

EMMET GOLDEN-MARX

Boston University Department of Astronomy
725 Commonwealth Avenue Rm. 605A
Boston, MA 02215

emmetgm@bu.edu

EDUCATION

Boston University , Boston, MA	
<i>Ph.D.</i> , Astronomy	2016 - 2020 (expected)
<i>M.A.</i> , Astronomy	2013 - 2015
Brown University , Providence, RI	
<i>Sc.B.</i> , Physics w/Honors	2009 - 2013
Magna Cum Laude, Phi Beta Kappa	

RESEARCH EXPERIENCE

Graduate Research Assistant	2014 – Present
<i>Boston University; Prof. Elizabeth Blanton</i>	
High-redshift galaxy clusters	
Graduate Research Assistant	2018 – Present
<i>Boston University; Prof. Paul Withers</i>	
Analysis of the Martian ionosphere	
Research Experience for Undergraduates	06/2012 – 08/2012
<i>Center for Astrophysics Harvard & Smithsonian; Dr. Matt Ashby</i>	
Star formation in galaxies in the local universe	
Differential Equations Textbook Editor and Modifier	10/2011 – 05/2012
<i>Brown University; Prof. Vladimir Dobrushkin</i>	
Undergraduate Research Assistant	05/2011 – 05/2012
<i>Brown University; Prof. Ian Dell’Antonio</i>	
Progenitors of fossil group galaxies	
Undergraduate Research Assistant	06/2010 – 08/2010
<i>Skidmore College; Prof. Mary Crone-Odekon</i>	
Galaxies in the MKW11 region	

RESEARCH INTERESTS

I study high-redshift galaxy clusters. I’ve specifically led the optical and combined optical-infrared analysis of the COBRA survey, a survey of high-redshift clusters hosting bent, double-lobed radio sources. I’m interested in understanding the populations of red sequence galaxies in high-redshift clusters. I’m also exploring the location of bent radio sources in the clusters to see if the offset of the radio source from the cluster center can be tied to cluster morphology.

ALLOCATED OBSERVATIONS

Chandra X-ray Observatory Joint Proposal w/ HST 2019, 100 ksec
Chandra, 2 orbits HST, CO-I
“A $z = 1.8$ Cluster in the Clusters Occupied by Bent Radio AGN (COBRA) Survey”
Lowell Observatory 2/2015, 4/2015, 10/2015, 3/2016, 12/2016, 2/2017, 4/2017, 12/2017, 2/2018, 4/2018, 2/2019, 3/2019. 35.5 nights, CO-I
4.3 m Discovery Channel Telescope, optical imaging with the LMI, “Probing Clusters of Galaxies Early in the Universe Using Multi-Wavelength Observations”
XMM-Newton X-ray Observatory 2017, 62 ksec, CO-I
Cyle 17, “High-Redshift COBRA Clusters of Galaxies”
Chandra X-ray Observatory 2015, 52 ksec, CO-I
Cycle 17, “Bending of WAT Radio Lobes in Abell 623 Through ICM Sloshing”

OBSERVING EXPERIENCE

As a part of my optical observing experience, I planned the observations, took the observations either in person or remotely, and reduced all of the data.

4.3 m Discovery Channel Telescope at Lowell Observatory
30 nights taking observations from 2013 - 2019

TEACHING EXPERIENCE

I served as a teaching fellow for five semesters in four different 100-level Astronomy courses at Boston University. In each class, I have led lab activities and/or discussion sections focused on enhancing students’ understand of the course material. I have also been responsible for creating grading rubrics, grading, leading night observing, holding office hours, and leading review sessions.

AS100: Cosmic Controversies	Spring 2018
<i>Boston University; Head Teaching Fellow/Discussion Instructor</i>	
AS102: The Astronomical Universe	Spring 2017
<i>Boston University; Teaching Fellow/Laboratory Instructor</i>	
AS105: Alien Worlds	Fall 2014
<i>Boston University; Teaching Fellow/Discussion Instructor</i>	
AS101: The Solar System	Spring 2014
<i>Boston University; Teaching Fellow/Laboratory Instructor</i>	
AS101: The Solar System	Fall 2013
<i>Boston University; Teaching Fellow/Laboratory Instructor</i>	
Tutor for Alegebra 2, Pre-Calculus, & High School Physics	2012 - 2013

AWARDS

Outstanding Teaching Fellow in the Department of Astronomy Spring 2018

<i>Boston University Graduate School of Arts & Sciences</i>	
Research Experience for Undergraduates	Summer 2012
<i>Center for Astrophysics Harvard & Smithsonian</i>	
NASA Rhode Island Space Grant	Summer 2011
Undergraduate Teaching and Research Award	Summer 2011
<i>Brown University</i>	

SEMINAR & CONFERENCE PRESENTATIONS

I have given 20 seminars and group meeting presentations at institutions including MIT, the Center for Astrophysics | Harvard & Smithsonian, and Brown University. I have also given 6 oral presentations and 6 poster presentations at conferences.

Boston University	2015 - present
<i>Nine Student Seminar Series Presentations</i>	
Tracing Cosmic Evolution with Galaxy Clusters 2019	7/2019
<i>Sexten Center for Astrophysics; Sexten, Italy</i>	
<i>Poster - "Bent Lobes & Red Sequences: The Study of High-z Galaxy Clusters in the Clusters Occupied by Bent Radio AGN (COBRA) Survey "</i>	
Brandeis University	3/2019
<i>Dark Universe Seminar</i>	
<i>"Bent Lobes & Red Sequences: The Study of High-z Galaxy Clusters in the Clusters Occupied by Bent Radio AGN (COBRA) Survey"</i>	
Center for Astrophysics Harvard & Smithsonian	2/2019
<i>Galaxies & Cosmology Seminar</i>	
<i>"Bent Lobes & Red Sequences: The Study of High-z Galaxy Clusters in the Clusters Occupied by Bent Radio AGN (COBRA) Survey"</i>	
American Astronomical Society (AAS) Meeting 233	1/2019
<i>Seattle, WA</i>	
<i>Dissertation Talk - "The High-z Clusters Occupied by Bent Radio AGN (COBRA) Survey"</i>	
Tufts University	11/2018
<i>Astronomy Lunch Seminar</i>	
<i>"Seeing Red: The Search for High-z Galaxy Clusters in the Clusters Occupied by Bent Radio AGN (COBRA) Survey"</i>	
University of Massachusetts at Amherst	11/2018
<i>Clusters Group Meeting Talk</i>	
<i>"Seeing Red: The Search for High-z Galaxy Clusters in the Clusters Occupied by Bent Radio AGN (COBRA) Survey"</i>	
Massachusetts Institute of Technology	10/2018
<i>Astrophysics Brown Bag Lunch Series</i>	
<i>"Seeing Red: The Search for High-z Galaxy Clusters in the Clusters Occupied by Bent Radio AGN (COBRA) Survey"</i>	
Brown University	10/2018
<i>Astrophysics Seminar Series</i>	

“Seeing Red: The Search for High- z Galaxy Clusters in the Clusters Occupied by Bent Radio AGN (COBRA) Survey”
Center for Astrophysics | Harvard & Smithsonian 10/2018
 Galaxy Clusters Group Meeting Presentation
“Seeing Red: The Search for High- z Galaxy Clusters in the Clusters Occupied by Bent Radio AGN (COBRA) Survey”
University of Michigan 7/2018
 Galaxy Group Seminar
“Seeing Red: The Spatial Position of Cluster Galaxies in the High- z COBRA Survey”
New England Regional Quasar & AGN Meeting (NERQUAM) 2018 5/2018
 Yale University
 Contributed Talk - *“The Spatial Position of AGN in the High-Redshift Clusters Occupied by Bent Radio AGN (COBRA) Survey”*
Early Stages of Cluster Formation 2017 Conference 7/2017
 Garching, Germany
 Contributed Talk - *“The High- z Clusters Occupied by Bent Radio AGN (COBRA) Survey”*
University of Michigan 6/2017
 Galaxy Group Seminar
“The High-Redshift Clusters Occupied by Bent Radio AGN (COBRA) Survey”
NERQUAM 2017 5/2017
 Boston University
 Contributed Talk - *“The High-Redshift Clusters Occupied by Bent Radio AGN (COBRA) Survey”*
Boston Universities Cluster Hangout (BUnCH) 4/2017
 Group Presentation
“The Clusters Occupied by Bent Radio AGN (COBRA) Survey”
Chandra Science of the Next Decade Conference 8/2016
 Harvard University, Cambridge, MA
 Poster - *“Multi-wavelength Follow-up of the High- z COBRA Galaxy Cluster Survey”*
Great Lakes Cosmology & Galaxies 2016 6/2016
 McMaster University, Hamilton, Ontario, Canada
 Contributed Talk - *“The High-Redshift COBRA Galaxy Cluster Survey”*
NERQUAM 2016 6/2016
 Brandeis University
 Contributed Talk - *“The High-Redshift COBRA Galaxy Cluster Survey”*
NERQUAM 2015 5/2015
 Dartmouth College
 Poster - *“Tracing the Connection Between Bent, Double-Lobed Radio Sources and Galaxy Clusters: Optical Follow-Up for the High-Redshift COBRA Survey”*
AAS 225 1/2015
 Seattle, WA
 Poster - *“Optical Follow-up Observations for the High- z COBRA (Clusters Occupied by Bent Radio AGN) Survey”*
AAS 221 1/2013

Long Beach, CA

Poster - "New Star Formation Rate Estimates for the Star Formation Reference Survey using Herschel/PACS and SPIRE"

NASA Rhode Island Space Grant Symposium 2012

5/2012

University of Rhode Island

Poster - "Searching for the Progenitors of Fossil Groups"

OUTREACH

Astronomy on Tap 10/2019

Casa Verde, Jamaica Plain, MA

Presenter - "Long, long ago in a galaxy [cluster] far, far away ..."

BU Astronomy Department

2015 - Present

Weekly public open night observing volunteer

BU Graduate Women in Science and Engineering

8/2019

Graduate Student open night observing volunteer

BU Undergraduate Astronomy Society

4/2019

Presenter on early universe galaxy clusters at end of semester science event

"Early Universe Galaxy Clusters"

Night Observing for Elementary School Students 10/2018, 10/2017, 12/2015

Mr. Canning's Lower Elementary class, Kingsley School, Boston, MA

Presenter for Elementary School Students

10/2018, 10/2017, 10/2015

Mr. Canning's Lower Elementary class, Kingsley School, Boston, MA

BU Center for Space Physics

6/2018

Space science for kids spectroscopy demo volunteer

BU Astronomy Department

6/2018

Observatory tour and presentation for spring veritas charter school 7th Graders

BU Hillel

11/2017

Havdallah Under the Stars night observing

Sargent Choice Test Kitchen

10/2016, 3/2016, 11/2014

Presentation on observational astronomy and galaxy evolution for undergraduate and graduate Nutrition Students

BU Art of Astrophysics

2/2016

Volunteer and art contributor

Science by the Pint

1/2016

Burren, Cambridge, MA

Volunteer scientist leading discussions of exoplanets, stars, and galaxies

BU Metropolitan Honors Society

12/2015

Open night observing volunteer

Center for Astrophysics | Harvard & Smithsonian

7/2015

Panelist for REU students on graduate school applications

Lifestyle by Design

12/2014

Presenter on galaxy cluster research for local television

Night Observing for Boston Elementary School Class

6/2014

DEPARTMENT & UNIVERSITY SERVICE

BU College of Arts & Sciences New Teaching Fellow Orientation Panelist	8/2018
Astro PH Journal Club Organizer	Summer 2018
Astronomy Dept. Graduate Program Review Committee	2017-2018
Astronomy Dept. Grad Student Visitation Weekend Coordinator	2015-2018
Astronomy Dept. Grad Student Run Teaching Fellow Orientation Leader	2017,2014
Astronomy Dept. Graduate Student Representative	2016-2017

COMPUTER SKILLS

Programming Languages

IDL

Python

Astronomical Software

SAO Image DS9

IRAF

Source Extractor

EzGal SED Modeling Software

PROFESSIONAL MEMBERSHIPS

Phi Beta Kappa	2013 - Present
Sigma Xi	2013 - Present
AAS: Junior Member	2012 - Present

REFEREED PUBLICATIONS

1. **Golden-Marx, E.**, Blanton, E.L., Paterno-Mahler, R., Brodwin, M., Ashby, M.L.N., Lemaux, B.C., Lubin, L.M., Gal, R.R., & Tomczak, A.R., ApJ (in press), "The High-Redshift Clusters Occupied by Bent Radio AGN (COBRA) Survey: Follow-Up Optical Imaging," arXiv e-prints, arXiv:1910.11884
2. Paterno-Mahler, R., Blanton, E.L., Brodwin, M., Ashby, M.L.N., **Golden-Marx, E.**, Decker, B., Wing, J.D., & Anand, G., 2017, ApJ, 844, 78, "The High-z Clusters Occupied by Bent Radio AGN (COBRA) Survey"

NON-REFEREED PUBLICATIONS

1. Blanton, E.L., Paterno-Mahler, R., Wing, J.D., Ashby, M.L.N., **Golden-Marx, E.**, Brodwin, M., Douglass, E.M., Randall, S., & Clarke, T.E., 2015, IAU Symposium, 313, 315 "Extragalactic jets as probes of distant clusters of galaxies and the clusters occupied by bent radio AGN (COBRA) survey"

PAPERS IN PREPARATION

1. **Golden-Marx, E.**, Blanton, E.L., Paterno-Mahler, R., Brodwin, M., Ashby,

M.L.N., (expected submission 12/2019), “The High-Redshift Clusters Occupied by Bent Radio AGN (COBRA) Survey: Cross-Correlating Bent Radio Sources with Cluster Populations”

REFERENCES

Professor Elizabeth Blanton

Associate Professor
Boston University Department of Astronomy
725 Commonwealth Avenue, Boston, MA 02215
(617) 353-2633
eblanton@bu.edu

Professor Mark Brodwin

Associate Professor
University of Missouri-Kansas City Department of Physics & Astronomy
5110 Rockhill Road, Kansas City, MO 64110
(816) 235-2508
brodwinm@umkc.edu

Professor Tereasa Brainerd

Associate Professor
Boston University Department of Astronomy
725 Commonwealth Avenue, Boston, MA 02215
(617) 353-6646
brainerd@bu.edu