

Dr. Christopher C. Hayward

CONTACT INFORMATION Center for Computational Astrophysics
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EDUCATION **Harvard University**, Cambridge, MA, USA

Ph.D., Astronomy and Astrophysics, October 2011
Thesis title: “Physically Modeling High-Redshift Ultraluminous Infrared Galaxies”
Advisor: Professor Lars Hernquist
Committee: Profs. Daniel Eisenstein, Giovanni Fazio, Doug Finkbeiner,
Bob Kirshner, and Volker Springel

A.M., Astronomy, May 2008

University of Cambridge, Cambridge, UK

MASt, Applied Mathematics and Theoretical Physics (Honors), June 2006
Part III of the Mathematical Tripos

University of Michigan, Ann Arbor, MI, USA

B.S., Astronomy & Astrophysics, Physics, and Mathematics, May 2005
With high distinction
Highest honors in Astronomy & Astrophysics; honors in Mathematics
Honors thesis title: “The Cosmological Unimportance of Low Surface Brightness Galaxies”
Advisor: Professor Joel Bregman

RESEARCH INTERESTS Galaxy formation, star formation & stellar feedback, submillimeter and other high-redshift galaxies, AGN, dust, ISM, radiative transfer, (magneto)hydrodynamics

RESEARCH EXPERIENCE **Center for Computational Astrophysics, Flatiron Institute**, New York, NY

Research Scientist **September 2021–present**

Associate Research Scientist **September 2016–September 2021**

California Institute of Technology, Pasadena, CA

Moore Prize Postdoctoral Scholar in Theoretical Astrophysics **Aug. 2014–Aug. 2016**

Heidelberg Institute for Theoretical Studies, Heidelberg, Germany

Postdoctoral Researcher (Theoretical Astrophysics) **December 2011–July 2014**

Harvard University Astronomy Department, Cambridge, MA, USA

Graduate Student **September 2006–October 2011**

University of Michigan Department of Astronomy, Ann Arbor, MI, USA

Research Assistant

May 2005–September 2006

Honors Research Student

September 2001–May 2005

European Center for Nuclear Research (CERN), Geneva, Switzerland

University of Michigan REU at CERN Summer Student

June–August 2003

TEACHING
EXPERIENCE

Harvard University, Cambridge, MA, USA

Head Teaching Fellow

Science A-35 – The Energetic Universe, Prof. Bob Kirshner, Spring 2008 & 2009

Teaching Fellow

Astronomy 150 – Radiative Processes in Astrophysics, Prof. Ramesh Narayanan,
Fall 2009

Astronomy S-35 – Fundamentals of Contemporary Astronomy: Stars, Galaxies, and
the Universe, Dr. Rosanne Di Stefano, Summer 2007 & Summer 2008

Science A-36 – Observing the Sun and Stars, Prof. Josh Grindlay, Fall 2007

University of Michigan, Ann Arbor, MI, USA

Teaching Assistant

Physics 453 – Quantum Mechanics, Prof. Leopoldo Pando Zayas, Winter 2005

Tutor

Math Lab, 2003–2005

Athletic Department, 2003–2005

MENTORING
EXPERIENCE

I was/am the primary or co-mentor for the following former or current students (**26 total**) on projects that resulted/will result in 1 or more refereed publications (those who formally reported to me as CCA Predoctoral Program or Summer School students are in italics): *Pablo Araya Araya* (São Paulo), *Iryna Butsky* (Washington), Cody Carr (Minnesota), *Rachel Cochrane* (Edinburgh), Maan Hani (Victoria), Paco Holguin (U. Michigan), Chao-Ling Hung (Hawaii/Harvard), Lauranne Lanz (Harvard), Daisy Leung (Cornell), Jed McKinney (UMass), Xiangcheng Ma (Caltech), Tim Miller (Dalhousie), *Gautam Nagaraj* (Penn St.), Matt Orr (Caltech), *Tyler Parsotan* (Oregon), Juan Pineda (São Paulo), Doug Rennehan (Victoria), Eric Roebuck (Tufts), Lee Rosenthal (Haverford College undergraduate), Kaja Rotermund (Dalhousie), Mohammad Safarzadeh (Johns Hopkins), *Snigdaa Sethuram* (Georgia Tech), Raymond Simons (Johns Hopkins), Greg Snyder (Harvard), Martin Sparre (Dark Cosmology Centre), and Kung-Yi Su (Caltech).

TECHNICAL AND
OBSERVING
EXPERIENCE

Technical Experience

Programming languages: C++, Python, IDL, CUDA

Simulation software: SKIRT, GIZMO, SUNRISE, AREPO, GADGET

Data analysis: IRAF, SExtractor, SuperMongo

Observing Experience

MOSFIRE on Keck I (1 night)

LRIS on Keck I (2 nights)

OSIRIS on Keck II (1 night)

AWARDS AND
SCHOLARSHIPS

Moore Prize Postdoctoral Scholarship in Theoretical Astrophysics, 2014–2017
National Science Foundation Graduate Research Fellowship, 2006–2009 (awarded 2005)
Churchill Scholarship, 2005–2006
Fulbright Fellowship (declined for Churchill), 2005
National Defense Science and Engineering Graduate Fellowship (declined), 2005
Barry M. Goldwater Scholarship, 2003–2005
Robert C. Byrd Honors Scholarship, 2001–2005
Phi Beta Kappa Academic Honor Society, 2005
Sigma Pi Sigma Physics Honor Society, 2003
National Merit Scholarship, 2001
Michigan Merit Award, 2001

Harvard University

Certificate of Distinction in Teaching, 2008
James Mills Peirce Fellowship, 2006–2007

University of Michigan

Cassebaum Dean’s Merit Scholarship, 2001–2005
Jack Meiland Scholarship, 2004
University Honors, 2001–2004
Sophomore Honors Award, 2003
James B. Angell Scholar, 2001–2003
Regents’ Merit Scholarship, 2001–2002
William J. Branstrom Freshman Prize, 2001

PROPOSALS AND
GRANTS

Principal Investigator on Keck proposals (1.5 nights MOSFIRE, 1.5 nights LRIS; valued at \$161k)

“Unveiling the physical nature of the multiplicity of submillimeter galaxies”

Co-Investigator on NSF Frontera proposal (1.9M node-h \sim 100M CPUh)

“Testing Fundamentally New Physics in Galaxies” (PI: Hopkins)

Co-Investigator on Hubble Space Telescope Theory Proposal

“Understanding Galaxy Shapes Across Cosmic Time Using The IllustrisTNG Simulation” (PI: Genel)

Co-Investigator on Hubble Space Telescope Theory Proposal (\$120k)

“Observing the Origins of Galaxy Structure in the Illustris Simulation” (PI: Snyder)

Collaborator on NSF Astronomy and Astrophysics Research Grant (\$403k)

“When are Disk Galaxies First Assembled?” (PI: Kassin)

Collaborator on NSF Astronomy and Astrophysics Research Grant (\$770k)

“Galaxies at $z \sim 2$: The Apex of Galaxy Formation” (PI: Narayanan)

Collaborator on NASA Astrophysics Data Analysis Program proposal (\$525k)

“The Evolving Physical Processes in Interacting Galaxies Traced by Their Spectral Energy Distributions” (PI: Smith)

Collaborator on NSF Astronomy and Astrophysics Research Grant (\$340k)

“Understanding IR galaxies: as observed, as simulated, and as drivers of galaxy evolution” (PI: Sajina)

Collaborator on NSF Research in Undergraduate Institutions Award (\$266k)

“Galaxy Encounters on FIRE: Decoding Interaction-Induced Star Formation in the Local Universe (PI: Moreno)

Collaborator on JWST proposals (509.3 h)

“Interpreting JWST surveys with spatially-resolved mock line emission spectra from cosmological hyper-refinement simulations” (PI Anglès-Alcàzar) (Cycle 2 AR)

“You (Don’t?) Spin Me Round: Resolving Disk Formation in High-Redshift Dusty Starburst Galaxies” (PI: Spilker); 40.78 h (Cycle 2)

“A JWST Survey of Ultraluminous Infrared Galaxies” (PI: Armus); 97.72 h (Cycle 2)

“TEMPLATES: Targeting Extremely Magnified Panchromatic Lensed Arcs and Their Extended Star Formation” (PI: Rigby); 57.9 h (ERS)

“A JWST Study of the Starburst-AGN Connection in Merging LIRGs” (PI: Armus); 38.4 h (ERS)

“COSMOS-Webb: The Webb Cosmic Origins Survey” (PI: Kartaltepe); 289.1 h (Cycle 1)

“A Pathfinder for JWST Spectroscopy: Deep High Spectral Resolution Maps of Galaxies over $1 < z < 6$ ” (PI: Kassin); 74.3 h (Cycle 1)

“Halfway to the peak: A bridge program to map coeval star formation and supermassive black hole growth” (PI: Pope); 24.6 h (Cycle 1)

“The Early Assembly History of the Most Massive Halo in the Reionization Era” (PI: Spilker); 6.1 h (Cycle 1)

“The Formation of a Primeval Hyperstarburst Galaxy at $z \sim 6$ ” (PI: Phadke); 18.9 h (Cycle 1)

Co-Investigator on ALMA proposals (650.6 h)

“Merging IR-Luminous Galaxies – Arp 220 and NGC 6240” (PI: Scoville); 6.5 h in Cycle 0; 7 h in Cycle 1

“An ALMA 1.3-mm image of The Hubble Ultra Deep Field” (PI: Dunlop); 19.2 h (Cycle 1)

“A definitive measurement of the submillimeter galaxy redshift distribution and abundance at $z > 4$ ” (PI: Aravena); 3.6 h (Cycle 2)

“Arp 220 Nuclear Disks at 50 mas Resolution” (PI: Scoville); 12.0 h (Cycle 3)

“A deep ALMA 850-micron image of the Hubble Ultra Deep Field: completing our view of the cosmic star-formation history” (PI: Dunlop); 7.7 h (Cycle 3)

“Resolved dust in the hottest and coldest SMGs: what does dust temperature really tell us?” (PI: Casey); 2.0 h (Cycle 3)

“Spatially Resolved Gas-Star Formation-Dynamics in $z \sim 2.5$ SMGs” (PI: Hung); 6.4 h (Cycle 5)

“Arp 220 Nuclear Disks at 0.027 – 0.05” Resolution” (PI: Scoville); 18.3 h (Cycle 5)

“Establishing the Best Tracers of Molecular Outflows Across Redshift and Galaxy Properties” (PI: Spilker); 4.9 h (Cycle 5)

“A unique and massive $z = 4.3$ protocluster from the South Pole Telescope 2500 deg² survey” (PI: Chapman); 18.5 h (Cycle 6)

“TEMPLATES: Targeting Extremely Magnified Panchromatic Lensed Arcs and Their Extended Star Formation” (PI: Vieira); 36.1 h (Cycle 6)

“The Formation of Massive Galaxies in the Reionization Era” (PI: Marrone); 13.3 h

- (Cycle 6)
- “Cold Gas Around Black Holes: Fueling and Feedback in Galaxy Mergers” (PI: Medling); 14.2 h (Cycle 6)
- “A 100-parsec View of a Molecular Outflow at Redshift 5.3” (PI: Spilker); 6.5 h (Cycle 6)
- “Shut It Down: Probing Molecular Feedback in $z = 4 - 5$ Dusty, Star-forming Galaxies” (PI: Spilker); 11 h (Cycle 6); 8.2 h (Cycle 7)
- “Mapping the Star Formation in SPT0311-58” (PI: Marrone); 23.3 h (Cycle 6)
- “The unique and massive SPT0348-62 protocluster at $z = 5.7$ ” (PI: Chapman); 5.3 h (DDT)
- “Dust at Cosmic Dawn: Confirming the Highest Redshift Galaxy Candidate” (PI: Casey); 7.8 h (DDT)
- “A comprehensive sample of the two [CI] lines in lensed high-redshift galaxies” (PI: Béthermin); 36.2 h (Cycle 7)
- “Cold Gas Around Black Holes: Fueling and Feedback in Galaxy Mergers” (PI: Medling); 17.7 h (Cycle 7)
- “A Comprehensive View of Star Formation on 300-pc Scales at $z = 4$ from ALMA and JWST” (PI: Spilker); 9.1 h (Cycle 7); 8 h (Cycle 8)
- “Sub-kiloparsec mapping of the molecular gas in a quintessential merger-driven starburst at $z=1.52$ ” (PI: Silverman); 12.6 h (Cycle 7); 12.6 h (Cycle 8)
- “Arp 220 Nuclear Disks at 25 - 50 mas Resolution” (PI: Scoville); 7.0 h (Cycle 7)
- “High-Resolution [CII] Observations of the Highest-Redshift Unlensed DSFG at $z = 5.85$ ” (PI: Casey); 5.3 h (Cycle 8)
- “Mapping Obscuration to Reionization: A blank-field 2-mm survey in COSMOS” (PI: Casey); 36.2 h (Cycle 8)
- “Star Formation Under the Cosmic Microscope with JWST + ALMA” (PI: Vieira); 19.1 h (Cycle 8); 11.8 h (Cycle 9)
- “Mapping the extended environment of a massive $z = 4$ protocluster candidate discovered in the 2500 deg² SPT survey” (PI: Rotermund); 15.9 h (Cycle 8)
- “Dense Gas in Strongly Lensed Dusty Star-Forming Galaxies” (PI: Greve); 18.1 h (Cycle 8)
- “The Rise of Metal: 13C in the Epoch of Reionization” (PI: Vieira); 18.7 h (Cycle 9)
- “Resolving GMC Scales and Clumpy Galaxy Formation in the Most Massive Halo in the Reionization Era” (PI: Spilker); 19.0 h (Cycle 9)
- “Dissecting the ISM of a normal star-forming disk at $z = 4.5$ down to the 500 pc scale” (PI: Béthermin); 19.8 h (Cycle 9), 16.1 h (Cycle 10)
- “SPT0303-59: The most extreme protocluster candidate from the SPT sample” (PI: Aravena); 11.2 h (Cycle 9)
- “On the formation of cosmic DUNES: The first dusty galaxies of the universe” (PI: Zavala); 36.4 h (Cycle 10)
- “Mapping out the Changing Dust Properties of High-redshift Galaxies” (PI: Algera); 26.6 h (Cycle 10)
- “Cold molecular gas in an active and massive protocluster environment at $z = 4.3$ ” (PI: Aravena); 17.8 h (Cycle 10)
- “Confirming the presence of star formation in the most luminous quasars” (PI: Silverman); 10.1 h (Cycle 10)
- “The COSMOS High- z ALMA-MIRI Population Survey (CHAMPS): A Wide-Area Comprehensive Survey of the Dusty Universe” (PI: Faisst); 143.5 h (Cycle 10)

Co-Investigator on Hubble Space Telescope proposals

- “The most massive protoclusters at $z=4.3-5.8$ selected by the South Pole Telescope”

- (PI: Chapman); 10 orbits (Cycle 26)
- “The growth of supermassive black holes in the first massive structures” (PI: Canning); 8 orbits (Cycle 27)
- “A massive protocluster at $z = 7$ selected by the South Pole Telescope” (PI: Chapman); 23 orbits (Cycle 28)
- “Dissecting Early Universe Dust with Matched-Resolution Observations from HST, JWST, and ALMA” (PI: Spilker); 16 orbits (Cycle 30)

Co-Investigator on *Chandra* proposals

- “The growth of supermassive black holes in the first massive structures” (PI: Canning); 250 ks (Cycle 21)
- “Assembling the most massive galaxy clusters: AGN and environment in HS1549+19 at $z = 2.9$ ” (PI: Chapman); 210 ks + 8 HST orbits (Cycle 24)

Co-Investigator on NASA Keck proposals (34 nights; valued at \$1.8M)

- “The Webb Epoch of Reionization Lyman-alpha Survey (WERLS)” (PI: Casey); awarded 29 nights
- “Pinpointing the Properties of Young Central Stellar Disks and Super-Massive Black Holes in Ultraluminous Infrared Galaxies: A Laser Guidestar Approach” (PI: Rothberg); awarded 4 nights & \$32,500
- “A Pilot Study to Directly Measure the Dynamical Masses of ULIRGs at Intermediate Redshifts” (PI: Rothberg); awarded 1 night and \$15,000

Co-Investigator on MeerKAT proposal (58 h)

- “The MeerKAT + South Pole Telescope UHF Survey of the distant universe” (PI: Vieira)

Co-Investigator on NOAO Gemini proposal (16 h; valued at \$50k)

- “Unveiling the Young Central Stellar Disk in Arp 193” (PI: Rothberg)

Co-Investigator on TeraGrid proposal (50,000 CPU h & 25 TB storage)

- “Generating Images and Spectra of Simulated Galaxies” (PI: Jonsson)

SELECTED
SEMINARS AND
CONFERENCE
PRESENTATIONS

Invited Colloquia

- University of Texas at Austin Astronomy Department, October 3, 2023
- University of Florida Department of Astronomy, October 26, 2023
- Five Colleges Astronomy Department, May 4, 2023
- University of Oklahoma Department of Physics and Astronomy, March 9, 2023
- University of Victoria Physics and Astronomy Colloquium, November 30, 2022
- University of British Columbia Astronomy Colloquium, November 28, 2022
- Sterrewacht Leiden Colloquium, February 7, 2019
- Yale Department of Astronomy Colloquium, January 18, 2018
- University of Arizona Theoretical Astrophysics Program Colloquium, October 2, 2017
- Cornell University Department of Astronomy Colloquium, November 10, 2016
- University of Nevada, Las Vegas Dept. of Physics & Astronomy Forum, Nov. 4, 2016
- American Museum of Natural History Astrophysics Colloquium, November 1, 2016
- University of Illinois at Urbana-Champaign Astronomy Colloquium, April 19, 2016
- University of Hawaii Institute for Astronomy Colloquium, January 28, 2016
- Dalhousie University Department of Physics Colloquium, November 20, 2014
- UC Santa Cruz Department of Astronomy & Astrophysics Colloquium, October 22, 2014
- University of Washington Astronomy Department Colloquium, October 9, 2014

Tufts University Physics & Astronomy Department Colloquium, November 15, 2013
UMass Amherst Astronomy Department Colloquium, November 14, 2013
University of Arizona TAP Colloquium, November 4, 2013
Carnegie Observatories Colloquium, October 29, 2013
University of Michigan Astronomy Department Colloquium, October 18, 2013
Max-Planck-Institut für Astronomie Königstuhl Colloquium, October 4, 2013
University of Heidelberg ITA Colloquium, November 24, 2010

Selected Invited Seminars

Osaka University OUTAP Seminar, August 18, 2023
Kavli IMPU APEC Seminar, July 27, 2023
Caltech IPAC Seminar, May 3, 2023
University of Oklahoma Astronomy Seminar, March 4, 2023
University of Victoria Astronomy Seminar, November 29, 2022
CEA-Saclay Astronomy Seminar, July 19, 2022
MPIA Galaxy Coffee Seminar, July 7, 2022
University of Minnesota Cosmology Lunch Seminar, November 1, 2021
CITA Seminar, April 4, 2019
NYU Astrophysics and Relativity Seminar, April 3, 2018
Columbia Astronomy Seminar, April 6, 2017
Brown Astrophysics Seminar Series, February 23, 2017
UC Davis Cosmology Seminar, February 1, 2016
University of Hawaii Institute for Astronomy Seminar, January 29, 2016
CU Boulder CASA/JILA Astrophysics Lunch Seminar, December 11, 2015
University of Victoria Astronomy Seminar, December 2, 2015
UC Santa Barbara Astrophysics Seminar, November 18, 2015
University of Hertfordshire CAR Lunch Talk, April 10, 2015
NASA Jet Propulsion Laboratory Astrophysics Luncheon Seminar, January 26, 2015
UC Santa Cruz FLASH Seminar, January 23, 2015
University of Hertfordshire CAR Astronomy Seminar, April 2, 2014
UC Riverside Astronomy Seminar, February 27, 2014
Dark Cosmology Centre Cake Talk, January 23, 2014
MIT Astrophysics Brown Bag Lunch Talk, November 18, 2013
Harvard-Smithsonian CfA ITC Seminar, November 12, 2013
University of Chicago Special Seminar, November 8, 2013
Northwestern University CIERA Special Seminar, November 7, 2013
IPAC Seminar, October 30, 2013
Caltech Tea Talk, October 28, 2013
UC Santa Cruz FLASH Seminar, October 25, 2013
UC San Diego CASS Seminar, October 23, 2013
UC Berkeley TAC Seminar, October 21, 2013
MPIA Theory Seminar, September 19, 2013
Institut d'astrophysique de Paris Journal Club, May 16, 2013
MPIA Galaxies and Cosmology Group Theory Seminar, April 4, 2013
MPA Cosmology Seminar, March 5, 2013
MPE Physik Seminar, March 4, 2013
Harvard-Smithsonian CfA OIR Seminar, May 30, 2012
Royal Observatory Edinburgh Seminar, May 9, 2012
MPIA Galaxies and Cosmology Group Theory Seminar, March 29, 2012
HITS Scientific Seminar Series, February 27, 2012
NOAO Friday Scientific Lunch Talk, March 18, 2011

CEA-Saclay Galaxy Lunch Talk, November 26, 2010
MPIA Guest Seminar, November 23, 2010
UC Berkeley Astronomy Department Theory Lunch, October 6, 2010
University of Hawaii IfA Extragalactic Lunch Talk, September 9, 2010

Selected Conference Presentations

CCA Radiation Transport in Astrophysics Workshop, December 14-15, 2023 (**invited**)
U. Tokyo Workshop on Galaxies in the Era of JWST/ALMA, August 8, 2023 (**invited**)
Standing on the Wings of SOFIA, June 5–7, 2023 (**invited**)
Sesto 2023: The Growth of Galaxies in the Early Universe VIII,
March 13–17, 2023 (**invited**)
Beyond JWST and ALMA: Far-infrared Spectroscopy of Cosmic Ecosystems,
January 9, 2023 (**invited**)
A holistic view of stellar feedback and galaxy evolution, July 11–15, 2022
Testing Hierarchical Models of Galaxy Evolution with the Roman Space Telescope,
June 14, 2022 (**invited**)
Clash of the Titans: the Enigmatic Role of Mergers in Galaxy Evolution,
March 8–12, 2021 (**invited**)
Protoclusters: Galaxies in Confinement, August 31–September 4, 2020 (**invited**)
Extreme Galactic Nuclear Activity – Ultraluminous Starbursts and AGN,
January 9, 2020
First Galaxies, First Structures, October 21–25, 2019 (**invited**)
Origins Space Telescope Community Science Meeting, June 20–21, 2019 (**invited**)
Monsters of the Universe: The Most Extreme Star Factories, February 4–8, 2019 (**invited**)
The Growth of Galaxies in the Early Universe V, January 21–25, 2019 (**invited**)
ToITEC/LMT Extragalactic Workshop, October 25–26, 2018 (**invited**)
Galaxy Interactions and Mergers Across Cosmic Time, March 12–16, 2018 (**invited**)
Cosmological Signals from Cosmic Dawn to the Present, February 4–10, 2018
HELP 2017 Cosmic Censuses Workshop, October 9–13, 2017 (**invited**)
A Decade of the Star-forming Main Sequence, September 4–8, 2017 (**invited**)
SMG20: Twenty Years of Submillimetre Galaxies, July 31–August 2, 2017
Early Stages of Galaxy Cluster Formation: Mergers, Protoclusters, and Star Formation
in Overdense Environments, July 17–21, 2017
In & Out: What Rules the Galaxy Baryon Cycle?, June 26–July 21, 2017
Galaxy Evolution Across Time, June 12–16, 2017 (**invited**)
On the Origin (and Evolution) of Baryonic Galaxy Halos, March 13–17, 2017
MODEST-16 NYC, September 6–9, 2016
Northwestern University Fellows at the Frontiers 2016, Aug. 31–Sep. 2, 2016 (**invited**)
Massive Beasts of the Cosmos, July 18–22, 2016
Computing the Universe: At the Intersection of Computer Science and Cosmology,
June 5–10, 2016 (**invited**)
What Shapes Galaxies?, April 25-28, 2016 (**invited**)
The Reionization Epoch: New Insights and Future Prospects, March 6–12, 2016
U.S. Radio/mm/Submm Science Futures in the 2020s, December 15–17, 2015
The Physics of Accretion and Feedback in the CGM, June 29–July 10, 2015
IPAC Far-IR Surveyor Workshop, June 3–5, 2015 (**invited**)
Star Formation Across Space and Time, November 10–14, 2014
Digging Deep into the Extragalactic Infrared Sky, June 30–July 1, 2014
The Formation and Growth of Galaxies in the Young Universe, April 26–30, 2014
RT13: Dust Radiative Transfer 2013 – Codes & Benchmarks, October 9–11, 2013
Galaxy Evolution Over Five Decades, September 3–6, 2013

Virgo Consortium Workshop, June 10-12, 2013
 Aspen Summer Workshop: The Obscured Universe, May 26–June 7, 2013
 The 30th Jerusalem Winter School in Theoretical Physics, January 3, 2013
 Molecular Gas in High-Redshift Galaxies, July 2–3, 2012
 Interacting Galaxies and Binary Quasars: A Cosmic Rendezvous, April 2–5, 2012
 From Dust to Galaxies, June 27–July 1, 2011
 Star Formation in Galaxies: The Herschel Era, June 19–25, 2011 (**invited**)
 Unveiling the Far-IR and Sub-mm Extragalactic Universe, May 12–14, 2011
 Massive Galaxies Over Cosmic Time 3, November 8–10, 2010
 Challenges in Infrared Extragalactic Astrophysics, September 26–October 1, 2010
 Santa Cruz Galaxy Workshop, August 16–20, 2010
 UP2010: Have Observations Revealed a Variable Upper End of the IMF?,
 June 20–25, 2010
 Galaxies 09: Assembly, Gas Content, and Star Formation History of Galaxies,
 September 21–24, 2009

SERVICE AND
 OUTREACH

Reviewer: Nature, ApJ, ApJL, MNRAS, A&A, PASP, A&C, ComAC, Galaxies, Springer
 Publishing, NASA Hubble Fellowship Program Selection Committee, JWST TAC, HST
 TAC, Subaru TAC, Gemini CanTAC, LMT TAC, GTC TAC, NSERC Discovery Grant
 Program, UK STFC AGP, NASA Postdoctoral Program, NASA Earth and Space Science
 Fellowship Program, Swedish Wallenberg Fellow Grant Program, Polish National Science
 Centre, Rubriq
 NASA COPAG Executive Committee member, 2021–present
 PRIMA science team member, 2022–present
 SALTUS science team member, 2022–present
 CCA Pre-doctoral Program Director, 2019–present (led creation of program and have run
 it since)
 CCA Flatiron Research Fellow hiring committee member, 2023–2024
 CCA galaxy formation group internal meeting leader, 2022–present
 CUNY Astro MS program career mentor, 2022–present
 University of Michigan LSA Connect career mentor, 2021–present
 Dissertation committee for Jonathan Mercedes Feliz (UConn), 2021–present
 CCA office space committee, 2021–2022
 CCA-Cooper Union joint faculty position search committee member, 2021
 CCA-NYU joint faculty position search committee member, 2020
 Hosted Origins Space Telescope Community Science Meeting at CCA, June 20–21, 2019
 Hosted COSMOS workshop at CCA, May 14–17, 2019
 Organizer, Lorentz Center workshop “Monsters of the Universe: the Most Extreme Star
 Factories”, February 4–8, 2019
 CCA-UConn joint faculty position search committee member, 2019
 STScI-CCA JWST workshop SOC member and discussion leader, 2018
 Flatiron Institute Kavli Summer Program in Astrophysics SOC member & mentor, 2018
 CCA software engineer recruiting committee member, 2018
 CCA summer intern selection committee, 2018
 CCA-STScI task force member, 2017
 Flatiron Visualization Workshop SOC member and panel discussion leader, 2017
 NASA Astrophysics Data Analysis Program panelist
 NASA Astrophysics Theory Program panelist
 NSF Astronomy and Astrophysics Research Grants Program panelist (thrice)
 Hubble Space Telescope Review External Panelist (thrice)

Ran CCA colloquium series (solicited speaker names, held vote to select speakers, invited speakers, recruited hosts, developed hosting guidelines, and created informational document for visitors), 2016–2021
Reviewer for CCA Flatiron Fellow search, 2017–present
Contributed animations to Terrence Malick film *Voyage of Time*, 2016
Organizer, New Frontiers in Far-infrared and Sub-Millimeter Astronomy, Aspen Center for Physics, May 29–June 12, 2016
Caltech Community Science Event, 2015
Organizer, FIRE collaboration workshop, Caltech, January 12–14, 2015
Founder, Caltech Galaxy Formation Thursday arxiv.org discussion, 2014–2016
Co-founder, Heidelberg Star Formation and Stellar Feedback Coffee, 2012–2014
Time to Invent mentor, 2010–2011
Committee on Academic Studies, Harvard University Astronomy Dept., 2008–2011
Cambridge Explores the Universe volunteer, 2007–2011
Harvard-Smithsonian Center for Astrophysics colloquium facilitator, 2008–2010
Advised high school student Richard Yoon on independent study project, 2007–2008
Chandra X-Ray Observatory peer review facilitator, 2007
Alternative Spring Break participant, 2002–2005; leadership team, 2004–2005
UM Student Astronomical Society free tutoring and public talks/observing, 2001–2005

ACTIVE COLLABORATIONS Feedback in Realistic Environments (FIRE) simulations, SMAUG, IQ Collaboratory, South Pole Telescope Submillimeter Galaxy group, COSMOS, GOALS, ALPINE/ANDES, ASPECS

PROFESSIONAL SOCIETIES AAS, APS

REFERENCES Prof. Rachel Somerville (current supervisor), Flatiron Institute, rsomerville@flatironinstitute.org
Prof. Phil Hopkins (postdoc advisor), Caltech, phopkins@caltech.edu
Prof. Arif Babul, U. Victoria, babul@uvic.ca
Prof. Scott Chapman, Dalhousie, scott.chapman@dal.ca
Prof. Dušan Kereš, UC San Diego, dkeres@physics.ucsd.edu
Prof. Volker Springel (postdoc advisor), HITS, volker.springel@h-its.org
Prof. Jim Dunlop, Edinburgh, jsd@roe.ac.uk
Prof. Joel Primack, UC Santa Cruz, joel@ucsc.edu
Prof. Nick Scoville, Caltech, nzs@astro.caltech.edu
Prof. Richard Ellis, UCL & ESO, rse@astro.caltech.edu