

GRANT RUSSELL TREMBLAY

ASTROPHYSICIST
HARVARD-SMITHSONIAN CENTER *for* ASTROPHYSICS
60 Garden St., Cambridge, MA 02138, USA

grant.tremblay@cfa.harvard.edu
+1 207 504 4862
www.granttremblay.com

EXPERIENCE

- | | |
|------------------------|--|
| 2017 <i>to present</i> | Astrophysicist Smithsonian Astrophysical Observatory
Harvard-Smithsonian Center <i>for</i> Astrophysics , Cambridge, MA, USA |
| 2014 <i>to</i> 2017 | Einstein Fellow Yale Center for Astronomy & Astrophysics
Yale University , New Haven, CT, USA / Funding via NASA |
| 2011 <i>to</i> 2014 | ESO Fellow Directorate for Science
European Southern Observatory (ESO) , Garching bei München, Germany |
| 2011 <i>to</i> 2014 | Fellow Astronomer Paranal Observatory Science Operations
ESO Paranal Observatory / Very Large Telescope, Cerro Paranal, Chile |
| 2006 <i>to</i> 2008 | Graduate Research Assistant Science Mission Office
Space Telescope Science Institute (STScI) , Baltimore, MD, USA |

EDUCATION

- | | |
|---------------------|---|
| 2008 <i>to</i> 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:
“ <i>Feedback Regulated Star Formation in Cool Core Clusters of Galaxies</i> ” |
| 2006 <i>to</i> 2008 | Visiting Graduate Student
Johns Hopkins University , Maryland, USA |
| 2002 <i>to</i> 2006 | B.S. Physics & Astronomy
University of Rochester , New York, USA |

RESEARCH

- | | |
|--------------------------|--|
| <i>Primary Interests</i> | Star formation amid kinetic and radiative feedback from supermassive black holes
Galaxy clusters and their central galaxies; the intracluster medium
Radio galaxies (observational dichotomies; accretion modes; entrainment by jets)
Galaxy formation, evolution, and dynamics |
| <i>Techniques</i> | 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 forty-nine publications and over \$1.4M USD in funding (\$436,475 as P.I.)

GRANTS & AWARDS

Telescope Time as Principal Investigator (selected)

Chandra X-ray Observatory Large Program (CXO) 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 (CXO) 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 (CXO) 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 (CXO) 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 (HST) 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

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
- *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*

Large Collaborations

The Close AGN Reference Survey (CARS)

www.cars-survey.org

Senior Member | X-ray Follow-up Lead

Academic Awards

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 Distinction / High Honors

Graduate, Undergraduate, & Secondary Schools, 2002 to 2011

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.

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

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.

<i>Space-based Telescopes</i>	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)
<i>Ground-based Telescopes</i>	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)
<i>Computing skills</i>	Atacama Large Milimeter/submillimeter Array (ALMA)
	Extensive experience (successfully proposing, obs. planning, data reduction)
	Very Large Telescope
	Extensive / direct experience (operations, observation planning, data reduction)
	Very Large Array
<i>Multiwavelength Analysis Experience</i>	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
	Programming: Python (fluent), IDL, C/C++, regexp, shell scripting, etc.
	Codes available at: https://github.com/granttremblay
<i>Computing skills</i>	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: L ^A T _E X, Matplotlib, Adobe Illustrator & Photoshop, Veusz, XFig, SuperMongo, APlPy
	OS: Linux, macOS, Unix, Solaris, Windows
	X-ray: Spectral fitting (<i>Chandra</i> and <i>XMM</i> data); quantitative imaging analysis; spatially resolved spectroscopy techniques (i.e., X-ray spectral maps; deprojection); X-ray time domain analysis.
<i>Multiwavelength Analysis Experience</i>	Ultraviolet: FUV diagnostic spectroscopy (with <i>HST</i> /COS); FUV and NUV imaging (<i>HST</i> /ACS SBC and STIS).
	Optical: Extensive experience with space- and ground-based imaging data (especially <i>HST</i>); photometry, observational techniques; optical spectroscopy (e.g., XSHOOTER, UVES); integral field spectroscopy (e.g., SINFONI, GMOS, OSIRIS).
	Mid/Far-infrared <i>Spitzer</i> MIPS and IRAC photometry, <i>Herschel</i> PACS spatially resolved spectroscopy.
	Sub-mm & Radio Quantitative analysis of ALMA data in CASA; analysis of Very Large Array Radio data.

SERVICE & MEMBERSHIPS

<i>Departmental or Committee Service</i>	<p>AAS Agent for Yale University (http://aas.org/agents/)</p> <p>Very Large Telescope / Unit Telescope 2 (Kueyen) SciOps Team</p> <p>Fellow Contact, ESO Directorate for Science, 2012 to 2014</p> <p>ESO Observing Programmes Committee, Periods 93, 91, 90, 89 (<i>Scientific Assistant</i>)</p> <p>ESO User's Committee 2013 Meeting (<i>Fellow Assistant</i>)</p> <p>ESO Scientific & Technical Committee 2011 Meeting (<i>Fellow Assistant</i>)</p> <p>International Search Committee, Dean of the College of Science, RIT, 2011</p> <p>Society of Physics Students Exec. Committee, University of Rochester, 2004 to 2006</p>
<i>Space Mission Development</i>	<p>Science Working Group Member <i>Lynx</i>, a NASA Large Mission Concept</p> <p>2016 to present, 'Feedback' and 'Synergy' working groups</p> <p>A large / strategic (\$3B) mission concept for review by the Decadal Survey</p>
<i>Colloquia Series Created</i>	<p>Founder & Organizer, "<i>The AGN Club</i>"</p> <p>2011 to present, ESO & MPA/MPE</p> <p>Highly popular regular meeting of the local AGN community, the first of its kind.</p> <p>Founder & Organizer, "<i>Extragalactic Lunch</i>"</p> <p>2007 to 2008, Space Telescope Science Institute</p>
<i>Meetings Organized</i>	<p>"ALMA Community Days 2017", New Haven, CT USA, April 2017 (Co-creator)</p> <p>"SciCoder 2016", New Haven, CT USA, August 2016 (LOC)</p> <p>"Large Scale Clustering of Active Galactic Nuclei", Garching, July 2014 (LOC)</p> <p>"AGN 101: A Review of the Field", Garching, May 2013 (Co-creator / SOC)</p> <p>"Shaping E-ELT Science and Instrumentation, Ismaning, Germany, Feb 2013 (LOC)</p> <p>"Islands in the Cosmos", Garching, Nov. 2012 (Co-creator / SOC)</p> <p>"ESO@50: The First Fifty Years of ESO", Garching, Sept. 2012 (LOC)</p> <p>"Star Formation Across the Universe", Garching, Dec. 2011 (Co-creator / SOC)</p>
<i>Other Colloquia Organized</i>	<p>Yale Center for Astronomy & Astrophysics Seminar, 2015 to 2016</p> <p>Yale Astronomy Colloquium, 2014 to 2015</p> <p>The ESO Journal Club, 2011 to 2014</p> <p>Various ESO Talks, 2011 to 2014</p> <p>The RIT Astronomy Journal Club, 2008 to 2010</p> <p>RIT Astronomy Lunch Talks, 2008 to 2010</p>
<i>Referee for</i>	<p><i>Nature</i></p> <p><i>The Astrophysical Journal</i></p> <p><i>Monthly Notices of the Royal Astronomical Society</i></p> <p><i>Astronomy & Astrophysics</i></p> <p>ESO Director's Discretionary Time Proposals (<i>technical assessment</i>)</p> <p>NASA Postdoctoral Program (NPP) Proposals</p>

<i>Proposal Review Panel Service</i>	<i>Hubble Space Telescope</i> Cycle 25 Time Allocation Committee, 2017 ALMA Strategic Studies Development Program, 2017 ALMA Cycle 4, 5, and 6 Proposal Review Committee, 2016-2019 <i>Chandra</i> 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
<i>Society Memberships</i>	American Astronomical Society Full Member & AAS Agent for Yale University Royal Astronomical Society Fellow International Astronomical Union Full Member

TEACHING

<i>Invited Visiting Professorship</i>	<i>“You can’t Grow a Black Hole for Free”</i> Invited lecture series given as Visiting Professor Universidad Nacional Autónoma de México (UNAM), Mexico, November 2014
<i>PhD Students</i>	Meredith Powell , Yale Astrophysics Ph. D. expected 2018 Thesis Project: <i>Expanding Superbubbles in Luminous AGN</i> Funded & directly advised by G. Tremblay, co-supervised with Prof. C. Megan Urry
<i>Teaching</i>	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) <i>Included planning & leading full lectures</i> 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) <i>Awarded U. of Rochester Prize for Outstanding Undergraduate Teaching</i>
<i>Other Students Supervised</i>	William Cramer, Yale Ph.D. Student Tonima Tasnim Ananna, Yale Ph.D. Student Dominic Eggerman, Yale Undergraduate Nat Kerman, Yale Undergraduate “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

*Press Releases on
First-Author Papers*

June 2016 | **“Black Hole Deluged by Cold Intergalactic Rain”**

Press releases from **Nature**, **ALMA**, **NRAO**, **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 Repubblica*, *El Mercurio*, *Kronen Zeitung*, etc.

*Education &
Public Outreach
(Highlights)*

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/>

Discovery Channel Documentary Series | *“How the Universe Works”*

Coming in 2017, Appearances in 3 episodes, with more forthcoming

Science Channel Documentary Series | *“Space’s Deepest Secrets”*

Season 2, Episode 5, Segment about results from Tremblay *et al.* 2016, *Nature*

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
- Assistant for 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
- Pre-College Experience in Physics for Young Women (PREP, 2009)
- 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:* Harvard CfA | UMass Amherst | U. Michigan | RIT | U. Alabama | Wesleyan | Yale | UMBC | STScI | ASTRON | Obs. Paris, 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

- “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

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, francoise.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

Prof. Alice C. Quillen, aquillen@pas.rochester.edu
 Professor, Department of Physics & Astronomy, University of Rochester

Dr. William B. Sparks, sparks@stsci.edu
 CMO Development Manager, Space Telescope Science Institute

Forty-nine publications, thirteen 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. **Tremblay, G. R.**, Oonk, J. B. R., Combes, F., Salomé, P., O’Dea, C. P., Baum, S. A., Voit, G. M., Donahue, M., McNamara, B. R., Davis, T. A., McDonald, M. A., Edge, A. C., Clarke, T. E., Galván-Madrid, R., Bremer, M. N., Edwards, L. O. V., Fabian, A. C., Hamer, S. L., Li, Y., Maury, A., Russell, H. R., Quillen, A. C., Urry, C. M., Sanders, J. S., & Wise, M. “*A Galaxy-Scale Fountain of Cold Molecular Gas Pumped by a Black Hole*”, submitted to *ApJ* (2018)
2. Simionescu, A., **Tremblay, G. R.**, Werner, N., Canning, R. E. A., Allen, S. W., & Oonk, J. B. R. “*ALMA observation of the disruption of molecular gas in M87*”, *MNRAS* in press (2018)
3. Li, Y., Ruszkowski, M., & **Tremblay, G. R.** “*The effects of Ram Pressure Stripping on Cold Clouds in the Center of Galaxy Clusters*”, *ApJ* in press (2018)
4. O’Dea, C. P., Worrall, D. M., **Tremblay, G. R.**, Clarke, T. E., Rotherberg, B., Baum, S. A., Christiansen, K. P., Mullarkey, C. A., Noel-Storr, J., & Mittal, R. “*Testing for Shock-heated X-ray Gas around Compact Steep Spectrum Radio Galaxies*”, *ApJ*, 851, 87 (2017)
5. Krumpe, M., Husemann, B., **Tremblay, G. R.**, Urrutia, T., Powell, M., Davis, T. A., Scharwächter, J., Dexter, J., Busch, G., Combes, F., Croom, S. M., Eckart, A., McElroy, R. E., Perez-Torres, M., & Leung, G. “*The Close AGN Reference Survey (CARS). Mrk 1018 Halts Dimming and Experiences Strong Short-term Variability*”, *A&A Letters*, 607, 9 (2017)
6. Chiaberge, M., Ely, J. C., Meyer, E. T., Georganopoulos, M., Marinucci, A., Bianchi, S., **Tremblay, G. R.**, Hilbert, B., Kotyla, J. P., Capetti, A., Baum, S. A., Macchetto, F. D., Miley, G. K., O’Dea, C. P., Perlman, E. S., Sparks, W. B., & Norman, C. “*The puzzling case of the radio-loud QSO 3C 186: A Gravitational Wave Recoiling Black Hole in a Young Radio Source?*”, *A&A*, 600, 57 (2017)
7. **Tremblay, G. R.**, Oonk, J. B. R., Combes, F., Salomé, P., O’Dea, C. P., Baum, S. A., Voit, G. M., Donahue, M., McNamara, B. R., Davis, T. A., McDonald, M. A., Edge, A. C., Clarke, T. E., Galván-Madrid, R., Bremer, M. N., Edwards, L. O. V., Fabian, A. C., Hamer, S. L., Li, Y., Maury, A., Russell, H. R., Quillen, A. C., Urry, C. M., Sanders, J. S., & Wise, M. “*Cold, Clumpy Accretion onto an Active Supermassive Black Hole*”, *Nature*, 534, 218-221 (2016)
8. Cooke, K. C., O’Dea, C. P., Baum, S. A., **Tremblay, G. R.**, Cox, I. G., & Gladders, M. “*Star Formation in Intermediate Redshift Brightest Cluster Galaxies*”, *ApJ*, 833, 224 (2016)
9. Husemann, B., Urrutia, T., **Tremblay, G. R.**, Krumpe, M., Dexter, J., Busch, G., Combes, F., Croom, S. M., Davis, T. A., Eckhart, A., McElroy, R. E., Perez-Torres, M., Powell, M., & Scharwächter, J. “*The Close AGN Reference Survey (CARS): What is causing Mrk 1018’s Return to the Shadows?*”, *A&A*, 593, L9 (2016)
10. Hilbert, B., Chiaberge, M., Kotyla, J. P., **Tremblay, G. R.**, Stanghellini, C., Sparks, W. B., Baum, S. A., Capetti, A., Macchetto, F. D., Miley, G. K., O’Dea, C. P., Perlman, E. S., & Quillen, A. C. “*Powerful Activity in the Bright Ages. I. A Visible/IR Survey of High Redshift 3C Radio Galaxies and Quasars*”, *ApJS*, 225, 12 (2016)

11. **Tremblay, G. R.**, O'Dea, C. P., Baum, S. A., Mittal, R., McDonald, M., Combes, F., Donahue, M., Voit, M., McNamara, B. R., Russell, H. R., Fabian, A. C., Hamer, S. L., Hogan, M., Oonk, J. B. R., Quillen, A. C., Sanders, J. S., Salomé, P., & Voit, G. M., "*Far Ultraviolet Morphology of Star Forming Filaments in Cool Core Brightest Cluster Galaxies*", **MNRAS**, 451, 3768 (2015)
12. **Tremblay, G. R.**, Gladders, M. D., Baum, S. A., O'Dea, C. P., Bayliss, M., Cooke, K., Dahle, H., Davis, T. A., Florian, M. D., Rigby, J., Sharon, K., & Soto, E., "*A Thirty Kiloparsec Chain of 'Beads on a String' Star Formation between two Merging Early Type Galaxies in the core of a Strong Lensing Galaxy Cluster*", **ApJL**, 790, 26 (2014)
13. Massaro, F., Harris, D. E., **Tremblay, G. R.**, Liuzzo, E., Bonafede, A., & Paggi, A., "*A Chandra Snapshot Survey for 3C Radio Galaxies with Redshifts between 0.3 and 0.5*", **ApJS**, 206, 7 (2013)
14. O'Dea, C. P., Baum, S. A., **Tremblay, G. R.**, Kharb, P., Cotton, W., & Perley, R., "*Hubble Space Telescope Observations of Dusty Filaments in Hercules A: Evidence for Entrainment*", **ApJ**, 771, 38 (2013)
15. Massaro, F., **Tremblay, G. R.**, Harris, D. E., Kharb, P., Axon, D., Balmaverde, B., Baum, S. A., Capetti, A., Chiaberge, M., Gilli, R., Giovannini, G., Grandi, P., Macchetto, F. D., O'Dea, C. P., Risaliti, G., Sparks, W., & Torresi, E., "*Chandra Observations of 3C Radio Sources with $z < 0.3$. II. Completing the Snapshot Survey*", **ApJS**, 203, 31 (2012)
16. **Tremblay, G. R.**, O'Dea, C. P., Baum, S. A., Clarke, T. E., Sarazin, C. L., Bregman, J. N., Combes, F., Donahue, M., Edge, A. C., Fabian, A. C., Ferland, G. J., McNamara, B. R., Mittal, R., Oonk, J. B. R., Quillen, A. C., Russell, H. R., Sanders, J. S., Salomé, P., Voit, G. M., Wilman, R. J., & Wise, M. W., "*Residual cooling and persistent star formation amid active galactic nucleus feedback in Abell 2597*", **MNRAS**, 424, 1042 (2012)
17. **Tremblay, G. R.**, O'Dea, C. P., Baum, S. A., Clarke, T. E., Sarazin, C. L., Bregman, J. N., Combes, F., Donahue, M., Edge, A. C., Fabian, A. C., Ferland, G. J., McNamara, B. R., Mittal, R., Oonk, J. B. R., Quillen, A. C., Russell, H. R., Sanders, J. S., Salomé, P., Voit, G. M., Wilman, R. J., & Wise, M. W., "*Multiphase signatures of active galactic nucleus feedback in Abell 2597*", **MNRAS**, 424, 1026 (2012)
18. **Tremblay, G. R.**, "*Feedback Regulated Star Formation in Cool Core Clusters of Galaxies*", Ph.D. Thesis, Rochester Institute of Technology (2011), DOI: 10.5281/zenodo.48475
19. O'Dea, K. P., Quillen, A. C., O'Dea, C. P., **Tremblay, G. R.**, Snios, B. T., Baum, S. A., Christiansen, K., Noel-Storr, J., Edge, A. C., Donahue, M., & Voit, G. M. "*Hubble Space Telescope Far-ultraviolet Observations of Brightest Cluster Galaxies: The Role of Star Formation in Cooling Flows and BCG Evolution*", **ApJ**, 719, 1619 (2010)
20. **Tremblay, G. R.**, O'Dea, C. P., Baum, S. A., Koekemoer, A. M., Sparks, W. B., de Bruyn, G., & Schoenmakers, A. P., "*Episodic Star Formation Coupled to Reignition of Radio Activity in 3C 236*", **ApJ**, 715, 172 (2010)
21. Massaro, F., Harris, D. E., **Tremblay, G. R.**, Axon, D., Baum, S. A., Capetti, A., Chiaberge, M., Gilli, R., Giovannini, G., Grandi, P., Macchetto, F. D., O'Dea, C. P., Risaliti, G., Sparks, W., & Torresi, E., "*Chandra Observations of 3C Radio Sources with $z < 0.3$: Nuclei, Diffuse Emission, Jets, and Hotspots*", **ApJ**, 714, 589 (2010)
22. **Tremblay, G. R.**, Chiaberge, M., Sparks, W. B., Baum, S. A., Allen, M. G., Axon, D. J., Capetti, A., Floyd, D. J. E., Macchetto, F. D., Miley, G. K., Noel-Storr, J., O'Dea, C. P., Perlman, E. S., & Quillen, A. C., "*HST/ACS Emission Line Imaging of Low-redshift 3CR Radio Galaxies. I. The Data*", **ApJS**, 183, 278 (2009)

23. Chiaberge, M., **Tremblay, G.**, Capetti, A., Macchetto, F. D., Tozzi, P., & Sparks, W. B., “*Low-Power Radio Galaxies in the Distant Universe: A Search for FR I at $1 < z < 2$ in the Cosmos Field*”, **ApJ**, 696, 1103 (2009)
24. **Tremblay, G. R.**, Chiaberge, M., Donzelli, C. J., Quillen, A. C., Capetti, A., Sparks, W. B., & Macchetto, F. D., “*Isophotal Structure and Dust Distribution in Radio-loud Elliptical Galaxies*”, **ApJ**, 666, 109 (2007)
25. **Tremblay, G. R.**, Quillen, A. C., Floyd, D. J. E., Noel-Storr, J., Baum, S. A., Axon, D., O’Dea, C. P., Chiaberge, M., Macchetto, F. D., Sparks, W. B., Miley, G. K., Capetti, A., Madrid, J. P., & Perlman, E., “*The Warped Nuclear Disk of Radio Galaxy 3C 449*”, **ApJ**, 643, 101 (2006)
26. **Tremblay, G. R.**, “*Accretion Region Variability Mechanisms in Low Luminosity AGN*”, University of Rochester Journal of Undergraduate Research, 4, 33-37 (2005)

Refereed papers as co-author

27. Massaro, F., Missaglia, V., Stuardi, C., Harris, D. E., Kraft, R. P., Paggi, A., Liuzzo, E., **Tremblay, G. R.**, Baum, S. A., O’Dea, C. P., Wilkes, B. J., Kuraszkiewicz, J., & Forman, W., “*The 3CR Chandra Snapshot Survey: Extragalactic Radio Sources with $0.5 < z < 1.0$* ”, **ApJS**, 234, 1 (2018)
28. The Astropy Collaboration including **Tremblay, G. R.**, “*The Astropy Project: Building an inclusive, open-source project and status of the v2.0 software*”, submitted to **ApJS** (2018)
29. McDonald, M. A., Gaspari, M., McNamara, B. R., & **Tremblay, G. R.**, “*Revisiting the Cooling Flow Problem in Galaxies, Groups, and Clusters of Galaxies*”, submitted to **ApJ** (2017)
30. Gaspari, M., McDonald, M. A., Hamer, S. L., Brighenti, F., Temi, P., Gendron-Marsolais, M., Hlavacek-Larrondo, J., Edge, A. C., Werner, N., Tozzi, P., Sun, M., Stone, J. M., **Tremblay, G. R.**, Hogan, M. T., Eckert, D., Ettori, S., Yu, H., Biffi, V., & Planelles, S., “*Shaken Snow Globes: Kinematic Tracers of the Multiphase Condensation Cascade in Massive Galaxies, Groups, and Clusters*”, **ApJ** in press (2017)
31. Russell, H. R., McNamara, B. R., Fabian, A. C., Nulsen, P. E. J., Combes, F., Edge, A. C., Hogan, M. T., McDonald, M. A., Salomé, P., **Tremblay, G. R.**, & Vantyghem, A. N., “*Close entrainment of massive molecular gas flows by radio bubbles in the central galaxy of Abell 1795*”. **MNRAS**, 472, 4024 (2017)
32. Vantyghem, A. N., McNamara, B. R., Russell, H. R., Hogan, M. T., Edge, A. C., Nulsen, P. E. J., Fabian, A. C., Combes, F., Murray, N. W., Parrish, I. J., Salomé, P., Sanders, J. S., Baum, S. A., Donahue, M., Main, R. A., O’Connell, R. W., O’Dea, C. P., Oonk, J. B. R., **Tremblay, G. R.**, & Voit, G. M. “*Molecular Gas along a Bright H α Filament in 2A 0335+096 Revealed by ALMA*”, **ApJ**, 832, 148 (2016)
33. McElroy, R. E., Husemann, B., Davis, T. A., Bennert, V. N., Busch, G., Combes, F., Eckart, A., Perez-Torres, M., Powell, M., Scharwächter, J., **Tremblay, G. R.**, & Urrutia, T. “*The Close AGN Reference Survey (CARS): Mrk 1018 Returns to the Shadows after 30 years as a Seyfert 1*”, **A&A**, 593, L8 (2016)
34. Kotyla, J. P., Chiaberge, M., Baum, S. A., Capetti, A., Hilbert, B., Macchetto, F. D., Miley, G. K., O’Dea, C. P., Perlman, E. S., Sparks, W. B., & **Tremblay, G. R.**, “*The Environment of $z > 1$ 3CR Radio Galaxies and QSOs: From Proto-Clusters to Clusters of Galaxies?*”, **ApJ**, 826, 46 (2016)
35. Maselli, A., Massaro, F., Cusumano, G., La Parola, V., Harris, D. E., Paggi, A., Liuzzo, E., **Tremblay, G. R.**, Baum, S. A., & O’Dea, C. P., “*Swift Observations of unidentified radio sources in the revised Third Cambridge Catalogue*”, **MNRAS**, 460, 3829 (2016)

36. Labiano, A., García-Burillo, S., Combes, F., Usero, A., Sorita-Ruiz, R., Piqueras López, J., **Tremblay, G. R.**, Hunt, L., Fuente, A., Neri, R., Oosterloo, T. *AGN Feedback and Star Formation in Young and Old Radio Galaxies*, **AN**, 337, 118 (2016)
37. Russell, H. R., McNamara, B. R., Fabian, A. C., Nulsen, P. J. E., Edge, A. C., Combes, F., N. W. Murray, I. J. Parrish, P. Salomé, Sanders, J. S., Baum, S. A., Donahue, M., Main, R. A., O’Connell, R. W., O’Dea, C. P., Oonk, J. B. R., **Tremblay, G. R.**, Vantyghem, A. N., & Voit, G. M. “*ALMA observations of cold molecular gas filaments trailing rising radio bubbles in PKS 0745-191*”, **MNRAS**, 458, 3134 (2016)
38. Massaro, F., Harris, D. E., Liuzzo, E., Orienti, M., Paladino, R., Paggi, A., **Tremblay, G. R.**, Wilkes, B. J., Kuraszkiewicz, J., Baum, S. A., & O’Dea, C. P. “*The Chandra Survey of Extragalactic Sources in the 3CR Catalog: X-ray Emission from Nuclei, Jets, and Hotspots in the Chandra Archival Observations*”, **ApJs**, 220, 5 (2015)
39. Santoro, F., Oonk, J. B. R., Morganti, R., Oosterloo, T. A., & **Tremblay, G. R.**, “*The outer filament of Centaurus A as seen by MUSE*”, **A&A**, 575L, 4 (2015)
40. Sanders, J. S., Fabian, A. C., Hlavacek-Larrondo, J., Russell, H. R., Taylor, G. B., Hofmann, F., **Tremblay, G. R.**, & Walker, S. A., “*Feedback, Scatter and Structure in the Core of the PKS 0745-191 Galaxy Cluster*”, **MNRAS**, 444, 1497 (2014)
41. McNamara, B. R., Russell, H. R., Nulsen, P. E. J., Edge, A. C., Murray, N. W., Main, R. A., Vantyghem, A. N., Combes, F., Fabian, A. C., Salome, P., Kirkpatrick, C. C., Baum, S. A., Bregman, J. N., Donahue, M., Egami, E., Hamer, S., O’Dea, C. P., Oonk, J. B. R., **Tremblay, G. R.**, & Voit, G. M., “*A Ten Billion Solar Mass Outflow of Molecular Gas Launched by Radio Bubbles in the Abell 1835 Brightest Cluster Galaxy*”, **ApJ**, 785, 44 (2014)
42. Russell, H. R., McNamara, B. R., Edge, A. C., Nulsen, P. E. J., Main, R. A., Vantyghem, A. N., Combes, F., Fabian, A. C., Murray, N., Salomé, P., Wilman, R. J., Baum, S. A., Donahue, M., O’Dea, C. P., Oonk, J. B. R., **Tremblay, G. R.**, & Voit, G. M., “*Massive molecular gas flows in the Abell 1664 brightest cluster galaxy*”, **ApJ**, 784, 78 (2014)
43. Hamer, S. L., Edge, A. C., Swinbank, A. M., Oonk, J. B. R., Mittal, R., McNamara, B. R., Russell, H. R., Bremer, M., Combes, F., Fabian, A. C., Nesvadba, N. P. H., O’Dea, C. P., Baum, S. A., Salomé, P., **Tremblay, G. R.**, Donahue, M., Ferland, G. J., & Sarazin, C. L., “*Cold gas dynamics in Hydra A: evidence for a rotating disk*”, **MNRAS**, 437, 862 (2014)
44. Labiano, A., García-Burillo, S., Combes, F., Usero, A., Soria-Ruiz, R., **Tremblay, G. R.**, Neri, R., Fuente, A., Morganti, R., & Oosterloo, T., “*Fueling the central engine of radio galaxies. II. The footprints of AGN feedback on the ISM of 3C 236*”, **A&A**, 549, A58 (2013)
45. Mittal, R., Oonk, J. B. R., Ferland, G. J., Edge, A. C., O’Dea, C. P., Baum, S. A., Whelan, J. T., Johnstone, R. M., Combes, F., Salomé, P., Fabian, A. C., **Tremblay, G. R.**, Donahue, M., & Russell, H., “*Herschel observations of extended atomic gas in the core of the Perseus cluster*”, **MNRAS**, 426, 2957 (2012)
46. Balmaverde, B., Capetti, A., Grandi, P., Torresi, E., Chiaberge, M., Rodriguez Zaurin, J., Tremblay, G. R., Axon, D. J., Baum, S. A., Giovannini, G., Kharb, P., Macchetto, F. D., O’Dea, C. P., & Sparks, W., “*Extended soft X-ray emission in 3CR radio galaxies at $z < 0.3$: high excitation and broad line galaxies*”, **A&A**, 545, 143 (2012)
47. Mittal, R., O’Dea, C. P., Ferland, G., Oonk, J. B. R., Edge, A. C., Canning, R. E. A., Russell, H., Baum, S. A., Böhringer, H., Combes, F., Donahue, M., Fabian, A. C., Hatch, N. A., Hoffer, A., Johnstone, R., McNamara,

- B. R., Salomé, P., & **Tremblay, G. R.**, “*Herschel observations of the Centaurus cluster - the dynamics of cold gas in a cool core*”, **MNRAS**, 418, 2386 (2011)
48. Chiaberge, M., Capetti, A., Macchetto, F. D., Rosati, P., Tozzi, P., & **Tremblay, G. R.**, “*Three Candidate Clusters of Galaxies at Redshift ~ 1.8 : The “Missing Link” Between Protoclusters and Local Clusters?*”, **ApJ**, 710, L107 (2010)
49. Floyd, D. J. E., Axon, D., Baum, S., Capetti, A., Chiaberge, M., Macchetto, D., Madrid, J., Miley, G., O’Dea, C. P., Perlman, E., Quillen, A., Sparks, W., & **Tremblay, G. R.**, “*Hubble Space Telescope Near-infrared Snapshot Survey of 3CR Radio Source Counterparts. II. An Atlas and Inventory of the Host Galaxies, Mergers, and Companions*”, **ApJS**, 177, 148 (2008)

SELECTED NON-REFEREED WORKS

1. **Tremblay, G. R.**, Kraft, R. P., Nulsen, P. E. J., & Patnaude, D., “*The Chandra High Resolution Camera Anticoincidence shield at times of high solar particle backgrounds*”, **Chandra Flight Memo** (2018)
2. Husemann, B., **Tremblay, G. R.**, Davis, T., Busch, G., McElroy, R., Neumann, J., Urrutia, T., Krumpe, M., Scharwächter, J., Powell, M., Perez-Torres, M., & The CARS Team, “*The Close AGN Reference Survey (CARS)*”, **The ESO Messenger**, 169, 42 (2017)
3. Levesque, E. M., Bezanson, R., & **Tremblay, G. R.**, “*Why Astronomy Programs are moving on from the Physics GRE*”, Editorial in *Physics Today* (2017), DOI:10.1063/PT.5.9090
4. **Tremblay, G. R.**, “*Black Hole Feedback is Elegant, not Violent*”, Einstein Fellows Symposium (2016)
5. Muna, D. and 137 co-signers including **Tremblay, G. R.**, “*The Astropy Problem*”, arXiv:1610.03159 (2016)
6. Rice, E. L. et al. including **Tremblay, G. R.**, “*Expanding the Universe of ‘Astronomy on Tap’ Public Outreach Events*”, American Astronomical Society, AAS Meeting #227 (2016)
7. **Tremblay, G. R.**, “*ALMA Reveals a Galaxy-Scale Fountain of Cold Molecular Gas Pumped by a Black Hole*”, American Astronomical Society, AAS Meeting #227 (2016)
8. Levesque, E. M., Bezanson, R., & **Tremblay, G. R.**, “*Physics GRE Scores of Prize Postdoctoral Fellows in Astronomy*”, arXiv:1512.03709 (2015)
Note: This paper presents results from our survey regarding use of the Physics Graduate Record Examination (GRE) in graduate admissions. The paper was specifically cited as a motivating factor behind a formal recommendation by the AAS council, and was widely shared in many departments, an AAS presidential post, and highlighted in many blogs.
9. **Tremblay, G. R.**, “*A Galaxy-Scale Fountain of Cold Molecular Gas Pumped by a Black Hole*”, Einstein Fellows Symposium (2015)
10. Rothberg, B. et al. including **Tremblay, G. R.**, “*The Close AGN Reference Survey*”, IAU General Assembly, Meeting #29 (2015)
11. **Tremblay, G. R.**, “*Star Formation amid Kinetic Black Hole Feedback*”, Einstein Fellows Symposium (2014)
12. **Tremblay, G. R.** “*Feedback and Star Formation can Coexist*”, IAU Symposium, 304 (2013)
13. Labiano, A., García-Burillo, S., Combes, F., Usero, A., Soria-Ruiz, R., **Tremblay, G. R.**, et al. “*AGN feedback on the ISM of 3C 236*”, IAU Symposium, 292, 374 (2013)

14. **Tremblay, G. R.** “*Fellows at ESO*”, *The Messenger*, 151, 63 (2013)
15. **Tremblay, G. R.** “*HST Ultraviolet Observations of Star Formation in Seven Brightest Cluster Galaxies in Cooling Flows*”, *Galaxy Clusters: Observations, Physics and Cosmology*, 41P (2010)
16. **Tremblay, G. R.**, Sparks, W. B., Chiaberge, M., et al. “*HST/ACS Emission Line Snapshots of nearby 3CR Radio Galaxies*”, *Bulletin of the American Astronomical Society*, 211, 157.03 (2008)
17. **Tremblay, G. R.**, Chiaberge, M., Donzelli, C. J., Sparks, W. B., Quillen, A. C. “*Dust Lanes, Nuclear Dusty Disks, and Isophotal Properties as Observed by HST: What Do They Tell Us about the 3-D Structure of Elliptical Radio Galaxy Hosts?*”, *Bulletin of the American Astronomical Society*, 38, 987 (2008)
18. **Tremblay, G. R.** & Quillen, A. C. “*The Warped Nuclear Disk of Radio Galaxy 3C 449*”, *Bulletin of the American Astronomical Society*, 37, 1295 (2005)

Journal abbreviations used

ApJ | *The Astrophysical Journal*
ApJL | *The Astrophysical Journal Letters*
ApJS | *The Astrophysical Journal Supplement*
MNRAS | *Monthly Notices of the Royal Astronomical Society*
A&A | *Astronomy & Astrophysics*
AN | *Astronomische Nachrichten*

This CV was last updated on January 16, 2018.