

Daniel C. Jacobs

2012 E. Aspen Dr., Tempe, Arizona 85282, USA
daniel.c.jacobs@asu.edu • +1 (215) 280-7357 • <http://danielcjacobs.com>

EDUCATION	University of Pennsylvania , Philadelphia, Pennsylvania, USA	
	▪ Doctor of Philosophy (Ph.D.) in Physics and Astronomy • Thesis: The Epoch of Reionization: Foregrounds and Calibration with PAPER • Adviser: Prof. James Aguirre	Jan 2009 – Sep 2011
	Montana State University , Bozeman, MT, USA	
	▪ Master of Science (M.Sc.) in Physics	Aug 2004 – Oct 2009
	New Mexico Tech , Socorro, New Mexico, USA	
	▪ Bachelor of Science (B.S.) in Physics and Astrophysics	Aug 2000 – May 2004
RESEARCH EXPERIENCE	Arizona State University , School of Earth and Space Exploration	
	▪ National Science Foundation Astronomy and Astrophysics Research Fellow	Oct 2014 – Oct 2017
	▪ Postdoctoral Fellow	Oct 2011 – Oct 2014
	University of Pennsylvania , Dept. of Physics and Astronomy	
	▪ Research Assistant	Jan 2009 – Oct 2011
	Montana State University , Space Science and Engineering Lab.	
	▪ Project Manager	Jan 2005 – Nov 2008
	Montana State University , Physics Dept.	
	▪ Research Assistant	Jan 2005 – Nov 2008
	New Mexico Tech , Magdalena Ridge Observatory	
	▪ Research Assistant	May 2002 – Aug 2004
PRINCIPLE INVESTIGATOR	Funding by the National Science Foundation	
	<i>Observing the Epoch of Reionization with the Murchison Widefield Array</i>	2014 – 2017
	Astronomy and Astrophysics Research Grants (AAG), AST-1410719, \$201,366 *	
	<i>An External Calibrator for Hydrogen Observatories</i>	2014 – 2016
	Advanced Technologies and Instrumentation (ATI) AST-1407646, \$99,287 †	
	<i>Charting the history of reionization with the first 21cm observations</i>	2014 – 2017
	Astronomy and Astrophysics Postdoctoral Fellowship (AAPF), AST-1401708, \$258,000	
Funding by Industry		
<i>Scaling up 21cm analysis pipelines for the Square Kilometer Array</i>	2015–	
Amazon Web Services/SKA Partnership, \$20,000		
PROJECTS	Murchison Widefield Array	2011 – Present
	http://mwatelescope.org	
	Precision Array for Probing the Epoch of Reionization	2009 – Present
http://eor.berkeley.edu		
Hydrogen Epoch of Reionization Array	2013 (inception) – Present	
https://reionization.org		

*Due to internal NSF rules I am listed as Co-I but function as PI.

†Due to NSF proposal count rules I am listed as co-I but function as PI.

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- [29] Dillon, Joshua S., Neben, Abraham R., Hewitt, Jacqueline N., Tegmark, Max, Barry, N., Beardsley, AP., Jacobs, D., et al. *Empirical Covariance Modeling For 21 Cm Power Spectrum Estimation: A Method Demonstration And New Limits From Early Murchison Widefield Array 128-Tile Data* Physical Review D, 91, 123011, 2015
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- [25] Pober, Jonathan C., Ali, Zaki S., Parsons, Aaron R., McQuinn, Matthew, Aguirre, James E., Bernardi, Gianni, Jacobs, D., et al. *Paper-64 Constraints On Reionization. Ii. The Temperature Of The $Z=8.4$ Intergalactic Medium* The Astrophysical Journal, 809, 62, 2015
- [24] Thyagarajan, Nithyanandan, Jacobs, Daniel C., Bowman, Judd D., Barry, N., Beardsley, AP., Bernardi, G. et al. *Foregrounds In Wide-Field Redshifted 21 Cm Power Spectra* The Astrophysical Journal, 804, 14, 2015
- [23] Ali, Zaki S., Parsons, Aaron R., Zheng, Haoxuan, Pober, Jonathan C., Liu, Adrian, Aguirre, James E., Jacobs, D., et al. *Paper-64 Constraints On Reionization: The 21 Cm Power Spectrum At $Z=8.4$* The Astrophysical Journal, 809, 61, 2015
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- [21] Offringa, AR., Wayth, RB., Hurley-Walker, N., Kaplan, DL., Barry, N., Beardsley, AP., Jacobs, D., et al. *The Low-Frequency Environment Of The Murchison Widefield Array: Radio-Frequency Interference Analysis And Mitigation* Publications of the Astronomical Society of Australia, 32, e008, 2015
- [20] McKinley, B., Yang, Ruizhi, López-Caniego, M., Briggs, F., Hurley-Walker, N., Wayth, RB., Jacobs, D., et al. *Modelling Of The Spectral Energy Distribution Of Fornax A: Leptonic And Hadronic Production Of High-Energy Emission From The Radio Lobes* Monthly Notices of the Royal Astronomical Society, 446, 3478–3491, 2015

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- [18] Jacobs, Daniel C., Pober, Jonathan C., Parsons, Aaron R., Aguirre, James E., Ali, Zaki S., Bowman, Judd et al. *Multiredshift Limits On The 21 Cm Power Spectrum From Paper* The Astrophysical Journal, 801, 51, 2015
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- [14] Pober, Jonathan C., Liu, Adrian, Dillon, Joshua S., Aguirre, James E., Bowman, Judd D., Bradley, Richard F., Jacobs, D., et al. *What Next-Generation 21 Cm Power Spectrum Measurements Can Teach Us About The Epoch Of Reionization* The Astrophysical Journal, 782, 66, 2014
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- [10] Moore, David F., Aguirre, James E., Parsons, Aaron R., Jacobs, Daniel C., Pober, Jonathan C. *The Effects Of Polarized Foregrounds On 21 Cm Epoch Of Reionization Power Spectrum Measurements* The Astrophysical Journal, 769, 154, 2013
- [9] Jacobs, Daniel C., Bowman, Judd, Aguirre, James E. *The Precision And Accuracy Of Early Epoch Of Reionization Foreground Models: Comparing Mwa And Paper 32-Antenna Source Catalogs* The Astrophysical Journal, 769, 5, 2013
- [8] Stefan, Irina I., Carilli, Chris L., Green, David A., Ali, Zaki, Aguirre, James E., Bradley, Richard F., Jacobs, D., et al. *Imaging On Paper: Centaurus A At 148 Mhz* Monthly Notices of the Royal Astronomical Society, , stt548, 2013
- [7] Parsons, Aaron R., Pober, Jonathan C., Aguirre, James E., Carilli, Christopher L., Jacobs, Daniel C., Moore, David F. et al. *A Per-Baseline, Delay-Spectrum Technique For Accessing The 21 Cm Cosmic Reionization Signature* The Astrophysical Journal, 756, 165, 2012
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- [5] Parsons, Aaron, Pober, Jonathan, McQuinn, Matthew, Jacobs, Daniel, Aguirre, James *A Sensitivity And Array-Configuration Study For Measuring The Power Spectrum Of 21 Cm Emission From Reionization* The Astrophysical Journal, 753, 81, 2012
- [4] Jacobs, Daniel C., Aguirre, James E., Parsons, Aaron R., Pober, Jonathan C., Bradley, Richard F., Carilli, Chris L. et al. *New 145 Mhz Source Measurements By Paper In The Southern Sky* The Astrophysical Journal Letters, 734, L34, 2011

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- [2] Parsons, Aaron R., Backer, Donald C., Foster, Griffin S., Wright, Melvyn CH., Bradley, Richard F., Gugliucci, Nicole E., Jacobs, D., et al. *The Precision Array For Probing The Epoch Of Re-Ionization: Eight Station Results* The Astronomical Journal, 139, 1468, 2010
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- [3] Jacobs, Daniel C., Hazelton, BJ., Trott, CM., Dillon, Joshua S., Pindor, B., Sullivan, IS. et al. *The Murchison Widefield Array 21 Cm Power Spectrum Analysis Methodology* arXiv preprint arXiv:1605.06978, , , 2016
- [2] Neben, Abraham R., Bradley, Richard F., Hewitt, Jacqueline N., DeBoer, David R., Parsons, Aaron R., Aguirre, James E., Jacobs, D., et al. *The Hydrogen Epoch Of Reionization Array Dish I: Beam Pattern Measurements And Science Implications* arXiv preprint arXiv:1602.03887, , , 2016
- [1] Moore, David, Aguirre, James E., Parsons, Aaron, Ali, Zaki, Bradley, Richard, Carilli, Chris, Jacobs, D., et al. *New Limits On Polarized Power Spectra At 126 And 164 Mhz: Relevance To Epoch Of Reionization Measurements* arXiv preprint arXiv:1502.05072, , , 2015

PROFESSIONAL AFFILIATIONS & ACTIVITIES	American Physical Society , Maryland, USA	2002 – Present
	Sigma Pi Sigma , Maryland, USA	2004 – Present
	American Astronomical Society , Washington D.C., USA	2009 – Present
TEACHING & MENTORING	Capstone Customer & Mentor ASU School of Computing	2015
	Lecturer Santa Fe Cosmology Summer School	2015
	Guest Lecturer ASU AST-531, Galaxies and Cosmology	2014
	Lecturer Santa Fe Cosmology Summer School	2014
	Guest Lecturer ASU AST-112, Intro to Stars, Galaxies, and Cosmology	2013
	Guest Lecturer MSU PHSX 520, Electricity and Magnetism II (Jackson)	2008
	Project Manager/Student Mentor	2005– 2009
	Montana State University, Space Science and Engineering Lab. <ul style="list-style-type: none"> ▪ Managed program and lead students to design, build, and fly their own space hardware. ▪ Three successful funding proposals, and two NASA launch manifests. ▪ Mentored 40+ students 	
Teaching Assistant MSU PHSX 205, College Physics	2004	
SERVICE	NRAO CASA Users Committee	
	▪ Chair	2016
	▪ Member	2014– 2016

TALKS

INVITED TALKS

Progress report from the Hydrogen Epoch of Reionization Array Experiment, Opportunities and Challenges Intensity Mapping, Stanford, Palo Alto, CA	Mar 2016
Lessons learned from 21 cm experiments, Opportunities and Challenges Intensity Mapping, Stanford, Palo Alto, CA	Mar 2016
Probing the Epoch of Reionization with HERA, PAPER, and the MWA, Yale University	Feb 2016
Lecture on The Epoch of Reionization, Santa Fe Cosmology Summer School, St. John's College	Mar 2015
Colloquium: Chasing our cosmic dawn with HERA. CCAPP, The Ohio State U.	Feb 2015
Chasing our cosmic dawn with HERA. Institute for Advanced Study	Feb 2015
Chasing our cosmic dawn with HERA. Brown University Physics Dept.	Feb 2015
Chasing our cosmic dawn with HERA. University of Illinois, Urbana-Champaign	Jan 2015
Chasing our cosmic dawn with HERA. University of Wisconsin, Madison	Feb 2015
The Murchison Widefield Array Epoch of Reionization Project <i>Early Science from Low Frequency Radio Telescopes, Tempe Az</i>	Dec 2014
Lecture, Santa Fe Cosmology Summer School St. John's College	Feb 2015
LoCo1: Testing Low frequency Astronomy in Space URSI, Boulder, CO	Jan 2014
Shedding light on EoR Foregrounds with PAPER and MWA, URSI, National Radio Science Meeting, Boulder, CO	Jan 2014
Colloquium: Detecting the Epoch of Reionization with Experimental Radio Arrays University of Wisconsin, Milwaukee	Nov 2013
Methods for detecting the 3D percolation of photons in the early universe Biomedical Astronomical Signal Processing Frontiers Workshop	Jan 2013
PAPER: Status and Recent Observations NRAO New Worlds New Horizons, Santa Fe, NM February 2011	Feb 2011
The southern low frequency sky with PAPER University of New Mexico, 2010	May 2010
The Epoch of Reionization with a Precision Array Santa Fe Summer Cosmology school, 10 July 2010	Jul 2010
Astronomer in the Classroom sponsored by the International Year of Astronomy, 2009	Jul 2009
Public Lecture on the Epoch of Reionization Franklin Museum, Philadelphia, PA	Jul 2009
Explorer 1 [PRIME] Satellite Critical Design Review (flight awarded) NASA Space Launch Services Site Visit, Bozeman, MT,	Apr 2009

CONFERENCE TALKS

Probing the Epoch of Reionization with MWA, PAPER, and HERA, American Physical Society, April Meeting, Salt Lake City, UT	Apr 2016
An External Calibrator for Hydrogen Observatories (ECHO) Early Science for Low Frequency Radio Telescopes (Tempe Meeting II), Albuquerque, NM	Jan 2016
An External Calibrator for Hydrogen Observatories (ECHO) URSI National Radio Science Meeting, Boulder, CO	Jan 2016
Multi-redshift 21 cm observations of the epoch of reionization American Astronomical Society Annual Meeting, Seattle, WA	Jan 2015
Chasing our Cosmic Dawn with the Hydrogen Epoch of Reionization Array National Science Foundation AAPF Fellow's Symposium, Seattle	Jan 2015
Development and Status of early pipelines for MWA and PAPER AAS Exascale Radio Astronomy, Monterey CA	Mar 2014
Comparing MWA/PAPER Instrumental Performance American Astronomical Society, January	Jan 2013
Catalog and Galactic Emissions with PAPER Aspen Winter Conference	Feb 2010
Recent Results from the Precision Array for Probing the Epoch of Reionization (PAPER) Experiment in South Africa American Astronomical Society	Jan 2010
Global Positioning System on orbit IEEE regional workshop, Big Sky, MT	Mar 2006
A PAPER Low-Frequency, Wide-Bandwidth, All-Sky Radio Point Source Catalog American Astronomical Society, Long Beach, CA	Jan 2009
Explorer 1 [PRIME] A 50th anniversary reflight Small Satellite Conference, Logan, UT	Aug 2005

OUTREACH	Phoenix ComicCon Panels	Jun 2015
	<i>Panel: Adventures and Disasters in Science</i>	
	Outreach with Star Lab	Oct 2015
	Pascua Yaqui Boys and Girls Club, Mesa Prep Academy, Bioscience High School	
	Science Friday	Feb 2014
	<i>Probing the First Stars with Radio Arrays in the Deep Desert,</i>	
	Tempe Center for the Arts	
	Phoenix ComicCon Panels	Jun 2014
	4 panels, including: SETI, Cubesats, Wait Wait Science, Adventures in Science	
	Grand Awards Judge	May 2013
	Intel Science and Engineering Fair	
	Outreach with Star Lab	Oct 2013
	Salt River Pima Maricopa Reservation	
	Outreach with Radio Detectives	<i>10 appearances in the period: Jan 2012 – present</i>
	School of Earth and Space Exploration Open House	
Outreach with Radio Detectives	Mar 2013	
Pascua Yaqui Tribal Center		
Public Lecture	Oct 2012	
ASU Open Door Night		
Astronomer in the Classroom	Oct 2010	
sponsored by the International Year of Astronomy		
Physics Society Demonstration Team		
New Mexico Tech, Socorro, NM	2001 – 2004 President 2003-2004	

**STUDENTS
MENTORED**

Jacob Burba – ASU Physics 2016 – Now at Brown for Physics PhD
Michael Busch – Graduated ASU, SESE – Now at Johns-Hopkins for Astronomy PhD
Ben Stinnett – Graduated ASU SESE[‡], now at Aurobot Inc.
Jay Allison – Graduated, ASU SESE 2015 – Currently at Raytheon
Mason Denney – Graduated, ASU SESE 2016
Piyanat Kittiwisit – graduate, SESE
Lauren Turner – Senior, ASU SESE
Kali Johnson – Junior, ASU SESE
David Nelson – undergraduate, SESE – 1991-2014
Victoria Serrano – Graduated ASU Master’s in Electrical Engineering, 2016
Jose Chavez – Graduated, ASU Physics, now at Intel
Marc Leatham – Senior, ASU SESE
40+ undergraduates at Montana State University, Space Science and Engineering Lab
10 students in ASU School of Computing capstone course

[CV compiled on 2016-06-10 for Web Distribution]

[‡]School of Earth and Space Exploration, SESE