

Christopher M. Carroll

CONTACT INFORMATION	Department of Physics and Astronomy Washington State University 1245 Webster Hall Pullman, WA 99164	christopher.carroll@wsu.edu https://ccarroll.space +1 (509) 335-1698 orcid.org/0000-0003-3574-2963
RESEARCH INTERESTS	Active galactic nuclei, supermassive black hole growth, large-scale structure, survey design, science education	
PROFESSIONAL APPOINTMENTS	Department of Physics and Astronomy, Washington State University LSSTC Postdoctoral Fellow Postdoctoral Research Associate Supervisor: Vivienne Baldassare Supervisor: Vivienne Baldassare	2022–present 2021–22
EDUCATION	PhD in Physics and Astronomy Department of Physics and Astronomy, Dartmouth College Thesis: “Uncovering Hidden Monsters: Revealing the Full Population of Luminous Obscured Supermassive Black Holes” Advisor: Ryan Hickox	Sep 2021
	BS in Astrophysics Department of Physics and Astronomy, Rutgers University	May 2013
	AS in Physics Department of Physics, Camden County College	May 2011
AWARDS	Fellowships LSSTC Catalyst Fellowship Host Institution: Washington State University Dartmouth Fellowship National Science Foundation GK-12 Fellowship Frances C. Richmond Middle School, NH Partner Teacher: Greg Stott Department of Education GAANN Fellowship	2022–26 2015–18 2014–15 2013–14
	Grants AAS International Travel Grant 2019-1 AAS International Travel Grant 2018-2 AAS International Travel Grant 2018-1 Neukom Travel Grant \$1000, Dartmouth College GSC Conference Travel Grant \$250, Dartmouth College	Jun 2019 Dec 2018 Jul 2018 Jul 2016 Apr 2014
	Awards Guarini School of Graduate and Advanced Studies Teaching Award Dartmouth College Department of Physics and Astronomy Graduate Teaching Award Dartmouth College Graduate Studies Travel Award, Dartmouth College Excellence in Physics, Camden County College	Jun 2018 Jun 2018 Jun 2014 May 2011

FIRST-AUTHOR
PUBLICATIONS

Carroll, C. M., Hickox, R. C., Ananna, T. T., Masini, A., Assef, R. J., Stern, D., Chen, C.-T., J., Lanz, L. 2022, ApJ, submitted. “A High Fraction of Heavily X-ray Obscured Active Galactic Nuclei”

Carroll, C. M., Hickox, R. C., Masini, A., Lanz, L., Assef, R. J., Stern, D., Chen, C.-T., J., Ananna, T. T. 2021, ApJ, 908, 185. “A Large Population of Luminous Active Galactic Nuclei Lacking X-ray Detections: Evidence for Heavy Obscuration?”

Carroll, C.M., Gawiser, E., Kurczynski, P.L., Bailey, R.A., Biswas, R., Cinabro, D., Jha, S.W., Jones, R.L., Krughoff, K.S., Sonawalla, A., Wood-Vasey, W.M. 2014, SPIE, 91490C. “Improving the LSST Dithering Pattern and Cadence for Dark Energy Studies”

CO-AUTHOR
PUBLICATIONS

Wasleske, E. J., Baldassare, V. F., **Carroll, C. M.** 2022, ApJ, 933, 37. “Variable Active Galactic Nuclei in the Galaxy Evolution Explorer Time Domain Survey”

Hatcher, C., Kirkpatrick, A., Fornasini, F., Civano, F., Lambrides, E., Kocesvski, D., **Carroll, C. M.**, Giavalisco, M., Hickox, R. C., Ji, Z. 2021, AJ, 162, 65. “Where Do Obscured AGN Fit in a Galaxy’s Timeline?”

Jun, H. D., Assef, R. J., **Carroll, C. M.**, Hickox, R. C., Kim, Y., Lee, J., Ricci, C., Stern, D. 2021, ApJ, 906, 21. “The Dust-to-gas Ratio and the Role of Radiation Pressure in Luminous, Obscured Quasars”

Masini, A.; Hickox, R.C.; **Carroll, C. M.**; Aird, J.; Alexander, D. M.; Assef, R. J.; Bower, R.; Brodwin, M.; Brown, M. J. I.; Chatterjee, S.; Chen, C.-T. J.; Dey, A.; DiPompeo, M. A.; Duncan, K. J.; Eisenhardt, P. R. M.; Forman, W. R.; Gonzalez, A. H.; Goulding, A. D.; Hainline, K. N.; Jannuzi, B. T. Jones, C.; Kochanek, C. S.; Kraft, R.; Lee, K.-S.; Miller, E. D.; Mullaney, J.; Myers, A. D.; Ptak, A.; Stanford, A.; Stern, D.; Vikhlinin, A.; Wake, D. A.; Murray, S. S. 2020, ApJs, 251, 2. “The Chandra Deep Wide-field Survey: A New Chandra Legacy Survey in the Boötes Field. I. X-Ray Point Source Catalog, Number Counts, and Multiwavelength Counterparts”

Yan, W., Hickox, R. C., Hainline, K. N., Stern, D., Lansbury, G., Alexander, D. M., Hviding, R. E., Assef, R. J., Ballantyne, D. R., DiPompeo, M. A., Lanz, L., **Carroll, C. M.**, Koss, M., Lamperti, I., Civano, F., Del Moro, A., Gandhi, P., Myers, A. D. 2019, ApJ, 870, 33. “NuSTAR and Keck Observations of Heavily Obscured Quasars Selected by WISE”

Masini, A., Comastri, A., Civano, F., Hickox, R. C., **Carroll, C. M.**, Suh, H., Brandt, W. N., DiPompeo, M. A., Harrison, F. A., Stern, D. 2018, ApJ, 867, 162. “The NuSTAR Extragalactic Surveys: Unveiling Rare, Buried AGNs and Detecting the Contributors to the Peak of the Cosmic X-Ray Background”

DiPompeo, M. A., Hickox, R. C., **Carroll, C. M.**, Runnoe, J. C., Mullaney, J. R., Fischer, T. C. 2018, ApJ, 856, 76. “The [O III] Profiles of Infrared-selected Active Galactic Nuclei: More Powerful Outflows in the Obscured Population”

Hviding, R. E., Hickox, R. C., Hainline, K. N., **Carroll, C. M.**, DiPompeo, M. A., Yan, W. Jones, M. L. 2017, MNRAS, 474, 1955. “Characterizing the WISE-selected heavily obscured quasar population with optical spectroscopy from the Southern African Large Telescope”

Baldassare, V. F., Reines, A. E., Gallo, E., Greene, J. E., Graur, O., Geha, M., Hainline, K. N., **Carroll, C. M.**, Hickox, R. C. 2016, ApJ, 829, 57. “Multi-epoch Spectroscopy of Dwarf Galaxies with AGN Signatures: Identifying Sources with Persistent Broad H-alpha Emission”

Hainline, K. N., Hickox, R. C., Chen, C.-T. J., **Carroll, C. M.**, Jones, M. L., Zervos, A. S., Goulding, A. D. 2016, ApJ, 832, 42. “A Tale of Two Narrow-line Regions: Ionization, Kinematics, and Spectral Energy Distributions for a Local Pair of Merging Obscured Active Galaxies”

Hainline, K.N., Hickox, R.C., **Carroll, C.M.**, Myers, A.D., DiPompeo, M.A., Trouille, L. 2015, SALT Science Conference, 28. “Obscured Quasars: Finding and Understanding the Most Luminous Active Supermassive Black Holes with SALT”

Hainline, K. N., Hickox, R. C., **Carroll, C. M.**, Meyers, A. D., DiPompeo, M. A., Trouille, L. 2014, ApJ, 795, 124. “A Spectroscopic Study of WISE-selected Obscured Quasars with the Southern African Large Telescope”

PROFESSIONAL SERVICE **Peer Reviewer**
MNRAS 2021–present

PRESENTATIONS **Invited Talks**
Physics and Astronomy Colloquium Mar 2022
Washington State University
“Hidden monsters: Uncovering the Full Population of Obscured Supermassive Black Holes”

Contributed Talks
Supermassive Black Holes: Environment and Evolution Jun 2019
Corfu, Greece
“An extreme population of heavily obscured AGN”

NERQUAM 2019 May 2019
Massachusetts Institute of Technology
“An extreme population of heavily buried AGN: Identification and host galaxy characteristics”

TORUS 2018: The many faces of AGN obscuration Dec 2018
Puerto Varas, Chile
“An extreme population of heavily buried AGN: Identification and host galaxy characteristics”

Elusive AGN in the Next Era Jun 2017
George Mason University
“Unveiling the Elusive AGNs in Millions of SDSS and *WISE* Galaxies”

NERQUAM 2015 Jun 2015
Dartmouth College
“Photometric Redshifts and SEDs of *WISE*-selected Obscured Quasars”

SPIE Astronomical Telescopes + Instrumentation 2014 Jun 2014
Montréal, QC, Canada
“Improving the LSST Dithering Pattern and Cadence for Dark Energy Studies”

Posters
Are AGN Special? Environment and Impact of AGN Activity Jul 2018
NERQUAM 2018 May 2018
Hidden Monsters: Obscured AGN in the Era of NuSTAR and WISE Aug 2016
Active Galactic Nuclei: What’s in a Name? Jun 2016
AGN vs. SF 2014 Jul 2014
AAS 223rd Meeting Jan 2014

TEACHING
EXPERIENCE

University

Instructor — Washington State University
Physics 189: Led an eight-week undergraduate research project. Spring 2022

Instructor — Dartmouth College
Astronomy 2: Lecture on galaxy formation and evolution. Fall 2019
Astronomy 3: Three lectures on the Sun and stellar properties. Summer 2018
Astronomy 1: Three lectures on the Moon and exoplanets. Spring 2018
Astronomy 15: Lecture on exoplanets and L^AT_EX workshop. Spring 2014

Teaching Assistant — Dartmouth College 2013–21
Astronomy 1: Exploring the Solar System
Astronomy 2/3: Exploring the Universe
Astronomy 15: Stars and the Milky Way
Astronomy 117: Interstellar Astrophysics
Astronomy 118: Observational Cosmology
Public Observing

K-12

Teacher — Frances C. Richmond Middle School 2014–15
Supplemental 8th grade science teacher.
Designed a two-week astronomy curriculum.
Over 300 hours of classroom experience.

OBSERVING
EXPERIENCE

Principal Investigator

Southern African Large Telescope, 10-m, 2019-1-SCI-030
Awarded 185,976 seconds to observe candidate AGN lacking X-ray signatures.

Southern African Large Telescope, 10-m, 2018-2-SCI-034
Awarded 36,000 seconds to observe candidate AGN lacking X-ray signatures.

Southern African Large Telescope, 10-m, 2018-1-SCI-032
Awarded 86,760 seconds to observe candidate AGN lacking X-ray signatures.

Observer

MDM Observatory, Hiltner 2.4-m Telescope
Long-slit spectroscopy and imaging with OSMOS (32 nights).

LEADERSHIP

Student Leadership

Graduate Student Council of Dartmouth College
Special Advisor 2018–19
President 2017–18
Vice President 2016–17
Academic Chair 2014–16
General Council 2013–14

Phi Theta Kappa Honor Society, Alpha Nu Mu Chapter
Chapter President 2010–11
Service Officer 2009–10

COMMUNITY
SERVICE

Science on Ice 2021–22
Field trips for students combining science lessons and ice skating.

Letters to a Pre-Scientist 2019–20
Pen-pal to middle school science student.

	New Hampshire Academy of Science Guest speaker on astronomy research and black holes.	Jul 2018
	Sophomore Trips Private observing session for Dartmouth undergraduates.	Jun 2018
	Dimensions of Dartmouth Hanover stargazing and presentation for potential undergraduate students.	Apr 2018
	Samuel Morey Elementary School History of astronomy and the solar system–4th grade level; observing session.	Apr 2017
	Montshire Museum of Science: Astronomy Day Guest astronomer; led astronomy activities for learners of all ages.	Jan 2016–20
	Ledyard Charter School Facilitated discussion sessions on the possibility of extraterrestrial life.	Jan 2016
	Dartmouth Graduate-Undergraduate Mentoring Program Mentor Physics and Astronomy undergraduate students.	2014–16
	Graduate Website Building Series Directed multiple workshops to establish professional websites.	2014–16
	International Graduate Mentoring Program Mentor incoming international graduate students.	2014–15
	Lyme School Science Fair Science fair judge for 6th and 7th grade students.	May 2014
	Graduate Women in Science and Engineering Science Day Physics demonstrations to excite children about the sciences.	Apr 2014–16
	West Orange “O Night” Public observing for the community of West Orange, NJ.	Oct 2011
PROFESSIONAL DEVELOPMENT	TEACH x WSU 2022 Washington State University	Oct 2022
	Code/Astro: Software Engineering Workshop for Astronomy California Institute of Technology	Jun 2021
	Mentoring Series Dartmouth College	Winter 2018
	Summer School in Statistics for Astronomers XIII Center for Astrostatistics, Penn State University	Jun 2017
	Syllabus Design Workshop Series Dartmouth Center for the Advancement of Learning, Dartmouth College	Spring 2017
	Creating a Mentoring Network Dartmouth College	Fall 2015
	La Serena School for Data Science 2015: Applied Tools for Astronomy AURA Campus, La Serena, Chile	Aug 2015
	Future Faculty Teaching Series Dartmouth Center for the Advancement of Learning, Dartmouth College	Summer 2014
	Instruction in Teaching for Graduate Students Dartmouth College	Fall 2014, Winter 2015

SOFTWARE

Computer Programming
IDL, Python, R , MATLAB, L^AT_EX, HTML

Data Analysis
XSPEC

REFERENCES

Vivienne Baldassare
Assistant Professor
Department of Physics and Astronomy
Washington State University
1245 Webster Hall
Pullman, WA 99164
vivienne.baldassare@wsu.edu
+1 (509) 335-9179

Ryan Hickox
Professor
Department of Physics and Astronomy
Dartmouth College
6127 Wilder Laboratory
Hanover, NH 03755
ryan.c.hickox@dartmouth.edu
+1 (603) 646-2962

Roberto Assef
Professor
Núcleo de Astronomía
Universidad Diego Portales
Av. Ejercito Libertador 441
Santiago, Chile
roberto.assef@mail.udp.cl
(+56) 22676-8155

Greg Stott (Teaching Reference)
Science Teacher
Frances C. Richmond Middle School
63 Lyme Rd
Hanover, NH 03755
gregstott@hanovernorwichschools.org
+1 (603) 646-6040