

# Angela Collier

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<b>Employment</b>	<b>NSF Astronomy and Astrophysics Postdoc</b> JILA Postdoctoral Fellow	September 2021 -
	<b>JILA/University of Colorado Boulder</b> Postdoctoral Associate Eccentric Dynamics (Dr. Ann-Marie Madigan Group)	2019 - 2021
<b>Education</b>	<b>University of Kentucky</b> PhD, Physics Thesis: <i>The Role of Angular Momentum in the Interplay Between Disk Galaxies and Their Host Dark Matter Halos: Corollaries for the Hubble Fork Diagram</i> Advisor: Dr. Isaac Shlosman	2019
	<b>University of Kentucky</b> MS, Physics	2017
	<b>Morehead State University</b> BS, Physics and Mathematics	2012
<b>Research Areas</b>	<i>Computational/theoretical multi-scale dynamics, dark matter evolution and signal expectation, large-scale computer simulations</i>	
<b>Publications</b>	<ol style="list-style-type: none"><li>9. “Bar-driven Leading Spiral Arms in a Counter-rotating Dark Matter Halo”, E. Lieb, <b>A. Collier</b>, &amp; A. M. Madigan; 2021, Under Review MNRAS</li><li>8. “A Lopsided Outer Solar System?”, Zderic, Alexander; Tiongco, Maria; <b>Collier, Angela</b>; Wernke, Heather; Generozov, Aleksey; Madigan, Ann-Marie; 2021, Under Review ApJ</li><li>7. “Central Dynamics of Multi-mass Rotating Star Clusters”, M. Tiongco, <b>A. Collier</b>, &amp; A. L. Varri; 2021, MNRAS, 506, 4488</li><li>6. “The Coupling of Galactic Dark Matter Halos with Stellar Bars”, <b>Collier, Angela</b> &amp; Madigan, Ann-Marie; ApJ, 915, 23</li><li>5. “Apsidal Clustering following the Inclination Instability”, Zderic, Alexander; <b>Collier, Angela</b>; Tiongco, Maria; Madigan, Ann-Marie; 2020, ApJL, 895, L27</li><li>4. “Violent Buckling Benefits Galactic Bars”, <b>Collier, Angela</b>; 2020, MNRAS, 492, 2241</li><li>3. “Stellar Bars in Counter-Rotating Dark Matter Halos: The Role of Halo Orbit Reversals”, <b>Collier, Angela</b>; Shlosman, Isaac; Heller, Clayton, 2019, MNRAS, 489, 3102</li><li>2. “Dark Matter Bars in Spinning Halos”, <b>Collier, Angela</b>; Shlosman, Isaac; Heller, Clayton, 2019, MNRAS, 488, 5788</li></ol>	

1. “What Makes the Family of Barred Disk Galaxies So Rich: Damping Stellar Bars in Spinning Halos”, **Collier, Angela**; Shlosman, Isaac; Heller, Clayton, 2018, MNRAS, 476, 1331

<b>Invited Colloquia* and Seminars</b>	<p>McGill Space Institute, Montreal, Quebec; December 2021            CRA Seminar, Georgia Tech, GA; September 2021            *University of Louisville, Louisville, KY; March 2021            *Indiana University, Bloomington, IN; October 2020            *University of Colorado at Colorado Springs, Colorado Springs, CO; October 2020            JILA Astrophysics Seminar, Boulder, CO; November 2019            High Energy Physics Special Seminar, Argonne National Lab; December 2018            Sandia National Laboratory; November 2018            University of Kentucky Astrophysics Seminar; March 2018            University of Kentucky Astrophysics Seminar; September 2016</p>	
<b>Conference Talks (Contributed)</b>	<p>EAS 2021, Online; June 2021            DDA 51, Online; August 2020            AAS 236, Online; June 2020            AAS Kentucky Area Meeting 2019, Morehead, KY; April 2019            AAS 233, Seattle, WA; January 2019            HPC Conference, University of Kentucky; October, 2017            Computational Physics Workshop, Los Alamos National Laboratory; July 2016</p>	
<b>Workshops</b>	<p><b>Astrostatistics Summer School XVI</b>            Center for Astrophysics, Penn State            June 2021  <b>Erdős Institute</b>            Specialization: Machine Learning/Neural Networks            May 2021  <b>Front Range Industry &amp; Postdoc Summit</b>            University of Colorado at Boulder            May 2019  <b>Computational Physics Student Summer Workshop</b>            Los Alamos National Laboratory            Summer 2016            Advisor: Dr. Chris Fryer  <b>REU: Computational Particle Physics</b>            Thomas Jefferson National Laboratory            Summer 2011            Advisor: Dr. Rolf Ent</p>	
<b>Teaching Experience</b>	<p><b>Instructor of Record at CU Boulder</b>            Graduate Courses:            ASTR 6001: Particle Dark Matter            Spring 2021            ASTR 6000: Origin of Spiral Arms            Fall 2020            Undergraduate Course:            ASTR 2040: The Search for Life in the Universe            Summer 2020  <b>Guest Lecturer</b>            Introductory Astronomy (University of Kentucky)            2017-2019            AST 592: Galaxies and Interstellar Material (University of Kentucky)            2018-2019  <b>Teaching Assistant</b>            Introductory Physics Labs and Recitation (University of Kentucky)            2013-2019  <b>High School Physics Teacher</b>            Advanced Physics Course (P.L. Dunbar High School)            2012-2013</p>	
<b>Mentoring</b>	<p>Alexandra Gladkova (Undergraduate CU Boulder)            2021-            Emma Lieb (Science Data Analyst at LASP)            2019-2020</p>	

## Outreach

### Outreach Talks

- *Dark Matter and Why We Need It* Longmont Astronomical Society; August 2021
- *How Galaxies Got Their Shapes* Longmont Astronomical Society; April 2021
- *Evolution of Galaxies* Northern Colorado Astronomical Society; September 2020
- *A Tourist's Guide to Traveling the Milky Way* Fiske Planetarium; February 2020
- *So you want to be an astronomer?* University of Kentucky Skytalk; August 2018
- *The Smallest Stars* University of Kentucky Skytalk; September 2017
- *Pandora's Cluster: Abell 2744* University of Kentucky Skytalk; February 2017
- *The Search for Planet X* University of Kentucky Skytalk; June 2016
- *Galactic Navigation* University of Kentucky Skytalk; August 2015

### Macadam Student Observatory

University of Kentucky

2014-2019

Hosted observing nights for the public, provided research opportunities for high school and undergraduate students.

### Diversity, Equity and Inclusion Talks

- *Secrets to Success: Helping First-Generation Graduate Students Navigate Astronomy* Annual Meeting European Astronomical Society Summer 2021

## Academic Service

### Reviewer:

- NASA FINESST

Spring 2021

### University of Colorado Boulder (APS Department):

- AstroPALS (Mentoring Program)
- Astrophysics Seminar Coordinator
- APS Community Planning Team

Fall 2020

2020-2021

Summer 2020

**AAS CVD:** Congressional Visit Day, Washington, DC

March 2019

**AAS 223:** Chambliss Poster Judge, Seattle, WA

Winter 2019

### University of Kentucky (Physics Department):

- Astrophysics Journal Club Coordinator
- Macadam Student Observatory Committee: Graduate Assistant Member
- Physics Graduate Student Committee: Astrophysics Representative

## Professional Memberships

American Astronomical Society

Division of Dynamical Astronomy

## Grants/Funding

NSF Astronomy and Astrophysics Postdoctoral Fellowship  
\$300,000

2021-2024

## Awards and Honors

2021: NSF Astronomy and Astrophysics Postdoctoral Fellowship  
2021: Postdoctoral Association of Colorado, Boulder Travel Award  
2020: Outstanding Postdoc Nominee: CU Boulder  
2016, 2018: Huffaker Travel Scholarship  
2017: University of Kentucky HPC Conference Prize Winner  
2016: Summer Fellowship at LANL Computational Physics Summer Workshop  
2011: REU Fellowship Thomas Jefferson National Lab  
2008-2012: Morehead State University Presidential Scholarship  
2008-2012: Morehead State University Honors Scholarship