astrophysical Journal, 2014, 780, L38

(7) *Time-monitoring Observations of the Ro-vibrational Overtone CO Bands in Young Stars*

Eisner, J.A., Rieke, G.H., Rieke, M.J., **Flaherty, K.M.**, Arnold, T.J., Stone, J.M., Cortes, S.R., Cox, E., Hawkins, C., Cole, A., Zajac, S., Rudolph, A.L.  
MNRAS, 2013, 434, 407

(6) *Young Stellar Objects in Lynds 1641: Disks, Accretion and Star Formation*

Fang, M., Kim, J.S., van Boekel, R., Sicilia-Aguilar, A., Henning, T., **Flaherty, K.M.**  
Astrophysical Journal Supplement, 2013, 207, 5

(5) *Pulsed Accretion in a Variable Protostar*

Muzerolle, J., Furlan, E., **Flaherty, K.M.**, Balog, Z., Gutermuth, R.  
Nature, 2013, 493, 378

(4) *The Spitzer Space Telescope Survey of the Orion A and B Molecular Clouds. I. A Census of Dusty Young Stellar Objects and a Study of Their Mid-Infrared Variability*

Megeath, S.T., Gutermuth, R., Muzerolle, J., Kryukova, E., **Flaherty, K.M.**, Hora, J.L., Allen, L.E., Hartmann, L., Meyers, P.C., Pipher, J.L., Stauffer, J., Young, E.T., Fazio, G.G.  
Astrophysical Journal, 2012, 144, 192



(3) *Evidence for Dynamical Changes in a Transitional Protoplanetary Disk with Mid-Infrared Variability*

Muzerolle, J., **Flaherty, K.**, Balog, Z., Furlan, E., Smith, P.S., Allen, L., Calvet, N., D'Alessio, P., Megeath, S.T., Muench, A., Rieke, G.H., Sherry, W.H.  
Astrophysical Journal, 2009, 704, L15

(2) *Chandra and Spitzer Imaging of the Infrared Cluster in NGC 2071*

Skinner, S.L., Sokal, K.R., Megeath, S.T., Gudel, M., Audard, M., **Flaherty, K.M.**, Meyer, M.R., Daminieli, A.  
Astrophysical Journal, 2009, 701, 710

(1) *The outburst of V1647 Origins Revealed by Spitzer*

Muzerolle, J., Megeath, S.T., **Flaherty, K.M.**, Gordon, K.D., Rieke, G.H., Young, E.T., Lada, C.J.  
Astrophysical Journal, 2005, 620, L107