GRANT RUSSELL TREMBLAY

ASTROPHYSICIST

CENTER for ASTROPHYSICS | HARVARD & SMITHSONIAN
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Experience				
2017 to present	Astrophysicist Smithsonian Astrophysical Observatory (SAO)			
-	Lecturer of Astronomy Harvard University Department of Astronomy			
	Lead Lynx X-ray Observatory Science Support Office			
	Center for Astrophysics Harvard & Smithsonian, Cambridge, MA, USA			
2014 to 2017	Einstein Fellow Yale Center for Astronomy & Astrophysics			
	Yale University, New Haven, CT, USA / Funding via NASA			
2011 to 2014	ESO Fellow Directorate for Science			
	European Southern Observatory (ESO), Garching bei München, Germany			
2011 to 2014	Fellow Astronomer Paranal Observatory Science Operations			
	ESO Paranal Observatory / Very Large Telescope, Cerro Paranal, Chile			
2006 to 2008	Graduate Research Assistant Science Mission Office			
	Space Telescope Science Institute (STScI), Baltimore, MD, USA			
EDUCATION				
2008 to 2011	Ph.D. Astrophysics Rochester Institute of Technology, New York, USA			
	Doctoral Thesis advised by Prof. Christopher P. O'Dea and Prof. Stefi A. Baum: "Feedback Regulated Star Formation in Cool Core Clusters of Galaxies"			
2006 to 2008	Visiting Graduate Student (while doing Thesis work at STScI)			
	Johns Hopkins University, Maryland, USA			
2002 to 2006	B.S. Physics & Astronomy			
	University of Rochester, New York, USA			
RESEARCH				
Primary Interests	Star formation amid kinetic and radiative feedback from supermassive black holes			
	Galaxy clusters and their central galaxies, the intracluster medium			
	Galaxy formation, evolution, and dynamics Space Policy and mission development (<i>Lynx X-ray Observatory</i> , Europa Lander)			
Techniques	Highly multiwavelength analysis including X-ray, ultraviolet, optical, and infrared			
-	imaging and spectroscopy (<i>Chandra</i> , <i>HST</i> , <i>Spitzer</i> , & <i>Herschel</i>), as well as submillimeter and radio interferometry (ALMA and VLA).			

Portfolio consists of ninety-two publications (fifteen as first author, including in Nature), two books for the general public, and over \$2.1M USD in funding (over \$630,000 as P.I.)

LEADERSHIP EXPERIENCE

AAS Leadership Vice President (2022-2025)

Member, Board of Trustees

Board Liaison, CAPP & WGMA Committees American Astronomical Society (AAS)

NASA Committees Member (2022-2025)

NASA Astrophysics Advisory Committee (APAC) A FACA subcommittee of the NASA Advisory Council

Chair of the Executive Committee (2022-2023) Vice-Chair of the Executive Committee (2020-2021) X-ray Science Interest Group co-Chair (2020-2023)

NASA Physics of the Cosmos Program Analysis Group (PhysPAG)

Large Collaborations Lynx X-ray Observatory | NASA Large Mission Concept Study

www.lynxobservatory.org

Deputy Lead for *Lynx* at SAO | Head of the *Lynx* Science Support Office

Member of the Lynx Study Office | Branding, Graphic Design, and Website Lead

The Close AGN Reference Survey (CARS)

www.cars-survey.org

Senior Member | X-ray Follow-up Lead

Current Postdoc Supervision Dr. Rebecca Nevin & Dr. Bryan Terrazas

Current Postdoctoral Research Fellows in the Tremblay Group Center for Astrophysics | Harvard & Smithsonian (2019 *to present*)

GRANTS & AWARDS _

Telescope Time as Principal Investigator (selected) *Hubble Space Telescope* Cycle 28 (2020):

Temporal & Spatial Resolution of Stellar Ages amid Quasar-Driven gas flows GO Program 16173, P.I.: G. Tremblay, allocated 33 orbits and \$124,575

Chandra X-ray Observatory Large Program Cycle 18 (2016):

The Hot Phase of a Cold Black Hole Fountain: Unifying Chandra with ALMA Large Program 18800649, P.I.: G. Tremblay, allocated 480 ksec and \$160,360

Atacama Large Millimeter/submillimeter Array (ALMA) Cycle 4 (2016): *Resolving Molecular Outflows in nearby Luminous AGN from the CARS Survey* Project Code 2016.1.00952.S, **P.I.: G. Tremblay, Ranked High Priority**

Chandra X-ray Observatory Cycle 17 Director's Discretionary Time (2014): *Catching a Changing Look Quasar as it returns to the Shadows for the Second Time* DDT Program 17708536, **P.I.: G. Tremblay, allocated 30 ksec**

Chandra X-ray Observatory Cycle 17 (2015):

Expanding Superbubbles in Luminous AGN: Unifying Chandra with MUSE GO Program 177005179, P.I.: G. Tremblay, allocated 200 ksec and \$81,272 USD

Atacama Large Millimeter/submillimeter Array (ALMA) Cycle 3 (2015):

Beaded Strings of Young Stellar Superclusters between Merging Elliptical Galaxies Project Code 2015.1.01426.S, P.I.: G. Tremblay, Ranked High Priority

Atacama Large Millimeter/submillimeter Array (ALMA) Cycle 1 (2013):

The Cold Phase of a Hot Mode: Filaments & Feedback in Abell 2597
Project Code 2012.1.00988.S, P.I.: G. Tremblay, Ranked Highest Priority

Chandra X-ray Observatory Cycle 16 (2014):

A "String of Pearls" between two Merging Elliptical Galaxies
GO Program 17218, Sci. P.I.: G. Tremblay, allocated 130 ksec and \$53,406 USD

Hubble Space Telescope Cycle 21 (2013):

Ghost Ionization in Cooling Flow Filaments: A Test with Deep FUV Spectroscopy GO Program 13304, P.I.: G. Tremblay, allocated 23 Orbits and \$64,917 USD

Very Large Telescope, Gemini, Keck, Palomar 200", WIYN, Blanco, & SOAR Fifteen programs as P.I. (Imaging, Spectroscopy, & IFU spectroscopy, incl. Laser AO)

Research Fellowships

Einstein Fellowship

Independent Postdoctoral Fellowship | NASA *Physics of the Cosmos* Mission Hosted at Yale University, 2014 *to* 2017 Fellowship sponsor: Prof. C. Megan Urry

European Southern Observatory (ESO) Fellowship

Independent Postdoctoral Fellowship | ESO Garching, 2011 to 2014

Other Funding

Smithsonian Institution Scholarly Studies Grant (2021) | **\$60K**CfA IR&D funding for the *Lynx X-ray Observatory* Concept Study | **\$750K**NRAO ALMA Ambassadors Program (2017) | **\$10K**New York Space Grant Consortium | **\$10K**

Selected Programs as Co-Investigator

- ALMA Cycle 4 Projects 2016.1.(01075 / 01058 / 01214).S, Various P.I.s
- ALMA Cycle 3 Projects 2015.1.(01198 / 01107 / 00627 / 00623).S, Various P.I.s
- ALMA Cycle 2 Project 2013.1.00862.S, P.I.: A. Simionescu
- ALMA Cycle 1 Project 2012.1.00837.S, P.I.: B. McNamara
- ALMA Cycle 0 Project 2011.0.00374.S, P.I.: B. McNamara
- HST Cycle 24 DDT Program 14486, P.I.: B. Husemann
- HST Cycle 22 GO Program 13638, P.I.: M. Bayliss
- HST Cycle 21 GO Program 13422, P.I.: R. Canning
- ALMA Cycle 4 Projects 2016.1.(01075 / 01058 / 01214).S, Various P.I.s
- ALMA Cycle 3 Projects 2015.1.(01198 / 01107 / 00627 / 00623).S, Various P.I.s
- ALMA Cycle 2 Project 2013.1.00862.S, P.I.: A. Simionescu

Selected Programs as Co-Investigator (continued)

- ALMA Cycle 1 Project 2012.1.00837.S, P.I.: B. McNamara
- ALMA Cycle 0 Project 2011.0.00374.S, P.I.: B. McNamara
- HST Cycle 24 DDT Program 14486, P.I.: B. Husemann
- HST Cycle 22 GO Program 13638, P.I.: M. Bayliss
- HST Cycle 21 GO Program 13422, P.I.: R. Canning
- HST Cycle 20 GO Program 13023, P.I.: M. Chiaberge
- HST Cycle 18 GO Program 12220, P.I.: R. Mittal
- Chandra Cycle 17 GO Program 17700006, P.I.: Massaro, 192 ksec
- Chandra Cycle 15 GO Program 15700111, P.I.: Massaro, 276 ksec
- XMM-Newton AO-13 Program 074434, P.I.: J. Sanders
- Gemini Program GN-2014A-Q-55, P.I.: O'Dea / Tremblay, 6 hr
- Jansky Very Large Array: 2012B Program 12B-289, P.I.: T. Clarke
- Very Large Telescope Period 86 Program 086.A-0399, P.I.: M. Chiaberge
- Various (more than 10) other programs on ground-based telescopes

Awards & Honors

NASA Group Achievement Awards

For the Chandra 20th Anniversary Communications Team, 2021

For the Lynx X-ray Observatory Concept Study, 2019

Smithsonian Institution Special Achievement Awards

Three awards for Lynx, Light from the Void, and the HRC Anomaly of 2020

Stoddard Prize

Best thesis in Physics & Astronomy, University of Rochester, 2006

Undergraduate Research Prize

Astronomical Society of New York, 2006

Undergraduate Teaching Prize

Outstanding Teaching in Physics & Astronomy, University of Rochester, 2006

Sigma Pi Sigma

Physics Honor Society

Graduation with High Honors

Graduate, Undergraduate, & Secondary Schools, 2002 to 2011

TEACHING _

Ph.D. Students (official)

Osase Omoruyi, Harvard University | Ph.D. Astronomy expected by 2025,

Meredith Powell, Yale University | Ph.D. Astrophysics (completed May 2019)

Thesis Project: Expanding Superbubbles in Luminous AGN

co-supervised with Prof. C. Megan Urry

Now a Porat Fellow at Stanford University

Invited Visiting Professorship

"You Can't Grow a Black Hole for Free"

Invited lecture series given as Visiting Professor

Universidad Nacional Autónoma de México (UNAM), Mexico, November 2014

Other Teaching

Harvard University, Lecturer of Astronomy

Lectureship appointment was in order to formally supervise Harvard Ph.D. Students (2021 *to present*)

Harvard University | Banneker & Aztlán Institute, Advisor

Research Advisor and Instructor for this ten-week summer research experience created to prepare talented undergraduate students of color and other underrepresented groups for studies in top graduate programs in astronomy.

Yale University, Guest Lecturer

Planned and led lectures for 10+ undergraduate astronomy/physics courses.

Teaching Assistant, Dept. of Physics, Rochester Institute of Technology Physics I (Winter 2008), II (Spring 2009), & III (Fall 2008) *Included planning & leading full lectures*

Teaching Intern, Dept. of Physics & Astronomy, University of Rochester Elementary Astronomy (Fall 2003), Elementary Astrophysics (Spring 2004), Black Holes & Time Warps (Fall 2004 & 2005), Intro. Mechanics (Spring 2005 & 2006) *Awarded U. of Rochester Prize for Outstanding Undergraduate Teaching*

Other Students Supervised

Kevin Ortiz Ceballos, Banneker Institute Student (now at Harvard) Sideena Grace, 2020 Banneker Institute Student (now at MIT)

Keduse Worku & Kevin Ortiz Ceballos, 2019 Banneker Institute Students

Daniel Rodriguez, 2018 Banneker Instutite Student

William Cramer, Yale Ph.D. Student

Tonima Tasnim Ananna, Yale Ph.D. Student

Dominic Eggerman & Nathaniel Kerman, Yale Undergraduates

"Fellow Mentor" for two ESO Ph.D. Students K. Cooke, RIT Ph.D. student, 2014 *to* 2016

K. Christiansen, RIT Undergraduate, 2010 to 2011

B. Litts, High School Student, 2011

K. O'Dea, REU Student, 2010 (resulted in publication with undergrad, as first author)

Several Students in the RIT Insight Lab Summer Program, 2008 to 2010

TECHNICAL EXPERIENCE.

Professional Telescope Experience

Chandra High Resolution Camera | Instrument P. I. Team

Official SAO duties. Responsible for operations and science analysis of *Chandra X-ray Observatory*'s High Resolution Camera (HRC), as part of the Instrument Principal Investigator team. Operational responsibilities include reviewing *Chandra* command loads to ensure safe operation of the flight instrument, monitoring its health and safety, and analyzing in-flight calibration data. Includes training in commanding, intervention, and spacecraft recovery procedures. **Experience includes major role in recovery from a critical spacecraft anomaly in 2020**.

Professional Telescope

e Support Astronomer | Very Large Telescope (Unit Telescope 2 / Kueyen)

Experience (continued)

Official ESO duties, 40 nights per year. In charge of the science operation of the telescope including the XSHOOTER, UVES, and FLAMES spectrographs, quality

assessment of the data, and the support of visiting astronomers.

Space-based Telescopes Hubble Space Telescope

Extensive experience (successfully proposing, obs. planning, reduction of data)

Chandra X-ray Observatory

Extensive experience (successfully proposing, obs. planning, reduction of data)

X-ray Multi-Mirror Mission (XMM-Newton)

Substantial experience (successfully proposing, reduction of data)

Spitzer Space Telescope

Substantial experience (proposing, obs. planning, reduction of data)

Herschel Space Observatory

Limited experience (reduction & analysis of data)

Ground-based Telescopes Atacama Large Milimeter/submilimeter Array (ALMA)

Extensive experience (successfully proposing, obs. planning, data reduction)

Very Large Telescope

Extensive / direct experience (operations, observation planning, data reduction)

Very Large Array

Some experience (successfully proposing, limited data reduction)

Other Telescopes

Many nights of observing (on-mountain and remote) with the VLT, Keck, Gemini,

SOAR 4.1m, Palomar 200", WIYN 3.5m, UKIRT, NASA IRTF, & TNG

Computing skills

Programming: Python (fluent), IDL, C/C++, regex, shell scripting, etc.

Codes available at: https://github.com/granttremblay

Formal member of the Astropy team | Deputy lead for www.astropy.org

Analysis: Astropy, AstroConda / DrizzlePac, (Py/I)RAF including STSDAS &

NOAO packages, etc., CIAO, XSPEC, Sherpa, MOPEX, HIPE, CASA, DS9 **Presentation**: LATEX, MatPlotLib, Adobe products (nearly all), SuperMongo

OS: Linux, macOS, Unix, Solaris, Windows

Multiwavelength
Analysis Experience

X-ray: Spectral fitting (*Chandra* and *XMM* data), quantitative imaging analysis, spatially resolved spectroscopy techniques (i.e., X-ray spectral maps, deprojection), X-ray time domain analysis.

Ultraviolet: FUV diagnostic spectroscopy (with *HST*/COS), FUV and NUV imaging (*HST*/ACS SBC and STIS).

Optical: Extensive experience with space- and ground-based imaging data (especially *HST*), photometry, observational techniques, optical spectroscopy (e.g., XSHOOTER, UVES), integral field spectroscopy (e.g., SINFONI, GMOS, OSIRIS). **Mid/Far-infrared** *Spitzer* MIPS and IRAC photometry, *Herschel* PACS spatially resolved spectroscopy.

Sub-mm & Radio Quantitative analysis of ALMA data in CASA, analysis of Very Large Array Radio data.

Space Mission Development Deputy Lead for SAO | Lynx X-ray Observatory NASA Strategic Mission Study Head of the Lynx Science Support Office

Core Member of the Lynx Study Office

Creator / web designer and curator of www.lynxobservatory.org

Lynx Graphic Design Lead (portfolio at www.behance.net/granttremblay)

Member of the Communication, 'Feedback', and 'Synergy' Working Groups

Core Science Team | *Europa X-ray Instrument for Life Exploration* (EXILE) An X-ray Silicon Drift Detector for the notional Europa Lander Mission

Committee Service

XRSIG co-chair, NASA PhysPAG Executive Committee (2019 *to present*) Member, NASA Great Observatories Science Advisory Group (2018 *to* 2019)

AAS Agent for Yale University (http://aas.org/agents/)
Very Large Telescope / Unit Telescope 2 (Kueyen) SciOps Team
Fellow Contact, ESO Directorate for Science (2012 to 2014)

ESO Observing Programmes Committee, Periods 93, 91, 90, 89 (Scientific Assistant)

ESO User's Committee 2013 Meeting (Fellow Assistant)

ESO Scientific & Technical Committee 2011 Meeting (*Fellow Assistant*) International Search Committee, Dean of the College of Science for RIT (2011) Society of Physics Students Exec. Committee, University of Rochester (2004 *to* 2006)

Colloquia Series Created **Founder** & Organizer, "The AGN Club" 2011 to present, ESO & MPA/MPE

Highly popular regular meeting of the local AGN community, the first of its kind.

Founder & Organizer, "Extragalactic Lunch" 2007 to 2008, Space Telescope Science Institute

Meetings Organized

"The Second Kathmandu Astrophysics School", Pokhara, Nepal, June 2018 (SOC)

"ALMA Community Days 2017", New Haven, CT USA, April 2017 (Co-creator)

"SciCoder 2016", New Haven, CT USA, August 2016 (LOC)

"Large Scale Clustering of Active Galactic Nuclei", Garching, July 2014 (LOC) "AGN 101: A Review of the Field", Garching, May 2013 (Co-creator / SOC)

"Shaping E-ELT Science and Instrumentation, Ismaning, Germany, Feb 2013 (LOC)

"Islands in the Cosmos", Garching, Nov. 2012 (Co-creator / SOC) "ESO@50: The First Fifty Years of ESO", Garching, Sept. 2012 (LOC)

"Star Formation Across the Universe", Garching, Dec. 2011 (Co-creator / SOC)

Other Colloquia Organized Yale Center for Astronomy & Astrophysics Seminar, 2015 to 2016

Yale Astronomy Colloquium, 2014 to 2015 The ESO Journal Club, 2011 to 2014 Various ESO Talks, 2011 to 2014

The RIT Astronomy Journal Club, 2008 to 2010 RIT Astronomy Lunch Talks, 2008 to 2010

Referee for

The Astrophysical Journal

Nature

Monthly Notices of the Royal Astronomical Society

Astronomy & Astrophysics

ESO Director's Discretionary Time Proposals (technical assessment)

NASA Postdoctoral Program (NPP) Proposals

Harvard University Senior Theses

Proposal Review Panel Service

NASA 2020 E.7 Support for Open Source Tools Review Panel (2021) James Webb Space Telescope Cycle 1 Time Allocation Committee (2021) Center for Astrophysics Internal Time Allocation Commieee, 2019 to present Chair, Chandra Cool Attitude Targets (CAT) Extragalactic Committee, 2018

Hubble Space Telescope Cycle 25 Time Allocation Committee, 2017

ALMA Strategic Studies Development Program, 2017

ALMA Cycle 4, 5, and 6 Proposal Review Committee, 2016-2019

Chandra Cycle 17 Time Allocation Committee, 2015

NASA Earth & Space Science Fellowship Review Committee, 2015

NASA Astrophysics Data Analysis Program Review Committee, 2015 & 2016

Yale Time Allocation Committee, 2016A, 2016B, & 2017A

Society Memberships

American Astronomical Society | Vice Presient (2022-2025), Full Member

Royal Astronomical Society | Fellow

International Astronomical Union | Full Member

PRESS & PUBLIC OUTREACH _

Press Releases on First-Author Papers November 2018 | "ALMA and MUSE Detect Galactic Fountain"

Press releases from NASA/Chandra, ESO, NRAO/ALMA, Yale (and others) on Tremblay et al. 2018, including an "ESOCast" video. The release was picked up by more than thirty Print and Web news outlets in multiple languages including CNN, Space.com, SyFy Wire, etc.

June 2016 | "Black Hole Deluged by Cold Intergalactic Rain"

Press releases from Nature, NRAO/ALMA, ESO, Yale, MIT (and others) on Tremblay et al. 2016, Nature. Picked up by over three hundred Print and Web news outlets in over fifteen languages, including The New York Times, the BBC, The Washington Post, TIME, Astronomy, Popular Science, Wired, and Discover Magazines, as well as many others. The paper has an Altmetric score in the 99th percentile of all tracked papers, and in the 93rd percentile of all similarly aged *Nature* papers.

August 2015 | "Galaxy Star Birth Regulated by Black Hole Fountain" Press releases from NASA/STScI, ESA, & Yale University on Tremblay et al. 2015. Picked up by over fifty Print and Web news outlets in over ten languages including IFL Science, Astronomy Magazine, & Russia Today.

July 2014 | "Hubble Sees Bridge of Young Stars Between Two Ancient Galaxies" Press releases from NASA/STScI, ESA, & Hubble Heritage on Tremblay et al. 2014 including a "Hubblecast" video (Hubblecast # 76) and "Hubble Hangout" webcast. Release was picked up by over fifty Print and Web news outlets in over ten languages including NBC News, The Huffington Post, Astronomy Picture of the Day, Discover & Astronomy Magazines, Space.com, la Republica, El Mercurio, Kronen Zeitung, etc.

Education & Public Outreach (Highlights)

Discovery Channel Documentary Series | "How the Universe Works"

A highly popular general public documentary series.

Prime cast member on seasons 6, 7, and 8

Science Channel Documentary Series | "Space's Deepest Secrets"

Prime cast member for Seasons 3, 4, 5

Season 2, Episode 5 includes segment about results from Tremblay et al. 2016, Nature

BBC Documentary Series | "The Universe"

Prime cast member for the Premiere Season

Space on the Hill, Lead Organizer (2020 *to present*)

An outreach program for members of the U.S. Senate and House of Representatives (and their staffers), held every other month in the House Science Committee's room. *Co-sponsored by the Smithsonian and the American Astronomical Society.*

Astronomy On Tap, Lead Organizer (Connecticut chapter)

Highly popular monthly outreach event at a local pub, now in 12 cities worldwide http://astronomyontap.org/ | http://www.facebook.com/AstronomyOnTap/

Awesome Con 2017 | Official Guest

Moderated a Q&A on Space and Time with David Tennant (Dr. Who) before a live audience of $5{,}000$ people | http://awesome-con.com/guests/

Profiled by BBC Sky at Night Magazine

November 2015 Issue, http://www.skyatnightmagazine.com/

Presentation to Senior European Union Officials, representing ESO, on Very Large Telescope operations. Audience included the President of the European Commission (J. Barroso), the Prime Minister of Sweden (C. Bildt), and the E.U. High Representative for Foreign Affairs (C. Ashton)

Education & Public Outreach (other / selected)

- Public talk for 300 middle school students in Belfast, Maine
- Hosted White House Astronomy Night Satellite Event, New Haven, 2015
- Several events for Leitner Family Observatory & Planetarium, New Haven
- ESO Outreach Ambassador, 2011 to 2014
- "Ask an Astronomer", ESO Open House Day, Garching, 2013
- ALMA outreach media event at high site (ALMA AOS, 2013)
- Diplomatic outreach with Foreign Dignitaries (ESO 50th Anniversary Gala, 2012)
- "Letters from the Edge of the Universe", ESO Open House Day, Garching, 2011
- Girl Scout Astronomy Nights & Family Science Nights, RIT, 2008 to 2011
- Co-organized multiple "open telescope" nights at RIT Observatory, 2008 to 2011
- Johns Hopkins Dept. of Physics & Astro. Annual Physics Fair, 2007
- "Big Explosions & Strong Gravity", NASA Goddard Space Flight Center, 2008
- "Ask a Scientist" at NASA's JWST Exhibit, National Mall, Washington D.C. (2007)
- Mees Observatory Tour Guide, 2005 to 2006
- Chair, American Phys. Society Educational Outreach Committee, Rochester, 2005

TALKS & COLLOQUIA _

Invited Talks & Reviews

- Invited Departmental Colloquia: Dartmouth | Harvard CfA | UMass Amherst | U. Michigan | RIT | U. Alabama | Wesleyan | Yale | UMBC | STScI | ASTRON etc.
- "Cold, Galaxy-scale Fountains with Black Hole Pumps"

Meeting of the Canadian Astronomical Society (CASCA), Winnipeg, Canada, 2016

- "A Galaxy-Scale Fountain of Cold Molecular Gas Pumped by a Black Hole" Sweeping Galaxies Clean with Molecular Outflows, Sesto, Italy, 2016
- "The Cold Phase of Mechanical AGN Feedback"

Snowcluster 2015: The Physics of Galaxy Clusters, Snowbird, Utah, 2015

• "Galaxy Growth from the Collapse of Hot Atmospheres"

Islands in the Cosmos: Views of Galaxy Formation, Garching, Germany, 2013

- "Kinetic and Radiative Feedback from Active Galaxies"
- "AGN 101": A Review of the Field, Garching, Germany, 2013
- "Star Formation amid Mechanical AGN Feedback in Brightest Cluster Galaxies" Astronomical Society of New York Spring Meeting, Rochester, NY, USA, 2011
- ASNY Research Prize Talk: "The Warped Nuclear Disk of Radio Galaxy 3C 449" Astronomical Society of New York Fall Meeting, Troy, NY, USA, 2006

Contributed Talks (selected)

- "A Galaxy-Scale Fountain of Cold Molecular Gas Pumped by a Black Hole" Extragalactic Relativistic Jets: Cause & Effect, Bangalore, India, 2015
- "A Galaxy-Scale Fountain of Cold Molecular Gas Pumped by a Black Hole" Revolution in Astronomy with ALMA: The Third Year, Tokyo, Japan, 2014
- "Ballistic Molecular Rain powers Cold Black Hole Feedback"

IAUS 313, Extragalactic Jets at Every Angle, Puerto Ayora, Galápagos, 2014

- "ALMA views on Star Formation and AGN Feedback in Radio Loud AGN" IAUS 304, Multiwavelength AGN Surveys & Studies, Yerevan, Armenia, 2013
- "Cool Core Clusters can Actually Cool"

Tracing Cosmic Evolution with Clusters of Galaxies, Sesto, Italy, 2013

• "Star Formation, Feedback, and Cold Molecular Gas in BCGs"

Feeding, Feedback, & Fireworks (Southern Cross), Hamilton Island, Australia, 2013

- "Morphology of Star Forming Filaments in Elliptical Galaxies" ESO Science Day, Garching, Germany, 2013
- "Unique Multiphase Signatures of AGN Feedback in Abell 2597" IAU General Assembly XXVIII, Beijing, China, 2012
- "Abell 2597: An Archaeological Expedition"

 Herschel Cool Core Clusters Key Project Meeting, Paris, France, 2010
- "Episodic Star Formation coupled to Reignition of Radio Activity in 3C 236" Powerful Radio Galaxies: Triggering & Feedback, Leiden, The Netherlands, 2009

Other Presentations

Many formal and informal talks (30+) at various institutes Various Contributed Posters (four AAS meetings, two AGN feedback meetings, etc.) Invited talks to data reduction tutorials (X-ray, optical data, etc.)

OTHER INFORMATION _

Biographical Information

Citizenship: United States of America

Spoken Languages: English (native), near-fluent Spanish, basic German

References

Prof. C. Megan Urry, meg.urry@yale.edu

Israel Munson Professor of Physics and Astronomy, Yale University Director, Yale Center for Astronomy and Astrophysics President, American Astronomical Society

$\textbf{Dr. Alexey Vikhlinin}, \verb"avikhlinin@cfa.harvard.edu"$

Senior Astrophysicist, Associate Director, and *Lynx* Community Co-Chair Smithsonian Astrophysical Observatory

Dr. Ralph Kraft, rkraft@cfa.harvard.edu

Senior Astrophysicist and *Chandra*/HRC Instrument P.I. Smithsonian Astrophysical Observatory

Prof. Stefi A. Baum, baum@cis.rit.edu

Director, Center for Imaging Science, Rochester Institute of Technology Dean of Science, University of Manitoba

Prof. Christopher P. O'Dea, odea@cis.rit.edu

Professor, School of Physics & Astronomy, Rochester Institute of Technology

Prof. Dr. Françoise Combes, françoise.combes@obspm.fr

Astronome à l'Observatoire de Paris

Prof. Dr. Eric Emsellem, eemselle@eso.org

Head of the Office for Science, European Southern Observatory

Science Impact Reviewers

The following people submitted letters in support of my recent promotion at the Smithsonian Astrophysical Observatory: Prof. Feryal Özel, Prof. Megan Donahue, Prof. Mark Voit, Prof. Brian McNamara, and Prof. Andy Fabian.

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Ninety-two publications, fifteen as first author, including in Nature. Papers in preparation are not listed. Solid and dashed underlines mark graduate and undergraduate authors under my supervision, respectively.

Highlighted papers (i.e., first author papers or works on which I was significantly involved at all stages)

- 1. Speranza, G., Balmaverde, B., Capetti, A., Massaro, F., **Tremblay, G. R.**, Marconi, A., Venturi, G., Chiaberge, M., Baldi, R. D., Baum, S., Grandi, P., Meyer, E. T., O'Dea, C., Sparks, W., Terrazas, B. A., Torresi, E., "The MURALES survey. IV. Searching for nuclear outflows in 3C radio galaxies at z; 0.3 with MUSE observations", **A&A**, 653, 150 (2021)
- Husemann, B., Singha, M., Scharwächter, J., McElroy, R., Neumann, J., Smirnova-Pinchukova, I., Urrutia, T., Baum, S. A., Bennert, V. N., Combes, F., Croom, S. M., Davis, T. A., Fournier, Y., Galkin, A., Gaspari, M., Enke, H., Krumpe, M., O'Dea, C. P., Pérez-Torres, M., Rose, T., Tremblay, G. R., & Walcher, C. J., "The Close AGN Reference Survey (CARS): IFU Survey data and the BH mass dependence of long-term AGN variability", A&A in press (2021).
- 3. Li, Y., Gendron-Marsolais, M., Zhuravleva, I, Xu, S., Simionescu, A, **Tremblay, G. R.**, Lochhaas, C., Bryan, G., Quataert, E., Murray, N., Boselli, A., Hlavacek-Larrondo, J., Zheng, Y., Fossati, M., Miao, L., Emsellem, E., Sarzi, M., & Arzamasskiy, L., "Direct Detection of Black Hole-Driven Turbulencce in the Centers of Galaxy Clusters", **ApJ**, 889, 1 (2020)
- 4. Vaddi, S., **Tremblay, G. R.**, O'Dea, C. P., Chakravorty, S., Kharb, P., Baum, S. A., McDonald, M., & Donahue, M., "HST/COS Spectroscopy of Cooling Flow Filaments in Abell 2597 and Zw3146", submitted to **ApJ** (2020)
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MAJOR COMMUNITY REPORTS _	

1. Lynx X-ray Observatory Concept Study Report

Available at www.lynxobservatory.org/report, released August 2019

Significant involvement at all levels, including editorial control over the Science Section, writing many pages of text, and creating the large majority of science figures throughout the report

2. Great Observatories: The Past and Future of Panchromatic Astrophysics

Available at www.greatobservatories.org, released January 2020 Consensus report of the NASA Great Observatories Science Analysis Group (SAG-10) Significant involvement across several sections of the report, including on major figures.

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- 2. Civano, F. et al., "Cosmic evolution of supermassive black holes: A view into the next two decades", **BAAS**, 51, 429 (2019)
- 3. Voit, M. et al., "Circumgalactic Gas and the Precipitation Limit", BAAS, 51, 405 (2019)
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- 6. Oppenheimer, B. et al., "Imprint of Drivers of Galaxy Formation in the Circumgalactic Medium", BAAS, 51, 280 (2019)
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Journal abbreviations used

A&A | Astronomy & Astrophysics

AN | Astronomische Nachrichten

ApJ | The Astrophysical Journal

ApJL | *The Astrophysical Journal Letters*

ApJS | The Astrophysical Journal Supplement

BAAS | Bulletin of the American Astronomical Society

MNRAS | *Monthly Notices of the Royal Astronomical Society*

JGR | Journal of Geophysical Research