Elizabeth J. McGrath

Curriculum Vitæ

Contact Information

Colby College
5861 Mayflower Hill Dr.
Waterville, ME 04901

Phone/ Fax: 207-859-5861/ 207-859-5868
Email: emcgrath@colby.edu
Web: http://www.colby.edu/physics/faculty/mcgrath/

Education

University of Hawaii, Honolulu, HI 96822
Ph.D., Astronomy, 2007
M.S., Astronomy, 2004

Vassar College, Poughkeepsie, NY 12604
B.A., Physics and Astronomy, 2001
Departmental honors in Physics and Astronomy and General Honors

Research Interests

Galaxy formation and evolution, AGN, observational cosmology

Employment History

Associate Professor 2019 – present
Colby College, Department of Physics and Astronomy

Clare Boothe Luce Assistant Professor 2012 – 2018
Colby College, Department of Physics and Astronomy

Postdoctoral Researcher: CANDELS Collaboration 2010 – 2012
UC Santa Cruz, supervisors: Sandra Faber & David Koo

Postdoctoral Researcher: Next Generation Adaptive Optics 2007 – 2011
Center for Adaptive Optics, UC Santa Cruz, supervisor: Claire Max

Ph.D. Dissertation: "Formation and Evolution of Massive Galaxies and AGN in the Early Universe" 2004 – 2007
Institute for Astronomy, University of Hawaii, advisor: Alan Stockton

Graduate Research Assistant 2001 – 2004
IfA, UH, advisors: Ken Chambers, Alan Stockton, and Ann Boesgaard

Courses Taught (Enrollments in Parentheses)

AS231: Introduction to Astrophysics (with Lab)
Fall 2012 *(8)*, Fall 2013 *(9)*, Fall 2014 *(10)*, Spring 2017 *(17)*, Fall 2017 *(12)*

AS151: Stars, Stellar Systems, and Cosmology
Spring 2013 *(39+37)*, Fall 2013 *(42)*, Spring 2015 *(37)*, Fall 2016 *(40)*, Spring 2018 *(35)*

AS151L: Stars, Stellar Systems, and Cosmology Lab
Spring 2015 *(15)*, Fall 2016 *(9+14)*, Spring 2018 *(16)*

PH332: Thermodynamics and Statistical Mechanics
Spring 2014 *(14)*, Spring 2015 *(9)*, Fall 2017 *(10)*

PH145L: Foundations of Electromagnetism and Optics Lab
Spring 2014 *(17+14)*

PH141L: Foundations of Mechanics Lab
Fall 2014 *(17)*

Research Students Supervised

AY 2017 – 2018: **Chloe Boehm** ('18), "Analyzing Model Predictions for Climate Change"

Andrew Egger ('18) and **Ben Swift** ('18), "Observing Transiting Extrasolar Planets using the Collins Observatory"

Jon Olsen ('21, CARA Scholar) and **Jianing Yang** ('18), "Automating

	Structural Analyses of Simulated Galaxies"
Summer 2017:	**Merve Kahraman** ('19), "The Effects of Environment on Galaxy Evolution"
AY 2016 – 2017:	**Lukas Yasuda** ('17), "The Effect of Environment on Massive Quiescent Galaxies"
Summer 2016:	**Jianing Yang** ('18), "Using High-Resolution Simulations to Learn about Galaxy Formation and Evolution"
Summer 2015:	**Riley Meidell** ('18), **Joshua Young** ('18), "Quiescent Disks at z~1.5 in CANDELS"
AY 2014 – 2015:	**Ariunjargal Bat-Erdene** ('15), "Testing Predictions from Hydrodynamic Galaxy Formation Simulations"
	Zach Eslami ('15), "The Evolution of Massive Quiescent Disks"
	Ian Tibbetts ('15), "Automating the Morphological Analysis of Simulated Galaxies"
	Jianing Yang ('18, CARA Scholar), "Demonstration of Adaptive Optics in a Laboratory Setting"
Summer 2014:	**Ariunjargal Bat-Erdene** ('15) and **Ian Tibbetts** ('15), "Automating the Analysis of Simulated Galaxies"
	Gagandeep Anand (Vassar College '15), "Quiescent Disks at z~1.5 in CANDELS"
	Jill Twist (Messalonskee HS '15), "Visual Classification of Galaxy Morphology in CANDELS"
AY 2013 – 2014:	**Jonathan Brink-Roby** ('14), "The Environments of Massive Quiescent Disks in the Early Universe"
	Ryan Cole ('15), "Parametric Analysis of Galaxy Morphology from Simulated Galaxy Mergers"
	Will Randall ('14), "The Nature of Massive Quiescent Disks in the Early Universe"
AY 2012 – 2013:	**Aurora Kesseli** ('13, *Honors Thesis*), "Massive Quiescent Disk Galaxies in the CANDELS Survey"
	Will Norton ('13), "Morphologies of Simulated Merger Remnants"
	Philip Prosapio ('13), "Automating Morphological Analyses of Galaxy Merger Simulations"
	Trevor Sherburne ('13), "Measuring the Flux of Transiting Exoplanets"
AY 2009 – 2011:	**Matt Coleman** (UC Santa Cruz '11), "Morphologies of Simulated Galaxy Merger Remnants"

Academic and Professional Service

National Optical Astronomy Observatory, Telescope Time Allocation Committee (2014 – 2017)

Faculty Steering Committee, Colby College (2016 – 2018)

Search Committees: Physics and Astronomy, Colby College (Summer 2018, Lab Instructor)

Geology Department, Colby College (2016 – 2017, Lab Instructor)

Physics and Astronomy, Colby College (2015 – 2016, Faculty Fellow)

Economics Department, Colby College (2014 – 2015, Faculty Fellow)

Physics and Astronomy, Colby College (2014 – 2015, Faculty Fellow)

Mathematics Department, Colby College (2012 – 2013, Faculty Fellow)

Nominating Committee, Colby College (2013 – 2015)

Library Liaison, Astronomy, Colby College (2012 – 2015)

Faculty Advisor, Space Club, Colby College (2013 – present)

Faculty Advisor, Women in Physics, Colby College (2015 – present)

Referee for *The Astrophysical Journal* and *Monthly Notices of the Royal Astronomical Society*

Research Grants and Awards

Science Collaborator, Cosmic Evolution Early Release Science (CEERS), *JWST*	TBD	2018
Co-I, "Elongated Galaxies and the Emergence of Disks", *HST AR 14578*		2016
PI, "Using High-Resolution Simulations to Inform Observations of Galaxy Structure in the Early Universe", *NASA* EPSCoR RID (MSGC) *EP-14-09*	**($50 k)**	2014
Co-I, "The Progenitors of Quiescent Galaxies at z~2: Precision Ages and Star-Formation Histories from WFC3/IR Spectroscopy", *HST GO 13420*		2013
Co-I (Colby **PI**), CANDELS Multi-Cycle Treasury Program, *HST 12060.98*	(**$28.5k**/7 M)	2013
Co-I, "Exploring the Early Universe at Home and in the Classroom", *NASA* E/PO	**($50 k)**	2012
Contributor, NSF ATI Grant, Near-IR Tip-Tilt Sensor for Laser Guide Star Adaptive Optics	($1.7 M)	2010
PI, "Constraining Galaxy Formation with Passive Populations", *Spitzer 50287*	**($42 k)**	2008
Co-I, "SEDs of Galaxies with Old Stellar Populations at 2.8<z<3.6", *Spitzer 50032*	($65 k)	2008
PI, Graduate Student Organization Research Grant, Univ. of Hawaii	**($1.5 k)**	2006
Co-I, "SEDs of Galaxies with Old Stellar Populations at z~2.5", *Spitzer 30240*	($93 k)	2006
Co-I, "Galaxies with Old Stellar Populations at z~3.8", *Spitzer 20466*	($63 k)	2005
Helen Jones Farrar ARCS Scholar, Univ. of Hawaii	**($5 k)**	2005

Research Collaborations

Cosmic Evolution Early Release Science with JWST (CEERS)	2017 – present
Cosmic Assembly Near-Infrared Deep Extragalactic Legacy Survey (CANDELS)	2011 – present

Professional Organizations

American Astronomical Society, full member	2012 – present
International Astronomical Union	2015 – present
American Physical Society	2016 – present
Phi Beta Kappa	2001 – present
Sigma Xi	2001 – present

Invited Conference Talks

IGM @50, Abazzia di Spineto, Italy	June 2015
The Formation and Evolution of Exponential Disks in Galaxies, Flagstaff, AZ	Oct 2014

Contributed Conference Talks

Birth, Life, and Fate of Massive Galaxies and their Central Beating Heart, Favignana Island, Italy	Sep 2018
Galaxy Formation Workshop, Santa Cruz, CA	Aug 2017
Mapping the Pathways of Galaxy Transformation Across Time and Space, Catalina Island, CA	Aug 2016
Galaxy Formation Workshop, Santa Cruz, CA	Aug 2014
Multiwavelength Surveys: Galaxy Formation and Evolution from the Early Universe to Today, Dubrovnik, Croatia	May 2014
The Mystery of Ellipticals, European Week of Astronomy and Space Science (EWASS), Turku, Finland	Jul 2013
Star Formation Through Cosmic Time, Sesto, Italy	Jan 2013

Invited Colloquia

Saint Paul's School Astronomy Lecture	Apr 2018
Rochester Institute of Technology Physics and Astronomy Colloquium	Jan 2018
UMass Amherst Astronomy Colloquium	Apr 2017
Williams College Clare Boothe Luce Seminar	Apr 2017
University of South Carolina Astrophysics Seminar	Jan 2017
University of Maine Physics and Astronomy Colloquium	Oct 2016
Boston University Astronomy Colloquium	Sep 2015
Bates College Physics and Astronomy Colloquium	Oct 2014
Bowdoin College Physics and Astronomy Colloquium	Nov 2013
University of Kentucky Physics and Astronomy Colloquium	Aug 2013
Ohio University Physics and Astronomy Colloquium	Jan 2013
University of Kentucky Astronomy Seminar	May 2012
High Point University Astronomy Lecture	Jan 2012
Academia Sinica Institute of Astronomy and Astrophysics Colloquium, Taiwan	Mar 2010
National Radio Astronomy Observatory Colloquium, Socorro, NM	Mar 2009
UC Davis Cosmology Seminar	Jan 2008

Public Outreach

Star Parties / Open Houses at the Collins Observatory (2012 – present, 2 to 3 events per year)

Public lecture at the Astronomical Society of Northern New England (June 2018)

Appearance on "NOVA: Black Hole Apocalypse" (PBS, airdate: Jan. 10, 2018)

Appearance on "MPBN: Maine Calling" (NPR affiliate, airdate: July 11, 2016)

Appearance on "WMPG: Radio Astronomy" (WMPG radio, airdate: Aug. 12, 2016)

Public lecture at Emera Astronomy Center, Orono, Maine (September 2016)

Public lecture at Maine Masonic College, Orono, Maine (April 2016)

Public lecture at The Old Professor's Bookshop, Belfast, Maine (September 2015)