

# Amber N. Straughn

Research Astrophysicist  
Deputy Project Scientist – JWST Communications & Outreach  
NASA's Goddard Space Flight Center  
Code 665; Building 34, Room E343  
Greenbelt, MD 20771 USA

## RESEARCH INTERESTS:

Galaxy formation and evolution; galaxy mergers and interactions; galaxy merger rate; physical processes induced by galaxy interactions, specifically star formation and black hole growth; emission-line galaxies; grism spectroscopy; dark energy and its effect on the galaxy merger rate; James Webb Space Telescope & supporting technologies; WFIRST

## EDUCATION:

Ph.D. Physics (emphasis Astrophysics). Arizona State University	2008
M.S. Physics (emphasis Astrophysics). Arizona State University	2004
B.S. Physics, Magna Cum Laude. University of Arkansas at Fayetteville	2002

## PROFESSIONAL EXPERIENCE:

Astrophysicist, NASA's Goddard Space Flight Center	2011-present
Deputy Project Scientist for JWST E/PO, NASA's Goddard Space Flight Center	2011-present
Lead for Astrophysics Science Division E/PO, NASA's Goddard Space Flight Center	2011-present
Lead Scientist for JWST E/PO, NASA's Goddard Space Flight Center	2009-2011
NASA Postdoctoral Program (NPP) Fellow, NASA's Goddard Space Flight Center	2008-2011
NASA Jenkins Predoctoral Fellow, Arizona State University	2005-2008
Graduate Student Research Assistant, Arizona State University	2004-2005
NASA Space Grant Fellow, Arizona State University	2003-2004
GAANN Graduate Fellow, Arizona State University	2002-2003
Chancellor's Fellow, University of Arkansas	1998-2002
NSF Summer Intern (REU), MIT Haystack Observatory	2001
NASA Undergraduate Reduced Gravity Flight Program, University of Arkansas	2000-2001
NSF Summer Intern (REU), University of Arkansas	2000

## TEACHING EXPERIENCE:

<b>Teaching Assistant, Arizona State University</b> - Physics & Astronomy labs; undergraduate	2002-2003; 2005
<b>Teaching Assistant, Arizona State University</b> - Physics recitations; undergraduate	2004

## AWARDS & FELLOWSHIPS:

NASA Postdoctoral Program Fellowship	2008-2011
Selected for AAS's "Young Astronomer" program; invitation to AAS Council meeting	2010
'Meet the Administrator': one of ten US graduate students selected to meet with NASA Administrator Mike Griffin	2008
NASA Harriett G. Jenkins Predoctoral Fellow	2005-2008
AAS Chambliss Student Achievement Award	2007

**AWARDS (con't):**

NASA Space Grant Fellowship	2003-2004
Wally Stoelzel Physics Scholarship: Arizona State University Department of Physics	2007
GAANN Graduate Fellowship (Dept. of Education)	2002-2003
University of Arkansas Chancellor's Fellowship (full scholarship)	1998-2002
Research Experiences for Undergraduates (NSF) award, MIT Haystack Observatory	2001
NASA Undergraduate Reduced Gravity Flight Program proposal award, Univ. of Arkansas	2000-2001
William C. Bryson Astronomy Scholarship; University of Arkansas Department of Physics	2001
Research Experiences for Undergraduates (NSF) award, University of Arkansas	2000

**GRANTS AND OBSERVING:**

Hubble Space Telescope Cycle 20 (Co-I): Kassin, PI	2010-2013
Hubble Space Telescope Cycle 18 (Co-I): <i>CANDELS</i> , 902 orbits	2008
Magellan 6.5m telescope time (Co-I; 2 nights)	2007
Magellan 6.5m telescope time (Co-I, 2 <sup>nd</sup> author; 2 nights)	2006, 2007
NASA JPDF Mini Research Grant (summer)	2007

**PROFESSIONAL COLLABORATIONS:**

Member, WFIRST GSFC science team	2011-present
Member, HST WFC3 SOC Early Release Science team (PI Robert O'Connell)	2009-present
- Assisted with pipeline calibration work ('calwfc3') & grism data reduction	
- Lead study and paper on WFC3 ERS G102 and G141 grism observations	
Member, HST Multi-cycle Treasury team: " <i>CANDELS: Cosmic Assembly Near-infrared Deep Extragalactic Legacy Survey</i> " (PIs: Sandra Faber & Henry Ferguson)	2009-present

**PROFESSIONAL SERVICE:**

Hubble Space Telescope Senior Review Red Team Member	2011
Proposal Review Panel member: Hubble Space Telescope Cycle 19	2011
Proposal Review Panel member: NASA ROSES Astrophysics Theory Program	2010
Steering Committee member and Charter member: Goddard Developing Professionals	2010-2011
Founding member & President, NASA Goddard Association of Postdoctoral Scholars	2009-2010
AAS Committee on Mentoring, Charter member	2009-present
AAS Communications Working Group, member	2009-2011
Organizer, GSFC Postdoc Career Seminar	2009-2010
NASA MUST (Mentoring Undergrads in Science & Technology) application reviewer	2009
Referee, MNRAS	2009-present

**EDUCATION AND PUBLIC OUTREACH ACTIVITIES (Selected):**

Goddard VIP Tour Talks, including senior NASA management & Congress members	2010-present
JWST Presentation at Goddard Visitor's Center Lecture Series	2010

**EDUCATION AND PUBLIC OUTREACH ACTIVITIES (Selected, Cont.):**

NASA JWST “RealWorld InWorld” Engineering Design Challenge: NASA Scientist Advisor & InWorld presenter	2010-present
Organizer & participant in JWST exhibit at the World Science Festival in NYC	2010
NASA Goddard ‘Blueshift’ guest blogger	2010-present
International Year of Astronomy (IYA) “Cosmic Diary” blogger for NASA	2009-2010
IYA “100 Hours of Astronomy” Planet Walk: organization & volunteer	2009
Invited JWST Presentation: Exploratorium (New Bedford, MA)	2009
Northern Virginia Astronomy Club (Fairfax, VA): HST & JWST Invited Presentation	2009
Science Advisor & Judge (Science Fair): Greenbelt Middle School	2008-present
NASA Education Website Podcast & Feature	2007
Sally Ride Science Festivals for Girls. Organizer & Volunteer	2007
Astronomy Open House, Arizona State University	2002-2008
Astronomy talks/demos (public schools; elementary through high school)	2002-present
Outreach Coordinator, NASA Undergraduate Reduced Gravity Flight Program, University of Arkansas	2001-2002

**PUBLIC POLICY ACTIVITIES:**

Participant in NASA Day on the Hill, Washington DC	2010-2012
Participant in “Goddard Day” at Maryland Capitol, Annapolis, MD	2010
Invited participant at NASA HQ Strategic Management Council meeting	2009
Invited participant at White House Roundtable 37 <sup>th</sup> Anniversary Celebration of Title IX	2009
NASA/STEM Education Forum: “ <i>Strengthening the STEM Workforce: Strategies for Engaging Generation Y</i> ”; Invited panel participant	2009
Citizens for Space Exploration Congressional visits: Team Lead & student recruitment	2009
American Astronomical Society Congressional Visits Day participant	2009
American Physical Society Congressional Science Fellowship finalist	2008
Citizens for Space Exploration: Selected as Student Representative for annual Washington DC Congressional visit	2007, 2008
NASA Education Partnership Summit, NASA Headquarters. Invited panel participant	2007

**INVITED OUTREACH PRESENTATIONS (Selected):**

Library of Congress Science & Technology Speaker Series	2012
Association of Women in Science DC Lecture at Museum of Natural History	2011
NOVA <i>Cosmic Café</i> (Washington DC)	2011
2011 NASA Reception at National Air & Space Museum	2011
Arkansas Space Grant Consortium 19 <sup>th</sup> Annual Symposium (Keynote speaker)	2011
Arkansas Women’s Foundation “Girls of Promise” Conference (Keynote speaker)	2011, 2012
Sigma Xi Central Arkansas Chapter Fall Banquet Lecture	2010

**SCIENTIFIC PRESENTATIONS, COLLOQUIA, & SEMINARS (Selected):**

Catholic University of America (invited)	2012
MIT Lincoln Laboratory (invited)	2012
JWST Science Frontiers Workshop	2011
Dickenson College Physics Colloquium (invited)	2011
American Astronomical Society meeting	2005-2011
University of Washington Astronomy Colloquium (invited)	2010
University of Arkansas Physics Colloquium (invited)	2010
Science with the Hubble Space Telescope III (Venice, Italy)	2010
JWST & the ELTs: An Ideal Combination (Garching, Germany)	2010
NASA Goddard Space Flight Center Information Sciences & Technology Colloquium	2010
HST Wide Field Camera 3 Science Organizing Committee (Baltimore)	2009, 2010
Harvesting the Desert: The Universe at $z \sim 1-3$ (Marseilles, France)	2009
When The Universe Formed Stars (Martinique): JWST & research presentations	2008
Astrophysics in the Next Decade: JWST & Concurrent Facilities (Tucson)	2007
NASA JFPF Technical Exchange Symposium (NASA GRC, ARC)	2006, 2007
Space Telescope Science Institute Mini Workshop (Baltimore)	2006
American Astronomical Society meeting Press Conference: Invited presentation	2006
Steward Observatory Research Symposium (Tucson)	2005

**MEDIA/PRESS EVENTS:**

Appearance (JWST) in The History Channel documentary “What the Earth is Worth”	2012
Appearance in JWST videos for Hank Green/vlogbrothers “SciShow” YouTube series	2012
Live television interviews for Baltimore FOX45 at JWST Full-Scale Model	2011
NASA Multimedia Feature: “JWST FAQs”	2011
JWST presentation for DC Science Writers Association; Goddard Visitor’s Center	2011
JWST Interview for “Dr. Kiki’s Science Hour”	2011
BMore Media interview for JWST	2011
Live television/satellite interviews from NASA GSFC for JWST	2010
Extended appearance in “Hubble Gotchu” segment on Late Night with Jimmy Fallon	2010
Career Profile: Maryland Business Education Roundtable ‘Be What I Want to Be’ publication	2010
Goddard View: five stories, including two cover stories	2007-2010
NASA/HST Press release: image of tadpole galaxies (PI: Straughn) selected as one of 15 for HST’s 19 <sup>th</sup> Anniversary Press Release	2009
ASU Graduate College website feature ( <a href="http://graduate.asu.edu/node/1069">http://graduate.asu.edu/node/1069</a> )	2008
NASA Education Website Feature & Podcast (dissertation research/Chambliss Award)	2007
NASA GSFC Press Release (Chambliss Award)	2007
UNCFSP “Portal” Newsletter: Student Highlight	2007
<i>State of the Universe 2007</i> : dissertation research highlighted in book	2007

**MEDIA/PRESS EVENTS (Cont):**

- ASU Promotional DVD: selected to appear in video to discuss graduate studies 2006
- NASA/AAS Press release: research concerning tadpole galaxies 2006

**PEER-REVIEWED PUBLICATIONS:**

- Pirzkal, N. et al., *“PEARS Emission Line Galaxies”*, 2012, ApJ submitted
- Kaviraj, S. et al., *“The insignificance of major mergers in driving star formation at  $z \sim 2$ ”*, 2012, MNRAS submitted
- Hathi, N. et al., *“Stellar Populations of Lyman Break Galaxies at  $z=1-3$  in the HST/WFC3 Early Release Science Observations”* 2012, ApJ submitted
- Frye, B. et al., *“Spatially Resolved HST Grism Spectroscopy of a Lensed Emission Line Galaxy at  $z \sim 1$ ”* 2012, ApJ, 754, 17
- Xia, L., et al., *“Metallicities of Emission-line Galaxies from HST ACS PEARS and HST WFC3 ERS Grism Spectroscopy at  $0.6 < z < 2.4$ ”* 2012, AJ, 144, 28
- Kocevski, D. et al., *“CANDELS: Investigating the AGN-Merger Connection at  $z \sim 2$ ”*, 2012, ApJ 744, 148
- Straughn, A.N.** *“HST WFC3 Early Release Science: Emission-Line Galaxies from IR Grism Observations”*, 2011, AJ, 141,14
- van der Wel, A., **Straughn, A.N.** et al. *“Extreme Emission Line Galaxies in CANDELS”*, 2011, ApJ 742, 111
- Trump, J., et al., *“Emission Line Galaxies at  $z \sim 2$ : A Mix of Nuclear Activity and Low-Metallicity Star Formation”*, 2011, ApJ 743, 144
- Windhorst, R.A. et al., *“The Hubble Space Telescope Wide Field Camera 3 Early Release Science Data: Panchromatic Faint Object Counts for 0.2-2 Microns Wavelength”* 2011, ApJS, 193, 27
- Xia, L. et al. *“Spectroscopic Study of the HST/ACS PEARS Emission-Line Galaxies”*, 2011, AJ, 141, 64
- Grogin, N. et al., *“CANDELS: The Cosmic Assembly Near-Infrared Deep Extragalactic Survey”*, 2011, ApJ 197, 35
- Koekemoer, A. et al., *“CANDELS: HST Imaging Data Products and Mosaics”* 2011, ApJ 197, 36
- Cassata, P. et al. *“The Morphology of Passively Evolving Galaxies at  $z \sim 2$  from HST/WFC3 Deep Imaging in the Hubble Ultra Deep Field”*, 2010, Astrophysical Journal Letters, 714, 79
- Straughn, A.N.** *“Tracing Galaxy Assembly: A Study of Merging and Emission-Line Galaxies with HST”*, 2009, PASP, 121, 1039
- Straughn, A.N.** et al. *“Emission-line Galaxies from the HST PEARS Grism Survey I: The South Fields”* 2009, Astronomical Journal, 138, 1022
- Rhoads, J.E. et al. *“Spectroscopic Confirmation of Faint Lyman Break Galaxies at Redshifts Four and Five in the Hubble Ultra Deep Field”* 2009, Astrophysical Journal, 697, 942
- Straughn, A.N.**, Meurer, G. M., Pirzkal, N. et al. *“Emission-Line Galaxies from the PEARS Hubble Ultra Deep Field: A 2-D Detection Method and First Results”* 2008, Astronomical Journal, 135, 1624

**Straughn, A.N.**, Cohen, S.H., Ryan, R.E. et al. “*Tracing Galaxy Assembly: Tadpole Galaxies in the Hubble Ultra Deep Field*” 2006, *Astrophysical Journal*, 639: 724

Cohen, S.H., Ryan, R.E., **Straughn, A.N.** et al. “*Clues to Active Galactic Nucleus Growth from Optically Variable Objects in the Hubble Ultra Deep Field*” 2006, *Astrophysical Journal*, 639: 731

Windhorst, R.A., Cohen, S.H., **Straughn, A.N.** et al. “*Did Galaxy Assembly and Supermassive Black Hole Growth Go Hand-in-Hand?*” 2006, *New Astronomy Review*, 50: 821-829

R.B. Phillips, **A.H. Straughn**, C.J. Lonsdale, S.S. Doeleman, “*R Cassiopeiae: Relative Strengths of SiO Masers at 43 and 86 GHz*” 2003, *The Astrophysical Journal Letters*, 588:L105-108

Moore, S. R., Franzen M., Benoit, P. H., Sears, D. W. G., **Holley[Straughn], A.**, Myers, M., Godsey, R., and Czaplinsky, J. (2003) “*The origin of chondrites: Metal-silicate separation experiments under microgravity conditions - II.*” 2002, *Geophys. Rev. Lett.* 30, Issue 10, 29-1

Lacy, C.H.S.; **Straughn, A.**; Denger, F. “*Times of Minima of Eclipsing Binaries*” 2002, *IBVS No.* 5251

Lacy, C. H.S.; Hood, B.; **Straughn, A.** “*Times of Minima of Eclipsing Binaries*” 2001 *IBVS.* No. 5067

### **CONFERENCE PROCEEDINGS (selected):**

Rhoads, J. et al., “*The Mass-Metallicity Relation of Emission Line Selected Galaxies from HST Slitless Spectroscopy*”, 2012, *BAAS*, 220.33607

Cohen, S.H. et al., “*Multi-component SED Fitting of AGN Host Galaxies*”, 2012, *BAAS* 219.42304

Pirzkal, N. et al., “*The Emission Line Luminosity Functions of Ha, OII, and OIII at  $0 < z < 1.7$  as seen by PEARS*”, 2012, *BAAS* 219.24620

**Straughn, A.N.** et al., “*HST WFC3 Early Release Science: Emission-line Galaxies from IR Grism Observations*” 2011, *BAAS*, 217, 335.19

**Straughn, A.N.**, et al., “*Emission-Line Galaxies from the WFC3 Early Release Science Data: Grism Spectra from 0.6-1.6 Microns*” 2010, *BAAS*, 215, 463.25

Kuemmel, M. Kuntschner, H., Walsh, J.R., Bushouse, H., **Straughn, A.N.** “*An example reduction of WFC3/IR slitless data*”, 2010, *Proceedings of the 2010 HST Calibration Workshop*

**Straughn, A.N.**, et al., “*Emission-Line Galaxies from the HST PEARS Grism Survey Southern Fields*” 2009, *BAAS*, 213, 424.19

**Straughn, A.N.** “*A Study of Emission-line and Merging Galaxies with HST*” 2007, *BAAS*, 211, 126.04

**Straughn, A.N.**, et al. “*Emission Line Galaxies in PEARS: A 2-D Detection Method*” 2006, *BAAS*, 209, 171.04

**Straughn, A.N.** et al. “*Tadpole Galaxies: Clues to Galaxy Assembly*” 2005, *BAAS*, 207, 2214

**Straughn, A.N.** et al. “*Tadpole Galaxies in the Hubble Ultra Deep Field*” 2004, *BAAS*, 205, 9417

Cohen, S.H., Ryan, R.E., **Straughn, A.N.** et al. “*Searching for Variability in the Hubble Ultra Deep Field: Clues to Galaxy Mergers*” 2004, *BAAS*, 205, 9416

Phillips, R. B.; Boboltz, D. A.; Winter, L. A.; **Straughn, A. H.** “*New Approaches in SiO Maser Shell Tomography Analysis*” 2003, *BAAS* 203,4905

R. B. Phillips, **A.H. Straughn**, C.J. Lonsdale, S.S. Doeleman, “*Simultaneous 3mm and 7mm Observations of SiO Masers around R Cassiopeiae: The Maser Line Ratios*” 2002, Proceedings of the 6th European VLBI Network Symposium

**Straughn, A. H.**; Phillips, R. B.; Lonsdale, C. J.; Doeleman, S. S., “*Simultaneous 3mm and 7mm Observations of SiO Masers Around R Cassiopeiae Using VLBI*” 2001, BAAS, 199, 9212

Moore, S. R.; Franzen, M.; Benoit, P. H.; Sears, D. W. G.; **Holley[Straughn], A.**; et al. “*The Origin of Chondrites: Metal-Silicate Separation Experiments Under Microgravity Conditions*” 2003, Proceedings of the 34th Annual Lunar and Planetary Science Conference; 1046

Benoit, P. H.; Sears, D. W. G.; Franzen, M.; Czapinski, J.; Godsey, R. D.; Meyer, M. C.; **Straughn, A.**; “*Metal-Silicate Fractionation in Chondritic Meteorites: Experiments Under Microgravity Conditions*” 2002, Proceedings of the 33<sup>rd</sup> Annual Lunar and Planetary Science Conference; 1633