

Courtney B. Watson

Graduate Student · Astrophysics

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Education

2019-now	Graduate Studies , Astrophysics PhD in progress	Boston University
May 2022	Master of Arts , Astrophysics	Boston University
2018-2019	Graduate Studies , Astrophysics Yale Post-Baccalaureate Research Education Program (PREP)	Yale University
May 2018	Bachelor of Science , Physics Minor in Astrophysics Undergraduate Thesis: “Identifying Galaxy Mergers in High Redshift Clusters Using the Hubble Space Telescope” Advisor: Prof. Kim-Vy Tran	Texas A&M University

Experience

Research

2020-now	Graduate Researcher Advisor: Dr. Elizabeth Blanton Continuation of project started at CfA: Using X-ray observations of the ICM of radio source host clusters to map its thermodynamic properties and morphology	Boston University
Sum. 2020	Smithsonian Fellow Advisor: Dr. Scott Randall Using X-ray observations of the ICM of radio source host clusters to map its thermodynamic properties and morphology	Harvard-Smithsonian CfA, Chandra X-ray Center, HEA Division
2019-2020	Research Assistant Advisor: Prof. Sarbani Basu Asteroseismic analysis of solar-cycle related changes in the sun	Yale University, Department of Astronomy
2018-2019	Post-Baccalaureate Researcher Advisors: Prof. Pieter van Dokkum and Prof. Sarbani Basu Near-infrared spectroscopy of high redshift galaxy-galaxy mergers; Asteroseismic analysis of solar-cycle related changes in the sun	Yale University, Department of Astronomy
2015-2018	Research Assistant Advisor: Prof. Kim-Vy Tran Identification of galaxy-galaxy mergers in high redshift galaxy clusters.	Texas A&M University, Department of Physics and Astronomy
2016-2017	Undergraduate Researcher <i>Undergraduate Research Scholars</i> Combined Hubble Space Telescope photometry with 3D-HST observations to present a complete survey of potentially merging objects in two high redshift clusters.	Texas A&M University, Department of Physics and Astronomy

Teaching

Spring 2021	Teaching Fellow Instructor: Prof. Elizabeth Blanton TF for undergraduate course AS 203 Principles of Astronomy II	Boston University, Department of Astronomy
Fall 2020	Teaching Fellow Instructor: Prof. Thomas Bania TF for the undergraduate course AS 107 Life Beyond Earth	Boston University, Department of Astronomy
Spring 2020	Teaching Fellow Instructor: Prof. Elizabeth Blanton TF for the undergraduate course AS 109 Cosmology	Boston University, Department of Astronomy
Spring 2017	Undergraduate Teaching Assistant Instructor: Prof. Kim-Vy Tran Undergraduate TA for the undergraduate course AS 101 Basic Astronomy	Texas A&M University, Department of Physics and Astronomy

Research Interests

Galaxy formation & evolution; Galaxy mergers and interactions; Clusters of galaxies and their environments

Skills

</> Python, IRAF, Anaconda, EAZY, FAST, SExtractor, Drizzlepac, CIAO, \LaTeX

Awards and Honors

Sum. 2021-now	Massachusetts Space Grant Consortium Graduate Fellowship	NASA
Fall 2019	Dean's Fellowship Graduate Fellowship	Boston University
2017	Undergraduate Research Scholar Honors distinction awarded after the completion of my undergraduate thesis: "Identifying Galaxy Mergers in High Redshift Clusters Using the Hubble Space Telescope"	Texas A&M University
2016-2017	Louis Stokes Alliance for Minority Participation Scholarship Undergraduate research scholarship	Texas A&M University

Communication Skills

2019	Yale Post-Baccalaureate Research Education Program Symposium, Yale University Presented the results of the focus of my research during the Yale PREP program.	Oral Presentation
2017	Student Research Week, Texas A&M University Presented the preliminary analysis from my Undergraduate Research Scholars Thesis.	Poster
2016	Astrosymposium, Texas A&M University Presented the findings of my first year of research conducted under the supervision of Prof. Kim-Vy Tran.	Oral Presentation

Professional Associations

- 2020-now **American Astronomical Society**
- 2020-now **High Energy Astrophysics Division, AAS**
- 2012–now **American Indian Science and Engineering Society**

Publications

3. [“Solar-cycle-related Changes in the Helium Ionization Zones of the Sun”](#), **Watson, Courtney**, Basu, Sarbani, 2020, *ApJL*, 903, L29
2. [“Galaxy Merger Fractions in Two Clusters at \$z \sim 2\$ Using the Hubble Space Telescope”](#), **Watson, C**, Tran, K.V., Tomczak, A., Alcorn, L., Salazar, I.V., Gupta, A., Momcheva, I., Papovich, C., van Dokkum, P., Brammer, G., Lotz, J., & Willmer, C.N.A., 2019, *ApJ*, 874, 63
1. [“Identifying Galaxy Mergers in High Redshift Clusters Using the Hubble Space Telescope”](#), **Watson, Courtney** and Tran, Kim-Vy, 2017, *Texas A&M OAKTrust Repository*

In Progress

-  [“Chandra X-Ray Observations of Abell 119: Shocks and Cold Fronts in an Evolved Off-Axis Merger”](#), **Watson, Courtney**, Blanton, E. L., Randall, S. W., Sarazin, C. L., ZuHone, J. A., & Douglass, E. M.