Charles L. H. (Chat) Hull

CONTACT

Joint ALMA Observatory
Alonso de Córdova 3107
Vitacura, Santiago
Chile

EMAIL: chat.hull@nao.ac.jp
WEB: chathull.com
TEL: +56 2-2467-6391

EXPERTISE

Star Formation — Polarization — Radio Instrumentation — Millimeter-wave Interferometry

EDUCATION

University of California, Berkeley, Berkeley, CA

Ph.D., Astrophysics — Dec 2014

Title: "From Cores to Envelopes to Disks: A Multi-scale View of Magnetized Star Formation"
Adviser: Richard L. Plambeck

M.A., Astrophysics — May 2010

University of Virginia, Charlottesville, VA

B.S., Physics (Highest Distinction); Spanish minor — May 2006

DISTINCTIONS

Beatrice M. Tinsley Scholar, UT Austin	2019
NAOJ Director General's Award	2018
NAOJ Fellowship	2017–2022
Jansky Fellowship	2014–2017
Ford Foundation Dissertation Fellowship	2013–2014
Mary Elizabeth Uhl thesis prize, UC Berkeley	2014
Robert A. Trumpler Graduate Student Excellence Award, UC Berkeley	2013
American Astronomical Society Rodger Doxsey Travel Prize	2013
National Science Foundation Graduate Research Fellowship	2010–2013
Chancellor's Science Fellowship, UC Berkeley	2008–2010
Kenan-Lewis Teaching Internship, Woodberry Forest School	2007
Jefferson Scholarship, University of Virginia	2002–2006
Phi Beta Kappa	2005

LANGUAGES

English (native); **Spanish** (fluent); **Japanese** (elementary); **Chuj** (elementary; Mayan dialect spoken in San Mateo Ixtatán, Guatemala)

MEMBERSHIPS

American Astronomical Society (AAS)
International Astronomical Union (IAU)
Union Radioscientifique International (both USNC and URSI)
Sociedad Chilena de Astronomía (SOCHIAS)
Astronomical Society of Japan (ASJ)

APPOINTMENTS

NAOJ Fellow, NAOJ Chile Observatory & ALMA (Santiago, Chile)	2017–2022
Specially Appointed Assistant Professor, NAOJ (Santiago, Chile)	2017–2022
Research Associate, Harvard/CfA (Cambridge, MA)	2017–
Jansky Fellow, NRAO & Harvard/CfA (Cambridge, MA)	2014–2017
Graduate student researcher, UC Berkeley (Berkeley, CA)	2008–2014
Independent physics tutor (Berkeley, CA)	2009–2013
Physics lecturer, iFly SF Bay (Union City, CA)	Summer 2011
Co-instructor, Radio 101 graduate seminar (Berkeley, CA)	Fall 2010

	Graduate student instructor, UC Berkeley (Berkeley, CA)	Fall '08, Fall '09
	Faculty member, Woodberry Forest School (Woodberry Forest, VA)	Fall '06, Spring '08
	Faculty member, Yinhatil Nab′en School (San Mateo Ixtatán, Guatemala)	2007
	Calculus tutor, University of Virginia Athletics Dept. (Charlottesville, VA)	2003–2006
	NSF REU research intern, University of Rochester (Rochester, NY)	Summer 2005

TELESCOPE TIME

ALMA

Perseus magnetic fields survey (**18** hr, B-ranked)	Aug 2018
Scattering in IM Lup at Bands 3 & 6 (**9** hr, B-ranked)	Aug 2018
Magnetic fields in BHR 71 (**3** hr, A-ranked)	Aug 2017
Magnetic fields in Class 0 envelopes (**5** hr, A-ranked)	Aug 2016
Scattering in IM Lup at Band 7 (**4** hr, B-ranked)	Aug 2016
Magnetic fields in Class 0 envelopes (**6** hr, B-ranked)	Aug 2015
Magnetic fields in Class 0 envelopes (**7** hr, B-ranked)	Apr 2014
Magnetic fields in Class II protoplanetary disks (**7** hr, C-ranked)	Apr 2014
*As co-I, **A**: 24 hr, 3 proj.; **B**: 56 hr, 9 proj.; **C**: 36 hr, 6 proj.*	2014–

BLAST-TNG

Magnetic fields toward BHR 71, a protostellar binary (**11** hr)	Nov 2018

VLA

DDT: Exploring new, faint structure around NGC 1275 & 1272 (**6** hr)	Apr 2017
DDT: Synchrotron in Hα filaments around 3C84 (**6** hr)	May 2015
*As co-I, **12** hr, 2 proj.*	2013–

SMA

Cepheus Polarization Survey: follow-up with SWARM (**65** hr)	Apr 2017
Cepheus Polarization Survey: a Pilot Study (**38** hr, resubmission)	May 2016
Measuring the polarization angle of 3C286 at 345 GHz (**4** hr)	Feb 2016
Cepheus Polarization Survey: a Pilot Study (**38** hr)	May 2015
Envelope rotation in Class 0 protostellar envelopes (**12** hr)	Oct 2014

SOFIA

*As co-I, **8** hr, 3 proj.*	2016–

CARMA

Magnetic fields in star-forming filaments (**24** hr)	Mar 2013
TADPOL survey, polarization key project (**280** hr)	Feb 2012

FUNDING

JSPS KAKENHI grant

"Early-Career Scientists" grant, 2018-2020 (**$30,000**, PI C. Hull)	Apr 2018

NRAO student observing support

Assoc. with ALMA project 2013.1.00726.S (**$27,280**, award PI Z.-Y. Li)	May 2015

OBSERVING EXPERIENCE

ALMA, San Pedro de Atacama, Chile

Astronomer on Duty (AoD): Periodically work 8-day AoD observing shifts at the ALMA Observing Support Facility.

SMA, Mauna Kea, HI

Visiting observer: accompanied the SMA telescope operator during the 12–17 Nov 2015 observing shift.

CARMA, Cedar Flat, CA

Observing: responsibilities during week-long shifts include taking science data for other astronomers, communicating with staff and scientists across the CARMA consortium, controlling the telescope, protecting the telescope during inclement weather, and being on call to troubleshoot problems 24 hours per day. **90+ days** from 2010–2014.

Hardware: assisted in the building, testing, installation, calibration, upgrading, and maintenance of the 1 mm dual-polarization receiver system at CARMA. **30+ days** from 2010–2014.

Software and array support: developed and maintain several software programs, including one that fits geometric delays after array changes, and several that allow for calibration and monitoring of polarization observations.

Observer scheduling: responsible for scheduling all week-long observer shifts, maintaining the observer database, and communicating with PIs and observers within and outside of the CARMA consortium.

PUBLICATIONS

Current **h-index = 16**

INVITED REVIEW

Hull, C. L. H. & Zhang, Q., "Interferometric Observations of Magnetic Fields in Forming Stars," 2018, *Frontiers in Astronomy & Space Science,* under review

1st–3rd AUTHOR

Underlined names indicate students supervised by C. L. H. Hull

Hull, C. L. H. *et al.,* "ALMA observations of polarization from dust scattering in the IM Lup protoplanetary disk," 2018, *ApJ,* 860, 82 [ADS]

Hull, C. L. H. *et al.,* "ALMA observations of dust polarization and molecular line emission from the Class 0 protostellar source Serpens SMM1," 2017, *ApJ,* 847, 92 [ADS]

Hull, C. L. H. *et al.,* "Unveiling the Role of the Magnetic Field at the Smallest Scales of Star Formation," 2017, *ApJL,* 842, 9 [ADS]

Lee, J. W. Y., **Hull, C. L. H.,** and Offner, S. R., "Synthetic Observations of Magnetic Fields in Protostellar Cores," 2017, *ApJ,* 834, 201 [ADS]

Hull, C. L. H., Girart, J. M., and Zhang, Q., "880 μm SMA polarization observations of the quasar 3C 286," 2016, *ApJ,* 830, 124 [ADS]

Hull, C. L. H. *et al.,* "An extremely high velocity molecular jet surrounded by an ionized cavity in the protostellar source Serpens SMM1," 2016, *ApJL,* 823, 27 [ADS]

Cortes, P. C., Girart, J. M., **Hull, C. L. H.,** *et al.,* "Interferometric mapping of magnetic fields: The ALMA view of the massive star forming clump W43-MM1," 2016, *ApJL,* 825, 15 [ADS]

Houde, M., **Hull, C. L. H.,** *et al.,* "Dispersion of Magnetic Fields in Molecular Clouds. IV — Analysis of Interferometry Data," 2016, *ApJ,* 820, 38 [ADS]

Hull, C. L. H. and Plambeck, R. L., "The 1.3 mm Full-Stokes Polarization System at CARMA," 2015, *JAI,* 4, 1550005 [ADS]

Sabin, L., **Hull, C. L. H.,** *et al.,* "Millimeter polarisation of the protoplanetary nebulae CRL 618 and OH 231.8+4.2: A follow-up study with CARMA," 2015, *MNRAS,* 449, 2368 [ADS]

Davidson, J. A., Li, Z.-Y., **Hull, C. L. H.,** *et al.,* "Testing Magnetic Field Models for the Class 0 Protostar L1527," 2014, *ApJ,* 797, 74 [ADS]

Wright, M. C. H., **Hull, C. L. H.,** *et al.,* "NGC 7538 IRS 1: Interaction of a polarized dust spiral and a molecular outflow," 2014, *ApJ,* 796, 112 [ADS]

Hull, C. L. H. *et al.,* "TADPOL: A 1.3 mm Survey of Dust Polarization in Star-forming Cores and Regions," 2014, *ApJS,* 213, 13 [ADS]

Hull, C. L. H. *et al.,* "Misalignment of Magnetic Fields and Outflows in Protostellar Cores," 2013, *ApJ,* 768, 159 [ADS]

Krumholz, M. R., Crutcher, R. M., and **Hull, C. L. H.,** "Protostellar Disk Formation Enabled by Weak, Misaligned Magnetic Fields," 2013, *ApJL,* 767, 11 [ADS]

Hughes, A. M., **Hull, C. L. H.,** *et al.,* "Interferometric Upper Limits on Millimeter Polarization of the Disks around DG Tau, GM Aur, and MWC 480," 2013, *AJ,* 145, 115 [ADS]

Hull, C. L. H. *et al.,* "Primary-Beam Shape Calibration from Mosaicked, Interferometric Observations," 2010, *PASP,* 122, 1510 [ADS]

Dubus, G., Taam, R. E., **Hull, C.,** Watson, D. M., *et al.,* "Spitzer Space Telescope Observations of the Magnetic Cataclysmic Variable AE Aquarii," 2007, *ApJ,* 663, 516 [ADS]

Watson, D. M., Bohac, C. J., **Hull, C.,** *et al.,* "The development of a protoplanetary disk from its natal envelope," 2007, *Nature,* 448, 1026 [ADS]

OTHER

Stephens, I. *et al.,* "ALMA Reveals Transition of Polarization Pattern with Wavelength in HL Tau's Disk," 2017, *ApJ,* 851, 55 [ADS]

Nagai, H. *et al.,* "ALMA Science Verification Data: Millimeter Continuum Polarimetry of the Bright Radio Quasar 3C 286," 2016, *ApJ,* 824, 132 [ADS]

Tobin, J. J. *et al.,* "The VLA Nascent Disk and Multiplicity (VANDAM) Survey of Perseus Protostars. Resolving the Sub-arcsecond Binary System in NGC 1333 IRAS2A," 2015, *ApJ,* 798, 61 [ADS]

Stephens, I. *et al.,* "The Magnetic Field Morphology of the Class 0 Protostar L1157-mm," 2013, *ApJL,* 769, 15 [ADS]

Zauderer, B. A. *et al.,* "Birth of a relativistic outflow in the unusual gamma-ray transient Swift J164449.3+573451," 2011, *Nature,* 476, 425 [ADS]

Law, C. J. *et al.,* "Spectropolarimetry with the Allen Telescope Array: Faraday rotation toward bright polarized radio galaxies," 2011, *ApJ,* 728, 57 [ADS]

Bower, G. C. *et al.,* "The Allen Telescope Array Pi GHz Sky Survey I. Survey Description and Static Catalog Results for the Boötes Field," 2010, *ApJ,* 725, 1792 [ADS]

Croft, S. *et al.,* "The Allen Telescope Array Twenty-centimeter Survey — A 690-Square-Degree, 12-Epoch Radio Dataset — I: Catalog and Long-Duration Transient Statistics," 2010, *ApJ,* 719, 45 [ADS]

Zasowski, G. *et al.,* "Spitzer Infrared Spectrograph Observations of Class I/II Objects in Taurus: Composition and Thermal History of the Circumstellar Ices," 2009, *ApJ,* 694, 459 [ADS]

UNREFEREED

Le Gouellec, V., **Hull, C. L. H.,** *et al.,* "Testing the Polarization Mosaicking Capabilities of ALMA," 2018, *ALMA EOC Memos*

Hull, C. L. H. *et al.,* "Magnetic fields in forming stars with the ngVLA," 2018, chapter in the *ngVLA Science Book* [ADS]

Kameno, S. *et al.,* "3C 279: ALMA detection of radio flare in total and polarized flux densities," 2018, *The Astronomer's Telegram,* No. 11572 [ADS]

Hull, C. L. H., "How to Give a Great Talk," 2017, *URSI Radio Science Bulletin,* No. 361, June 2017, pp. 75-79 [IEEE Xplore] [arXiv] [ADS]

Tychoniec, Ł., **Hull, C. L. H.,** et al., "Chemical and kinematic complexity of the very young star-forming region Serpens Main observed with ALMA," 2017, *IAUS 332 proc.* [ADS]

Hull, C. L. H., *et al.,* "Characterizing the polarization response of the ALMA primary beam," 2015, *ALMA EOC Memos*

Isella, A., **Hull, C. L. H.,** *et al.,* "Next Generation Very Large Array Memo No. 6, Science Working Group 1: The Cradle of Life," 2015, *ngVLA Memo Series,* 6 [ADS]

Carilli, C. L. *et al.,* "Next Generation Very Large Array Memo No. 5: Science Working Groups — Project Overview," 2015, *ngVLA Memo Series,* 5 [ADS]

Hull, C. L. H. and Plambeck, R. L., "The 1.3 mm Full-Stokes Polarization System at CARMA," 2015, *CARMA Memo Series,* 64 [link]

Hull, C. L. H., "From Cores to Envelopes to Disks: A Multi-scale View of Magnetized Star Formation," 2014, Ph.D. Thesis, University of California, Berkeley [PDF] [ADS] [ProQuest]

Hull, C. L. H., Plambeck, R. L., "Probing magnetic-field morphology in protostellar envelopes with the CARMA 1.3 mm dual-polarization receiver system," 2014, in *General Assembly and Scientific Symposium (URSI GASS), 2014 XXXIth URSI,* 1–4 [IEEE Xplore]

Bauermeister, A. *et al.,* "Monitoring of Secondary Calibrator Fluxes at CARMA," 2012, *CARMA Memo Series,* 59 [link]

Hull, C. L. H., Plambeck, R., and Engargiola, G., "1 mm Dual-polarization Science with CARMA," 2011, in *General Assembly and Scientific Symposium, 2011 XXXth URSI,* 1–4 [IEEE Xplore]

Zauderer, B. A. *et al.,* "GRB 110328A / Swift J164449.3+573451: CARMA mm detection," 2011, *GRB Coordinates Network,* Circular 11841 [ADS]

Williams, P. K. G. *et al.,* "Training the Next Generation of Astronomers," 2009, *astro2010: The Astronomy and Astrophysics Decadal Survey*, Position Paper 65 [ADS]

PRESENTATIONS

INVITED TALKS

UT Austin, Beatrice M. Tinsley Scholar, Austin, TX	Scheduled
Polarization workshop, Sant Cugat del Vallès, Catalonia (declined)	May 2019
Universidad de Valparaíso, Valparaíso, Chile	Scheduled
"Cosmic Dust & Magnetism" meeting, KASI, Daejeon, South Korea	31 Oct 2018
ISM 2018 meeting, Cozumel, Mexico (declined)	May 2018
University of Wisconsin, Madison, WI	26 Apr 2018
Universidad de Concepción, Concepción, Chile	6 Apr 2018
Symposium in honor of Pierre Cox, Vitacura, Santiago, Chile	27 Mar 2018
"Magnetic fields or turbulence?" meeting, Hsinchu, Taiwan	6 Feb 2018
Joint ALMA Observatory, Vitacura, Santiago, Chile	7 Dec 2017
EA ALMA Science Workshop, KASI, Daejeon, South Korea (declined)	Nov 2017
QUESO polarization workshop, Garching, Germany (declined)	Oct 2017
NAOJ, Mitaka, Japan	22 Sep 2017
Midwest Magnetic Fields Workshop, Madison, WI (declined)	May 2017
NRAO (CV), Charlottesville, VA (job interview)	1 Feb 2017
MPIfR, Bonn, Germany	14 Nov 2016
University of Oklahoma, Norman, OK	27 Oct 2016
Brown University, Providence, RI	20 Oct 2016
Fellows at the Fontiers, Northwestern University, Evanston, IL	1 Sep 2016
University of Western Ontario, London, ON, Canada	19 May 2016

	Florida State University, Tallahassee, FL	23 Feb 2016
	15 Años de Ciencia con Gemini en Argentina, La Plata, Argentina	2 Jun 2015
	Instituto Argentino de Radioastronomía, La Plata, Argentina	1 Jun 2015
	Joint ALMA Observatory, Vitacura, Santiago, Chile	20 May 2015
	Herzberg Institute of Astrophysics, Victoria, B.C., Canada	28 Apr 2015
	Dominion Radio Astronomical Observatory, Penticton, B.C., Canada	27 Apr 2015
	University of Minnesota, Minneapolis, MN	24 Apr 2015
	NRAO (NM), Socorro, NM	13 Feb 2015
	NAOC, Beijing, China	15 Aug 2014
	ASTROPOL 2014, Grenoble, France	27 May 2014
	Space Sciences Laboratory, Berkeley, CA	14 Feb 2014
	University of Rochester, Rochester, NY	26 Nov 2013
	Rochester Institute of Technology, Rochester, NY	22 Nov 2013
	NRAO/University of Virginia, Charlottesville, VA	25 Sep 2013
	Instituto de Astronomía, UNAM, Mexico City, Mexico	11 Sep 2013
	Centro de Radioastronomía y Astrofísica, UNAM, Morelia, Mexico	5 Sep 2013
	University of Illinois at Urbana-Champaign, Urbana, IL	10 Jul 2013
	SETI Institute, Mountain View, CA [`video`]	26 Feb 2013
	SOFIA Science Center, NASA Ames, Mountain View, CA	23 May 2012
SUMMER SCHOOLS	Green Bank Interferometry School, Green Bank, WV (talk)	14 July 2015
SELECTED TALKS & POSTERS	American Astronomical Soc. 233$^{\text{rd}}$ mtg., Seattle, WA (poster)	Scheduled
	SOCHIAS annual meeting, La Serena, Chile (poster)	10 Oct 2018
	IAU XXX GA, incl. FM4 & Division H day, Vienna, Austria (poster)	27 Aug 2018
	IAU Symposium 342: The Perseus Cluster, Noto, Sicily, Italy (talk)	15 May 2018
	American Astronomical Soc. 231$^{\text{st}}$ mtg., National Harbor, MD (iPoster)	10 Jan 2018
	Nagoya University, Nagoya, Japan (talk)	2 Oct 2017
	RIKEN, Tokyo, Japan (talk)	19 Sep 2017
	ASJ annual meeting, Hokkaido, Japan (talk)	12 Sep 2017
	Harvard/CfA SMA Science Meeting, Cambridge, MA (exit seminar)	30 Jun 2017
	Harvard/CfA Star Formation Journal Club, Cambridge, MA (talk)	26 Apr 2017
	Multi-scale Star Formation meeting, Morelia, Mexico (talk)	7 Apr 2017
	NRAO postdoc symposium, Charlottesville, VA (talk)	28 Mar 2017
	NRAO (NM) Wednesday lunch talk, Socorro, NM (talk)	15 Mar 2017
	UVa star formation theory lunch talk, Charlottesville, VA (talk)	30 Jan 2017
	Regional star formation meeting, New Haven, CT (talk)	27 Jan 2017
	Origins Space Telescope Hyperwall talk at AAS 229, Grapevine, TX (talk)	6 Jan 2017
	American Astronomical Society 229$^{\text{th}}$ Meeting, Grapevine, TX (poster)	4 Jan 2017
	+69 more talks & posters from 2005–2016	

ADVISING

Joint ALMA Observatory, Santiago, Chile

Valentin Le Gouellec, master's & Ph.D. student 2018–

Valentin started as an aerospace engineering master's student at ISAE Supaero (France) working with me on using ALMA data to map magnetic fields at ~ 30 au resolution in low-mass protostellar cores. He is now a Ph.D. student funded by the ESO studentship program, and is co-advised by me and Anaëlle Maury (CEA Saclay).

Carlos Orquera, U. Católica del Norte (Chile), undergraduate Jan – Sep 2018

Carlos was an REU student funded through the NRAO Office of Diversity & Inclusion Chile Program who worked with me and co-supervisor Paulo Cortés (Scientist at ALMA) on his undergradaute thesis entitled, "Mapping the magnetic field in the remarkable W43 high-mass star-forming region."

Harvard-Smithsonian Center for Astrophysics, Cambridge, MA

Joyce Lee, Southampton (UK), master's student August 2015 – May 2016

Joyce worked on a project comparing CARMA polarization observations of protostars with synthetic observations of star-formation simulations from Stella Offner (co-adviser, astronomy professor at UMass Amherst). Thesis title: "Synthetic Observations of Magnetic Fields in Protostellar Cores." Published paper: [ADS]. **Award:** 2018 STAG Prize (Southampton) for best theoretical astrophysics paper.

TEACHING

UC Berkeley, Astronomy Dept. & Radio Astronomy Laboratory, Berkeley, CA

Co-instructor

– AY 250: Radio 101, Intro to Radio Astronomy (graduate seminar) Fall 2010

Graduate student instructor

– AY C10: Introductory Astronomy for Non-majors (undergraduate) Fall 2009

– AY 7A: Introductory Astronomy for Majors (undergraduate) Fall 2008

iFly SF Bay, Union City, CA

Physics lecturer: taught physics at a skydiving tunnel Summer 2011

Independent physics tutor, Berkeley, CA

Tutored high school and college students in physics 2009–2013

Woodberry Forest School, Woodberry Forest, VA

Faculty member: taught AP, general, freshman, & research physics Fall '06, Spring '08

Yinhatil Nab′en School, San Mateo Ixtatán, Huehuetenango, Guatemala

Faculty member: taught secondary-level math, physics, and music 2007

University of Virginia, Athletics Dept., Charlottesville, VA

Tutor: tutored UVa athletes in Calculus 2003–2006

SCIENCE COMMUNICATION

PUBLIC LECTURES

Cape Cod Astronomical Society, South Yarmouth, MA	3 Nov 2016
Cambridge Science Festival, Cambridge, MA	24 Apr 2016
U.S. Invitational Young Physicists Tournament, Woodberry Forest, VA	30 Jan 2015
Mt. Tam Astronomy Program, Mount Tamalpais State Park, CA	6 Apr 2014
Wonderfest "New Science Smorgasbord," San Francisco, CA [video]	11 Dec 2013
Wonderfest "Science-Comedy Improv Blitz," San Francisco, CA [video]	1 Nov 2013
Charlottesville Astronomical Society, Charlottesville, VA (webinar)	7 Aug 2013
Epworth United Methodist Church, Berkeley, CA	23 Mar 2013
UC Berkeley Physics Dept. "Launch Day," Berkeley, CA	21 Aug 2012
Peninsula Astronomical Society, Los Altos Hills, CA	10 Aug 2012
Cerro Coso Community College, Bishop, CA	10 Nov 2011
East Bay Astronomical Society, Oakland, CA	27 Nov 2010
Charlottesville Astronomical Society, Charlottesville, VA	2 Nov 2005

WORKSHOPS

Wonderfest, San Francisco Bay Area, CA — Sep 2013 – Jan 2014

Science Envoy

– Member of the inaugural class of eight Envoys from Berkeley and Stanford
– Engaged in monthly science communication workshops
– Spoke at public Wonderfest events

Science communication workshop with Alan Alda, Stanford, CA — 16–18 Jan 2014

Workshop by the Alan Alda Center for Communicating Science. Included media training, improvisation, and other techniques designed to improve scientists' abilities to communicate successfully in challenging settings. Here is a recording of me engaging in a (challenging!) mock interview during the workshop: [video]

FameLab, Berkeley, CA — 7 Dec 2012

Science communication workshop followed by a three-minute public speaking competition in front of a live audience.

POPULAR ARTICLES

"How to Give a Great Talk" — Dec 2017

Wrote an article about how to give great scientific presentations, which appeared in the "Early Career Representative Column" of the URSI Radio Science Bulletin. The article can be found here [IEEE Xplore] and here [arXiv].

Centurion Magazine — Oct 2015

Was interviewed for an article about ALMA and star formation. The article is available in French [PDF] and German [PDF].

Berkeley Science Review, UC Berkeley, Berkeley, CA — Apr 2009

Wrote a "Labscope" article on Austin Roorda's UC Berkeley Vision Science lab. The BSR is a graduate-student-run publication covering science and technology at Berkeley. [PDF]

Chronicle Express, Penn Yan, NY — Sep 2007

Wrote a public article for the *Chronicle Express,* Penn Yan's local paper, describing research I did as a summer researcher at the University of Rochester; the results were later published in *Nature* and the *Astrophysical Journal.* [PDF]

OTHER EXPERIENCE

U.S. Association for Young Physicists Tournaments

Board member — 2014–2017

U.S. Invitational Young Physicists Tournament

Head Juror (University of the Sciences, Philadelphia, PA)	28–29 Jan 2017
Head Juror (Randolph College, Lynchburg, VA)	29–30 Jan 2016
Head Juror (Woodberry Forest School, Woodberry Forest, VA)	30–31 Jan 2015
Juror (Harker School, San Jose, CA)	31 Jan – 1 Feb 2014
Juror (Harker School, San Jose, CA)	1–2 Feb 2013
Team co-leader (WFS) (NC School of Science & Math, Durham, NC)	8–9 Feb 2008

"Strip the Cosmos" documentary filming, CARMA, Cedar Flat, CA — 30 Jul 2014

Consulted with producers and was filmed on-site at CARMA for a segment on star formation in the "Inside the Sun" episode. The United States premiere was on 19 Nov 2014 on the *Science* channel. [video]

WFS capital campaign celebration, Woodberry Forest, VA — 9 Nov 2012

Invited to speak about the importance of the science program at Woodberry Forest; the event marked the successful completion of the school's most recent capital campaign.

Communicating with Washington, Washington, DC 8–9 May 2012
Lobbied on behalf of the AAS.

Consultant for TV show "Castle," Los Angeles, CA Nov 2011
Consulted with the producers of the TV show "Castle" about an episode involving radio astronomy, telescopes, satellites, and data collection.

PROFESSIONAL SERVICE

Time Allocation Committees 2016–
ALMA: science assessor of ALMA proposals for Cycles 4, 5, and 6.
CFHT: proposal reviewer.

Review panels 2016–
Panelist: participated in the review process for NSF, ALMA, and ERC programs.

ALMA polarization calibration 2015–
Team member: assisting with further commissioning of the ALMA polarization system, along with other members of the Extension and Optimization of Capabilities (EOC) team.

Origins Space Telescope (OST) science working group 2016–
I am a member of the "Milky Way, ISM, and Nearby Galaxies" science working group, which is one of five groups drafting science goals for the future Origins Space Telescope mission. I am the leading the drafting of the "killer app" on magnetic fields and polarization.

Next Generation VLA (ngVLA) science working groups 2014–
I was an internal (NRAO) co-chair and organizer of the "Cradle of Life" working group, which proposed science cases for the ngVLA; I was a coauthor of a white paper summarizing the working group's findings. I was also the primary author of a chapter in the ngVLA Science Book.

LMT TolTEC collaboration 2016–
I am an unfunded collaborator on the TolTEC project to build an imaging polarimeter for the Large Millimeter Telescope in Mexico. TolTEC was funded by an NSF MSIP grant in 2017.

Referee experience
Astrophysical Journal (ApJ), Astrophysical Journal Letters (ApJL), Monthly Notices of the Royal Astronomical Society (MNRAS), Astronomy & Astrophysics (A&A), Astrophysics & Space Science (Ap&SS).

Conference organization

Focus Meeting 4 at the IAU GA (SOC co-chair), Vienna, Austria	30–31 Aug 2018
ALMA/ESO Science Day, Vitacura, Santiago, Chile	15 Dec 2017
CARMA Science Symposium (SOC), Chicago, IL	7–9 Jul 2013
CARMA Science Symposium (LOC), Berkeley, CA	28 Feb – 1 Mar 2011

Jefferson Scholars selection committee, Charlottesville, VA 2015, 2016
Committee member: interviewed and selected candidates for the Jefferson Fellowship at the University of Virginia.

CfA undergraduate-thesis reader, Cambridge, MA 2016–
External reader: read and critiqued a Harvard undergraduate astronomy thesis.

Postdoc Council, Cambridge, MA 2015–
Council member: organize events for the Harvard/CfA postdoc community.

Mentoring program, UC Berkeley Astronomy Dept., Berkeley, CA 2010–2013

Mentor master: co-leader of the graduate mentoring program.

MISCELLANY

Smithsonian Staff Photo Contest, Washington, DC 2015, 2017

My photos "Autumn Love" [JPG] and "Bath time" [JPG] won second place in the "Non-Smithsonian people" (2015) and "Non-Smithsonian objects" (2017) categories, respectively. Both photos were (or will be) on display for a year at exhibitions in the Ripley Center in Washington, DC.

Masala Chaat, Berkeley, CA; Cambridge & Somerville, MA 2011–2017

Food critic: reviewed all of the 60+ Indian restaurants in both Berkeley, CA and Cambridge & Somerville, MA!

REFERENCES

Available upon request.