

Erin G. Cox

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Research Interests: Star and Planet Formation, Magnetic Fields in Protostars, Protoplanetary Disks, Connecting Protostellar Envelope to Disks

EDUCATION	University of Illinois , Urbana, Illinois, USA	Jul 2018
	▪ Ph.D. in Astronomy	
	University of Arizona , Tucson, Arizona, USA	May 2012
	▪ B.S. in Physics, Astronomy	
RESEARCH POSITIONS	National Science Foundation MPS-Ascend Postdoctoral Fellowship	Aug 2022 – present
	Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA) Northwestern University	
	Postdoctoral Associate	Aug 2018 – Jul 2022
	CIERA, Northwestern University	
	Graduate Research Assistant	Jan 2015 – Jul 2018
	University of Illinois	<i>Advisor: Leslie Looney</i>
	Research Specialist	Jun 2012 – Aug 2013
	University of Arizona	<i>Advisors: Marcia Rieke, Geroege Rieke</i>
	REU/Research Intern	May 2010 – May 2012
	National Solar Observatory	<i>Advisor: Matt Penn</i>
HONORS & AWARDS	NSF MPS-Ascend Postdoctoral Fellowship, National Science Foundation	2022
	Robert L. Brown Outstanding Doctoral Dissertation Award, National Radio Astronomy Observatory (NRAO)	2019
	ALMA Ambassador, North American ALMA Science Center	2019
	Rodger Doxsey Travel Prize, American Astronomical Society 222nd Meeting	2018
	Excellence Award in Recognition of Academic Excellence, Good Citizenship and Service, University of Illinois	2015 – 2018
	ALMA Student Observing Support, NRAO	2016
	Illinois Space Grant, Illinois Space Grant Consortium	2015
	Excellent Teacher Award, University of Illinois	2014
	Undergraduate Research Achievement Award, University of Arizona	2012
	Dean's List, University of Arizona	2010 – 2012
EXTERNAL TALKS	240th AAS Meeting , Pasadena, CA	2022
	240th AAS Meeting Press Conference , Pasadena, CA (<i>invited</i>)	2022
	Astronomy Public Lecture , Boise State University (<i>invited</i>)	2022
	Astronomy Colloquium , Cornell University (<i>invited</i>)	2020
	Astronomy Seminar , University of Queens (<i>invited</i>)	2020
	Astronomy Lunch Talk , Notre Dame (<i>invited</i>)	2020
	CMB-S4 Workshop: Cosmology and Astrophysics in the Next Decade , Chicago, IL (<i>invited</i>)	2020
	BLAST-TNG 2019 Flight Planning Meeting , University of Pennsylvania	2019
	Workshop on Polarization in Protoplanetary Disks and Jets , Sant Cugat, Spain	2019
	National Radio Astronomy Observatory Colloquium , Charlottesville, VA (<i>invited</i>)	2019
	233rd AAS Meeting Special Seminar , Seattle, WA (<i>invited</i>)	2019
	233rd AAS Meeting , Seattle, WA	2019
	Magnetic Fields or Turbulence Meeting , Hsinchu, Taiwan	2018
231st AAS Meeting Dissertation Presentation , Washington DC	2018	
Radio and Geoastronomy Lunch talk , Harvard Smithsonian Center for Astrophysics (<i>invited</i>)	2017	

	71st International Symposium on Molecular Spectroscopy , Urbana, IL	2017
	70th International Symposium on Molecular Spectroscopy , Urbana, IL	2016
	Star Formation, Magnetic Fields, and Diffuse Matter in the Galaxy Meeting , Madison, WI	2016
SUCCESSFUL PI PROPOSALS	<i>Where does the magnetic field of L483 lose dynamical importance?</i> , 2022, Project: 2022.1.00094.S, Atacama Large Millimeter/submillimeter Array (ALMA)	
	<i>Is the collapse of L483 magnetically regulated?</i> , 2021, Project: 2021.1.00369.S, (ALMA)	
	<i>Determining the morphology of IRAS 08740-4243 for calibration of BLAST</i> , 2018, Project: 07_0195, Stratospheric Observatory for Infrared Astronomy (SOFIA)	
	<i>Can polarization tell us anything about magnetic fields around young protostars?</i> , 2018, Project: 2018.1.00827.S, (ALMA)	
	<i>Mapping the Intermediate-Scale Magnetic Field Around IRAS4A and Nearby Protostars</i> , 2016, Project: 05_0035, (SOFIA)	
	<i>Laying the groundwork for future ALMA direct magnetic field detection</i> , 2016, Project: 2016.1.01245.S, (ALMA)	
	<i>Looking for a Keplerian disk in the very young protostar IRAS 4A</i> , 2016, Project: 2016.1.00369.S, (ALMA)	
	<i>Characterizing the Youngest Multiplicity Systems in the Perseus Molecular Cloud</i> , 2016, Project: 2016B-0207, (Gemini)	
	<i>A New Probe of Protostellar Magnetic Fields Using Centimeter-Wave Polarization</i> , 2016, Project: 16A-322, Very Large Array (VLA)	
	<i>Mapping the Intermediate-Scale Magnetic Field Around IRAS4A and Nearby Protostars</i> , 2015, Project: 04_0177, (SOFIA)	
	<i>Testing the Correlation of Class 0 Disks with Aligned Magnetic Field and Rotation Axes</i> , 2015, Project: 2015.1.01503.S, (ALMA)	
	<i>Polarization Dust Observations of the Class 0 Keplerian Disk in L1527</i> , 2015, Project: 15A-412, (VLA)	
TEACHING & MENTORING EXPERIENCE	Supervised undergraduate student Micaela Foreman	Summer 2022
	Supervised undergraduate student Ethan Rengifo	Spring 2022 – Present
	Guest Lecturer	
	<i>Astrophysics</i> , Northwestern University	Apr 2019
	<i>Stars and Galaxies</i> , University of Illinois	Apr 2017
	<i>Killer Skies</i> , University of Illinois	Oct 2017
	Graduate Teaching Assistant , University of Illinois	
	Lab Instructor	Aug 2014 – Dec 2014
	<ul style="list-style-type: none"> • <i>Stars and Galaxies</i> • <i>Planets and Solar System</i> 	
	Section Instructor	Aug 2013 – May 2014
	<ul style="list-style-type: none"> • <i>Stars and Galaxies</i> 	
OUTREACH & SERVICE	Referee , The Astrophysical Journal	
	Panel Reviewer , SOFIA TAC	
	Reviewer , NASA Proposal Review Panel	2022
	Organizer and Facilitator , Astronomy on Tap Chicago	2022
	Selected Participant , AAS Congressional Visit Day, Washington D.C.	2022
	Women in Data Science Mentor , Chicago, IL	2022
	Northwestern Prison Education Program Facilitator , Northwestern University	2021
	Reviewer , NASA Proposal Review Panel	2021
	REACH High School Mentor , Northwestern University	2021
	Women in Data Science Mentor , Chicago, IL	2021
	Founding Member Social Justice Coordinating Committee , Northwestern, University	2020 – 2021
	Skype a Scientist Virtual	2021
	REACH High School Mentor , Northwestern University	2020
	Women in Data Science Team Leader , Chicago, IL	2020
	Astrophysics Seminar Committee Member , Northwestern University	2018 – 2020
	CUWiP Programming Committee Co-Chair , Northwestern University	2018 – 2019
	Astronomer Evenings , Northwestern University	2019
	ALMA ARP Technical Secretary , National Radio Astronomy Observatory	2019

Physics Slam VII Speaker , Fermilab	2018
Co-Founder & Vice Chair Women in Astronomy , University of Illinois	2015 – 2018
Organizer and Facilitator of AstroCoffee , University of Illinois	2015 – 2018
Astronomy Camp Leader , University of Illinois	2016 – 2017
Girls Explore Camp Leader , Champaign Park District	2016
Girls Engaged in Math and Science (GEMS) , National Center for Supercomputing Applications	2015

PUBLICATIONS

INVITED REVIEWS

- [1] Tsukamoto, Y., Maury, A.J., Commerçon, B., Alves, F., **Cox, E.**, Sakai, N., Machida, M., Zhao, B. & Ray, T., ‘The role of magnetic fields in the formation of protostars, disks, and outflows’, selected review chapter in *Protostars and Planets VII*, 2022 (accepted)

PEER-REVIEWED FIRST AUTHOR PUBLICATIONS

- [4] **Cox, Erin G.**, Novak, Giles, Sadavoy, Sarah, et al., ‘The Twisted Magnetic Field in the Protobinary L483,’ *ApJ*, 2022 vol. 932, no. 1, pp. 34
- [3] **Cox, Erin G.**, Harris, Robert J., Looney, Leslie W., Li, Zhi-Yun, Yang, Haifeng, Tobin, John J., Stephens, Ian, ‘ALMA’s Polarized View of 10 Protostars in the Perseus Molecular Cloud,’ *ApJ*, 2018 vol. 855, no. 2, pp. 92
- [2] **Cox, Erin G.**, Harris, Robert J., Looney, Leslie W., Chiang, Hsin-Fang, Chandler, Claire, Kratter, Kaitlin, Li, Zhi-Yun, Perez, Laura, Tobin, John J, ‘Protoplanetary Disks in ρ Ophiuchus as Seen from ALMA ,’ *ApJ*, 2017 vol. 851, no. 2, pp. 83
- [1] **Cox, Erin G.**, Harris, Robert J., Looney, Leslie W., Segura-Cox, Dominique M., Tobin, John, Li, Zhi-Yun, Tychoniec, Łukasz, Chandler, Claire J., Dunham, Michael M., Kratter, Kaitlin, Melis, Carl, Perez, Laura M., Sadavoy, Sarah I., ‘High-resolution 8 mm and 1 cm Polarization of IRAS 4A from the VLA Nascent Disk and Multiplicity (VANDAM) Survey,’ *ApJL*, 2015 vol. 814, no. 2, pp. L28

PEER-REVIEWED CO-AUTHOR PUBLICATIONS

- [18] Williams, Paul A., **Cox, Erin G.**, Cunningham, Maria, Fissel, Laura, Novak, Giles, Pillai, Thushara, Wiesemeyer, Helmut, ‘Mapping Multi-scale Magnetic Fields in Vela C South Ridge’, (in prep)
- [17] Tobin, John J., **Cox, Erin G.**, Looney, Leslie W., ‘A 16 au Binary in the Class 0 Protostar L1157 MMS’ *ApJ*, 2022 vol. 928, no. 1, pp. 10
- [16] Zhang, Ziwei, Yang, Yao-Lun, Zhang, Yichen, **Cox, Erin G.**, Zeng, Shaoshan, Murillo, Nadia M., Ohashi, Satoshi, Sakai, Naomi, ‘Sulfur-bearing Species and Dust Polarization Revealing Shocked-regions in the Protostars in the Perseus Molecular Cloud,’ (submitted)
- [15] Lam, Ka Ho, Chen, Che-Yu, Li, Zhi-Yun, Yang, Haifeng, **Cox, Erin G.**, Looney, Leslie W., Stephens, Ian ‘The Transition of Polarized Dust Thermal Emission from Protostellar Envelope to Disk Scale,’ *MNRAS*, 2021 vol. 507, no. 1, pp. 608
- [14] Lee, Dennis, Berthoud, Marc, Chen, Che-Yu, **Cox, Erin G.**, Davidson, Jacqueline A., Encalada, Frankie J., Fissel, Laura M., et al., ‘HAWC+/SOFIA Polarimetry in L1688: Relative Orientation of Magnetic Field and Elongated Cloud Structure,’ *ApJ*, 2021 vol. 918, no. 1, pp. 39
- [13] Encalada, Frankie J., Looney, Leslie W., Tobin, John J., Sadavoy, Sarah I., Segura-Cox, Dominique, **Cox, Erin**, Li, Zhi-Yun, Novak, Giles, ‘870 μ m Dust Continuum of the Youngest Protostars in Ophiuchus,’ *ApJ*, 2021 vol. 913, no. 2, pp. 149
- [12] Harrison, Rachel E., Looney, Leslie W., Stephens, Ian W., Li, Zhi-Yun, Teague, Richard, Crutcher, Richard M., Yang, Haifeng, **Cox, Erin G.**, Fernández-López, Manuel, Shinnaga, Hiroko, ‘ALMA CN Zeeman Observations of AS 209: Limits on Magnetic Field Strength and Magnetically Driven Accretion Rate,’ *ApJ*, 2020 vol. 908, no. 2, pp. 130
- [11] Tobin, John J., et al., incl. **Cox, Erin G.**, ‘The VLA/ALMA Nascent Disk and Multiplicity (VANDAM) Survey of Orion Protostars. II. A Statistical Characterization of Class 0 and Class I Protostellar Disks,’ *ApJ*, 2021 vol. 908, no. 2, pp. 141
- [10] Karnath, N., et al., incl. **Cox, Erin G.**, ‘Detection of Irregular, Submillimeter Opaque Structures in the Orion Molecular Clouds: Protostars within 10,000 yr of Formation?,’ *ApJ*, 2020 vol. 890, no. 2, pp. 129

- [9] Tobin, John J., et al., incl. **Cox, Erin G.**, “The VLA/ALMA Nascent Disk and Multiplicity (VANDAM) Survey of Orion Protostars. I. Identifying and Characterizing the Protostellar Content of the OMC-2 FIR4 and OMC-2 FIR3 Regions,” *ApJ*, 2019 vol. 886, no. 1, pp. 6
- [8] Chuss, David T, et al., incl. **Cox, Erin G.**, “HAWC+/SOFIA Multiwavelength Polarimetric Observations of OMC-1,” *ApJ*, 2019 vol. 872, no. 2, pp. 187
- [7] Harris, Robert J., **Cox, Erin G.**, et al., “ALMA Observations of Polarized 872 μm Dust Emission from the Protostellar Systems VLA 1623 and L1527,” *ApJ*, 2018 vol. 861, no. 2, pp. 91
- [6] Pinilla, P., et al., incl. **Cox, Erin G.**, “Homogeneous Analysis of the Dust Morphology of Transition Disks Observed with ALMA: Investigating Dust Trapping and the Origin of the Cavities,” *ApJ*, 2018 vol. 859, no. 1, pp. 32
- [5] Yang, Haifeng, Li, Zhi-Yun, Looney, Leslie W., **Cox, Erin G.**, Tobin, John, Stephens, Ian W., Segura-Cox, Dominique M., Harris, Robert J., “Disc polarization from both emission and scattering of magnetically aligned grains: the case of NGC 1333 IRAS 4A1,” *MNRAS*, 2016 vol. 460, no. 4, pp. 4109-4121
- [4] Eisner, J. A., et al., incl. **Cox, Erin G.**, “Time-monitoring observations of Br γ emission from young stars,” *MNRAS*, 2015 vol. 447, no. 1, pp. 202-217
- [3] Edwards, J. L., **Cox, E. G.**, Ziurys, L. M., “Millimeter Observations of CS, HCO⁺, and CO toward Five Planetary Nebulae: Following Molecular Abundances with Nebular Age,” *ApJ*, 2014 vol. 791, no. 2, pp. 79
- [2] Eisner, J. A., et al., incl. **Cox, Erin G.**, “Time-monitoring observations of the ro-vibrational overtone CO bands in young star,” *MNRAS*, 2013 vol. 434, no. 1, pp. 407-414
- [1] Penn, M. J., Schad, T., **Cox, E.**, “Probing the Solar Atmosphere Using Oscillations of Infrared CO Spectral Lines,” *ApJ*, 2011 vol. 734, no. 1, pp. 47

OBSERVING EXPERIENCE

East Asian Observatory (JCMT), 2017: Completed 5 nights observations on various sources, including deciding which projects to observe (queued scheduling), assessing weather quality, and reducing data on-the-fly for quality control.

SOFIA, 2016: Flew two nights on the airborne observatory to take thesis data

CARMA Summer School, 2014: Received training in radio interferometry data reduction, analysis techniques, and how to operate the CARMA telescope array. Designed and observed first interferometric project.

Arizona Radio Observatory, 2011–2012: Carried out multiple (20+ days) of observing HCO⁺ in the Dumbbell Nebula. Assessed weather conditions, and data quality remotely.

Bok Telescope, 2010: Conducted 3 nights of spectral observations on variable stars.

Steward Observatory 61-inch Kuiper Telescope, 2009-2010: Trained to operate telescope to run observations for various PIs. Conducted multiple nights of photometric observations of variable stars.

AFFILIATIONS & MEMBERSHIPS

<i>Associate Scientist</i> , TolTEC collaboration	2022
<i>Member</i> , BLAST collaboration	2018 – Present
League of Underrepresented Minoritized Astronomers (LUMA)	2017 – Present
American Astronomical Society	2015 – Present