

## JOSHUA E. COLWELL

Department of Physics  
University of Central Florida  
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### EDUCATION

Ph.D. December 1989. University of Colorado at Boulder, Dept. of Astrophysical, Planetary, and Atmospheric Sciences. *The Origin and Evolution of the Uranian Dust Rings.*

B.S. May 1985. Stetson University, Major in Physics, Minor in Applied Mathematics. (Honors Program, summa cum laude).

### PROFESSIONAL CAREER

#### University of Central Florida

**Professor:** Department of Physics, August 2012 – present.

**Associate Professor:** Department of Physics, August 2009 – August 2012.

**Associate Chair:** Department of Physics, January 2011 – present.

**Assistant Director:** Florida Space Institute, October 2011 – present.

**Assistant Professor:** Department of Physics, December 2006 – August 2009.

#### University of Colorado

**Visiting Associate Professor:** Laboratory for Atmospheric and Space Physics, August 2010 – 2012.

**Visiting Assistant Professor:** Laboratory for Atmospheric and Space Physics, December 2006 to August 2010.

**Research Scientist III:** Laboratory for Atmospheric and Space Physics, July 2002 – December 2006.

**Research Scientist II:** Laboratory for Atmospheric and Space Physics, July 1993 – June 2002.

**Post-Doctoral Research Associate:** Laboratory for Atmospheric and Space Physics, November 1989 - June 1993.

**Instructor:** Department of Astrophysical, Planetary, and Atmospheric Sciences, August 1990 – December 2006.

**Fulbright Senior Research Scholar:** Observatoire Midi-Pyrénées, Toulouse, France. (September 1995 - May 1996).

### TEACHING EXPERIENCE

#### University of Central Florida

AST 2002, AST 2002H: Astronomy

PHY 1038: Energy and the Environment (created the course)

PHY 2053: College Physics 1 (Lectures and recitations)

PHY 2054: College Physics 2 (Lectures and recitations)

AST 6112: Origin and Evolution of Planetary Systems (created the course)

Several graduate and undergraduate level directed research and independent study courses on planetary rings, planet formation, and solar system dynamics.

## **University of Colorado**

APAS 1120: “General Astronomy: Stars and Galaxies”  
ASTR 1110: “General Astronomy: The Solar System”  
APAS/ASTR 3750: “Planets, Moons, and Rings”  
APAS 3210: “Intermediate Astronomy: The Solar System”  
PHYS: Independent study in the Physics Department.  
Graduate student thesis and exam committees.

## **Boulder Valley School District Lifelong Learning Program**

**Instructor:** “An Introduction to the Universe.”(June 1992 to June 1993.)

## **Stetson University**

**Teaching and Laboratory Assistant:** Department of Physics, June 1982 - May 1984.

## **PROFESSIONAL AND UNIVERSITY SERVICE ACTIVITIES**

- Creator, Producer and Host of “Walkabout the Galaxy” an astronomy podcast for the general public, published 2-3 times per month, 25-30 minute episodes.
- Associate Chair of the UCF Department of Physics (January 2011 to present).
- Interim Chair of the UCF Department of Physics (December 2015 – May 2016).
- Assistant Director of the Florida Space Institute (October 2011 to present).
- Member of the UCF University Research Council (September 2010 to August 2013).
- Lead Local Organizer and Member of Scientific Program Committee for 2011 Next-Generation Suborbital Researchers Conference, University of Central Florida, February 27-March 2, 2011.
- Scientific Program Committee for 2010 Next-Generation Suborbital Researchers Conference, Boulder Colorado, February 2010.
- Member DPS Governing Committee, 2008-2011 (elected position).
- Member of Suborbital Applications Research Group, advisory to the Commercial Spaceflight Federation, (2009-present).
- Chair of Scientific Program and member Local Organizing Committee for Rings 2008 Workshop, June 2008, Paris France.
- Visiting Researcher, National Center for Earth and Space Science Education (formerly Challenger Center for Space Science Education; 2003-present): weeklong visits to classrooms at schools in underserved school districts in 2004 (twice), 2006. Presentations to more than 4000 K-12 students and members of the public.
- Presentations to local K-12 schools.
- Comet Consultant, “Deep Impact”, Paramount/DreamWorks Pictures. Zanuck/Brown Production, 1998.
- Scientific Consultant, “Gates Planetarium: A Cosmic Journey”, Denver Museum of Nature and Science, 2003.

- ❑ Developed and presented 12 times the show “Saturn: The Jewel of the Solar System” at the Fiske Planetarium, University of Colorado.
- ❑ Contributing Reviewer, Earth and Sky Radio Series.
- ❑ Reviewer for NASA Planetary Geology and Geophysics, Origins, Planetary Atmospheres, Outer Planets Research, Planetary Instrument Definition and Development, Cassini Data Analysis, and Lunar Advanced Science for Exploration Research programs; special NASA lunar science directed research review panel; NSF astronomy program; NASA post-doc programs; and the Research Corporation.
- ❑ Reviewer for *Science*, *Nature*, *Icarus*, *J. Geophys. Res.*, *Geophys. Res. Lett.*, *Plan. Space Sci.*, *Adv. Physics*, *Astrophys. J. Lett.*, *Astrophys. J.*, *Astron. J.*, *New Astron.*, Addison-Wesley Longman textbooks, Pearson textbooks, Cambridge University Press.
- ❑ LASP Computer Systems Advisory Committee (2001-2006, Chair 2004-2006).
- ❑ American Geophysical Union (1987 - present).
- ❑ Division of Planetary Sciences of the American Astronomical Society (1988 - present).
- ❑ Screen Actors Guild (2004 – present).
- ❑ Advisory Council of the NASA Planetary Data System Rings Node (1990 - present).
- ❑ Local Organizing Committee, 25th DPS meeting, Boulder CO 1993.
- ❑ Local Organizing Committee and Scientific Program Committee, 39<sup>th</sup> DPS meeting, Orlando FL 2007.
- ❑ Scientific Program Committee, 45<sup>th</sup> DPS meeting, Denver CO 2013.
- ❑ UCF Physics Department Newsletter and website committees; undergraduate curriculum committee; Instructor and Lecturer promotion committee; UCF College of Sciences Instructor and Lecturer promotion committee; UCF University Research Council.

## **CURRENT RESEARCH PROJECTS**

- ❑ Principal Investigator of “PRIME-4.0: Miniaturized and Reusable Asteroid Regolith Microgravity Experiment for Suborbital and Orbital Use”. NASA Flight Opportunities and Space Technology program. \$140,375 (2015-2016).
- ❑ Co-Investigator of “Suborbital Particle Aggregation and Collision Experiment-2 (SPACE-2)”. NASA Flight Opportunities and Space Technology program. \$91,653 (2015-2016). (Julie Brisset, my post-doc, is P.I.)
- ❑ Principal Investigator of “CubeSat Particle Aggregation and Collision Experiment” \$414,934 for 4 years (2016-2019). NASA Small Innovative Missions for Planetary Exploration.
- ❑ Principal Investigator of “Strata-1 Experiment Design, Fabrication and Testing” \$23,000 (2015). NASA Johnson Space Center.
- ❑ Principal Investigator of “Particle Sizes and Clumps as Tracers of Local Dynamical Phenomena in Saturn’s Rings” \$342,828 for 3 years (2015-2018). NASA Cassini Data Analysis and Participating Scientist Program.

- ❑ Principal Investigator of “Cu-PACE: CubeSat Particle Aggregation and Collision Experiment”. CubeSat selected in 2015 by NASA CubeSat Launch Initiative Program for launch in 2016-2018 timeframe.
- ❑ Principal Investigator of “Experimental Studies of Pebble Accretion in the Protoplanetary Disk” \$269,614 for 3 years (2014-2017). National Science Foundation.
- ❑ Principal Investigator on the NASA Undergraduate Student Instrument Project “Microgravity Experiment on Accretion in Space Environments” \$49,672 for 2 years (2013-2015).
- ❑ Principal Investigator for “Collisions Into Dust Experiment-3” selected by NASA’s Flight Opportunities Program for flight on a commercial suborbital vehicle; slated for first research flight of SpaceShipTwo.
- ❑ Principal Investigator for “CORE: Collection Of Regolith Experiment” selected by NASA’s Flight Opportunities Program for flight on a commercial suborbital vehicle; slated for second research flight of SpaceShipTwo.
- ❑ Co-Investigator of “Center for Lunar and Asteroid Surface Science” selected by NASA’s Solar System Exploration Research Virtual Institute. \$4M for 2014-2018. Professor Dan Britt (Physics) is P.I.
- ❑ Principal Investigator for “PRIME: Physics of Regolith Impacts in Microgravity Experiment” selected by NASA’s Flight Opportunities Program for a microgravity parabolic flight campaign; flown in August 2014.
- ❑ Principal Investigator of “Center for Microgravity Research” funded by Space Florida at \$1.152M total, 2011-2016.
- ❑ Principal Investigator of “The Center for Microgravity Research”, Florida High-Tech Corridor Industry matching grant, \$315,000 total for 3 years, 2010-2016.
- ❑ Principal Investigator of the MEDEA (Microgravity Experiment on Dust Environments in Astrophysics) for flight on the New Shepard commercial suborbital launch vehicle. Experiment supplied for flight on a no-exchange-of-funds basis with Blue Origin, LLC. 2009-present. Two experiment flights.
- ❑ Principal Investigator of NASA Origins of Solar Systems project “Experimental and Numerical Investigations of the Early Stages of Planetesimal Formation” (2009-2014) \$406,500 total, extended to 2015.
- ❑ Co-Investigator: Cassini Ultraviolet Imaging Spectrograph (1997 – present). L. W. Esposito P. I., University of Colorado on contract from NASA. \$437,988 awarded since 9/27/2010. (I’m UCF P.I.)
- ❑ Member: Cassini Rings Working Group.

#### **PREVIOUS RESEARCH PROJECTS**

- ❑ Principal Investigator of NASA Cassini Data Analysis Program project “Structure and Particle Surface Properties of Saturn’s Rings from Cassini UV Imaging and Occultation Data” (2010-2013) \$226,303 total for three years.

- ❑ Principal Investigator of NASA Planetary Geology and Geophysics Program project “Numerical and Experimental Studies of Small Body Regolith Evolution”, \$68,000. 2011-2012.
- ❑ Principal Investigator of State University System New Florida Clustering Initiative grant “Microgravity Research and Education in Partnership with the Commercial Space Industry”. \$375,000. 2011-2012.
- ❑ UCF lead Principal Investigator of UCF-UF Space Related Research Initiative, “Electrostatic Dust Hazard Prediction and Control for Lunar and Mars Missions” (2009-2012), \$480,000 total to UCF for three years.
- ❑ Principal Investigator of NASA Outer Planets Research Program project, “Dynamics of Interplanetary Dust in the Outer Solar System” (2006-2011). \$57,000/year to UCF.
- ❑ Principal Investigator of NASA Cassini Data Analysis Program project “Spatial Distribution of Particles in Saturn’s Rings” (2008-2010) \$164,580 total for two years.
- ❑ UCF Principal Investigator of NASA Cassini Data Analysis Program project “Properties of Saturn’s Ring Particles from Occultations and Thermal Observations” (2008-2010) \$17,000/year for two years to UCF. Stuart Pilorz, SETI Institute, P.I.
- ❑ UCF Principal Investigator on NASA Cassini Data Analysis Program project “Compositional Evolution of Saturn’s Rings” (2007-2009) \$10,000/year for two years to UCF. Paul Estrada, SETI Institute, P.I.
- ❑ Principal Investigator of NASA Discovery Data Analysis Program project, “Evolution of the Topography and Mantles of Comet Nuclei” (2006-2009). \$61,000/year (University of Colorado).
- ❑ UCF Principal Investigator on “Autonomous Lunar Dust Observer”, NASA project, subcontract from Ball Aerospace. \$20,000 in 2008. Christian Grund, Ball Aerospace, P.I.
- ❑ Co-Investigator of NASA Outer Planets Research Program project “Density Waves in Planetary Rings” (2006-2008). G. R. Stewart P. I.
- ❑ Co-Investigator of NASA Interdisciplinary Exploration Science project “Dusty Plasma Issues for Surfaces in Space” (2006-2009). M. Horányi P. I.
- ❑ Principal Investigator of NASA Discovery Data Analysis Program project “Collisional and Electrostatic Transport of Dust in the Regolith of Eros” (2004-2006) \$180,000.
- ❑ Institutional Co-Principal Investigator on NASA “Project Dust” (Masami Nakagawa, Colorado School of Mines, Project Leader), “Mitigation of Dust and Electrostatic Accumulation for Human and Robotic Systems for Lunar and Martian Missions” (2005, \$40,000)
- ❑ Principal Investigator of NASA Microgravity Fluid Physics Program project “Dynamics of Charged Dust Near Surfaces in Space” (2002-2006) \$460,000.
- ❑ Principal Investigator of NASA Microgravity Fluid Physics Program project “PRIME: Physics of Regolith Impacts in Microgravity Experiment” (1999-2003) \$340,000.
- ❑ Principal Investigator of NASA flight project “Collisions Into Dust Experiment – 2 (COLLIDE-2)” (1999-2002) \$114,000.

- ❑ Principal Investigator. Science Opportunity Analyzer Design, Testing, and Documentation. Contract from Jet Propulsion Laboratory. (2002) \$75,000.
- ❑ Principal Investigator. CASPER and Science Opportunity Analyzer Support. Contract from Jet Propulsion Laboratory. (1998-2001) \$177,000.
- ❑ Principal Investigator of NASA Innovative Research Program project “Microgravity Experiment on Low Velocity Impacts” (COLLIDE) (1995-1998) \$180,000.
- ❑ Principal Investigator of NASA Neptune Data Analysis Program (NDAP) project, “The Collisional Origin and Evolution of Neptune's Rings,” (1991 - 1993, \$192,000).
- ❑ Member of ISS ICAPS (Interactions in Cosmic and Atmospheric Particle Systems) Facility Science Team, team leader Jürgen Blum, University of Jena, Germany.

## **HONORS AND AWARDS**

- ❑ UCF SGA Lifesaver Award, 2014
- ❑ UCF Teaching Incentive Program Award (TIP), 2013
- ❑ UCF Mentor of the Year, 2012-2013, Office of Undergraduate Research
- ❑ UCF Research Incentive Award (RIA), 2012
- ❑ NASA Group Achievement Award, Cassini UVIS Team, 2009
- ❑ NASA Group Achievement Award, Cassini Rings Target Working Team, 2009
- ❑ NASA Space Act Board Award, SOA, 2005.
- ❑ NASA JPL Interplanetary Network Directorate Team Award, SOA, 2004.
- ❑ University of Colorado Academic Life Teaching Excellence Award 2003.
- ❑ NASA Group Achievement Award, Cassini, 1998.
- ❑ NASA Group Achievement Award, Voyager PPS Investigation, 1989.
- ❑ University of Colorado Graduate Fellowship: 1985/86, 1986/87, 1987/88, 1988/89.

## **GRADUATE STUDENTS SUPERVISED**

### Current:

George Hatcher, University of Central Florida, Physics Department, working toward Ph.D.  
 Richard Jerousek, University of Central Florida, Physics Department, working toward Ph.D.  
 Stephanie Eckert, University of Central Florida, Physics Department, working toward Ph.D.  
 Stephanie Gibson, University of Central Florida, Physics Department, working toward Ph.D.

Previous:

Tracy Becker, Ph.D., University of Central Florida, Physics Department (Planetary Sciences Track), “Saturn’s Rings: Measuring Particle Size Distributions Using Cassini UVIS Occultation Data”, May 2016.

Akbar Whizin, Ph.D., University of Central Florida, Physics Department (Planetary Sciences Track), “Dynamical Formation of Planetesimals”, May 2016.

Kevin Baillé, Ph.D., University of Central Florida, Physics Department (Planetary Sciences Track), “Fine-Scale Structures in Saturn’s Rings: Waves, Wakes, and Ghosts”, August 2011.

Amanda Sickafoose Gulbis, Ph.D., University of Colorado, Department of Astrophysical and Planetary Sciences, 2002. “Experimental Dust Charging and Dynamics with Applications for Planetary Environments”.

Heather Tollerud, M.S., University of Colorado, Department of Astrophysical and Planetary Sciences, 2006. “Saturn’s Rings in the Ultraviolet: Cassini UVIS Observations”.

Anna Haugsjaa Hughes, M. S., University of Colorado, Department of Astrophysical and Planetary Sciences, 2006. “Modeling Electrostatic Dust Transport on Eros”.

**Other Graduate Thesis Committees**

Current:

Wesley Chambers, University of Central Florida, Physics Department, working toward Ph.D.

Previous:

Kelsey Hargrove, University of Central Florida, Physics Department, Ph.D., 2015.

Emily Kramer, University of Central Florida, Physics Department, Ph.D., 2014.

Christine Hartzell, University of Colorado, Department of Aerospace Engineering, Ph.D., 2012.

John Weiss, University of Colorado, Department of Astrophysical and Planetary Sciences, Ph.D., 2005

Nathaniel Putzig, University of Colorado, Department of Astrophysical and Planetary Sciences, Ph.D., 2006

Advait Kantak, University of Colorado, Department of Chemical and Biological Engineering, Ph.D., 2005.

**REFEREED PUBLICATIONS – JOURNALS**

**As of April 7, 2016, h-index=30 based on 74 publications and total citations of 2344, from ISI Web of Knowledge.**

1. Whizin, A. D., J. Blum, J. E. Colwell 2016. The Physics of Protoplanetary Dust Agglomerates. VIII. Microgravity Collisions Between Porous SiO<sub>2</sub> Aggregates and Loosely-Bound Agglomerates. *Astrophys. J.* (submitted).

2. Jerousek, R. G., J. E. Colwell, P. D. Nicholson, M. M. Hedman, L. W. Esposito 2016. The Smallest Particles in Saturn's Rings from Self-Gravity Wake Observations. *Icarus* (in press).
3. French, R. G., P. D. Nicholson, C. A. McGhee-French, K. Lonergan, T. Sepersky, M. M. Hedman, E. A. Marouf, J. E. Colwell 2016. Noncircular Features in Saturn's Rings III: The Cassini Division. *Icarus* (in press).
4. Kehoe, A. J., T. J. J. Kehoe, J. E. Colwell, S. F. Dermott 2015. Signatures of Recent Asteroid Disruptions in the Formation and Evolution of Solar System Dust Bands. *Astrophys. J.* **811**, #66, doi:10.1088/0004-637X/811/1/66.
5. Li, Y., A. Dove, J. S. Curtis, and J. E. Colwell 2015. 3D DEM Simulations and Experiments Exploring Low-Velocity Projectile Impacts into a Granular Bed. *Powder Tech.* **288**, 303-314.
6. Becker, T. M., J. E. Colwell, L. W. Esposito, and A. D. Bratcher 2015. Characterizing the Particle Size Distribution of Saturn's A Ring with Cassini UVIS Occultation Data. *Icarus* doi:10.1016/j.icarus.2015.11.001.
7. French, R. G., P. D. Nicholson, M. M. Hedman, J. M. Hahn, C. A. McGhee-French, J. E. Colwell, E. A. Marouf, and N. J. Rappaport 2015. Deciphering the Embedded Wave in Saturn's Maxwell Ringlet. *Icarus* doi:10.1016/j.icarus.2015.08.020.
8. Pilorz, S., N. Altobelli, J. E. Colwell, and M. Showalter 2015. Thermal Transport in Saturn's B Ring Inferred from Cassini CIRS. *Icarus* **254**, 157-177, doi:10.1016/j.icarus.2015.01.002.
9. Nicholson, P. D., R. G. French, C. A. McGhee-French, K. Lonergan, T. Sepersky, M. M. Hedman, E. A. Marouf, and J. E. Colwell 2014. Noncircular Features in Saturn's Rings II: The C Ring. *Icarus* **241**, 373-396, doi:10.1016/j.icarus.2014.06.024.
10. Nicholson, P. D., R. G. French, M. M. Hedman, E. A. Marouf, and J. E. Colwell 2014. Noncircular Features in Saturn's Rings I: The Edge of the B Ring. *Icarus* **227**, 152-175, doi:10.1016/j.icarus.2013.09.002.
11. Cuzzi, J. N., A. D. Whizin, R. C. Hogan, A. R. Dobrovolskis, L. Dones, M. R. Showalter, J. E. Colwell, and J. D. Scargle 2013. Saturn's F Ring Core: Calm in the Midst of Chaos. *Icarus* **232**, 157-175, doi:10.1016/j.icarus.2013.12.027.
12. Baillié, K., J. E. Colwell, L. W. Esposito, and M. C. Lewis 2013. Meter-sized Moonlet Population in Saturn's C Ring and Cassini Division. *Astron J.* **145**, 171, doi:10.1088/0004-6256/145/6/171.
13. Bradley, E. T., J. E. Colwell, L. W. Esposito 2013. Scattering Properties of Saturn's Rings in the Far Ultraviolet from Cassini UVIS Spectra. *Icarus* **225**, 726-739 doi: 10.1016/j.icarus.2013.04.008.



14. Albers, N., Sremčević, M., Colwell, J. E., Esposito, L. W. 2012. Saturn's F Ring as seen by Cassini UVIS: Kinematics and Statistics. *Icarus* **217**, 367-388, doi:10.1016/j.icarus.2011.11.016.
15. Esposito, L. W., N. Albers, B. K. Meinke, M. Sremčević, P. Madhusudhanan, J. E. Colwell, R. G. Jerousek 2012. A Predator-Prey Model for Moon-triggered Clumping in Saturn's Rings. *Icarus* **217**, 103-114, doi:10.1016/j.icarus.2011.09.029.
16. Jerousek, R. G., J. E. Colwell, L. W. Esposito 2011. Morphology and Variability of the Titan Ringlet and Huygens Ringlet Edges. *Icarus*, **216**, 280-291, doi:10.1016/j.icarus.2011.09.001.
17. Baillié, K., J. E. Colwell, L. W. Esposito, M. Sremčević 2011. Waves in Cassini UVIS Stellar Occultations 2. Waves in the C Ring. *Icarus*, **216**, 292-308, doi:10.1016/j.icarus.2011.05.019.
18. Hansen, C., D. Shemansky, L. Esposito, I. Stewart, A. Hendrix, J. Colwell, R. West 2011. The Composition and Structure of Enceladus' Plume. *Geophys. Res. Lett.* **38**, L11202, doi:10.1029/2011GL047415.
19. Pryor, W. R., A. M. Rymer, D. G. Mitchell, T. W. Hill, D. T. Young, J. Saur, G. H. Jones, S. Jacobsen, S. W. H. Cowley, B. H. Mauk, A. J. Coates, J. Gustin, D. Grodent, J.-C. Gérard, L. Lamy, J. D. Nichols, S. M. Krimigis, L. W. Esposito, M. K. Daugherty, A. J. Jouchoux, A. I. F. Stewart, W. E. McClintock, G. M. Holsclaw, J. M. Ajello, J. E. Colwell, A. R. Hendrix, F. J. Crary, J. T. Clarke, X. Zhou 2011. The Auroral Footprint of Enceladus at Saturn. *Nature* **472**, 331-333, doi:10.1038/nature09928.
20. Cleary, J. W., R. E. Peale, M. Ishigami, C. W. Smith, K. Baillié, J. E. Colwell, O. Edwards, C. J. Fredricksen 2011. Effects of Polymer Infusion and Characteristic Length Scale on Gold-Black Long-Wave and Far-Infrared Absorbance. *J. Mat. Sci. Eng.* **5**, 171-176.
21. Colwell, J. E., L. W. Esposito, D. Pettis, M. Sremčević, R. G. Jerousek, E. T. Bradley 2010. Cassini UVIS Stellar Occultation Observations of Saturn's Rings. *Astron. J.* **140**, 1569-1578, doi:10.1088/0004-6256/140/6/1569.
22. Cuzzi, J. N., J. A. Burns, S. Charnoz, R. N. Clark, J. E. Colwell, L. Dones, L. W. Esposito, G. Filacchione, R. G. French, M. M. Hedman, S. Kempf, E. A. Marouf, C. D. Murray, P. D. Nicholson, C. C. Porco, J. Schmidt, M. R. Showalter, L. J. Spilker, J. N. Spitale, R. Srama, M. Sremčević, M. S. Tiscareno, J. Weiss 2010. An Evolving View of Saturn's Dynamic Rings. *Science*, **327**, 1470-1475, doi:10.1126/science.1179118.
23. Bradley, E. T., J. E. Colwell, L. W. Esposito, J. N. Cuzzi, H. Tollerud, L. Bruesch-Chambers 2010. Far Ultraviolet Spectral Properties of Saturn's Rings from Cassini UVIS. *Icarus*, **206**, 458-466, doi:10.1016/j.icarus.2009.12.021.
24. Robbins, S. J., G. R. Stewart, M. C. Lewis, J. E. Colwell 2010. Estimating the Masses of Saturn's A and B Rings from High-Optical Depth N-Body Simulations and Stellar Occultations. *Icarus* **206**, 431-445, doi:10.1016/j.icarus.2009.09.012.

25. Colwell, J. E., J. H. Cooney, L. W. Esposito, and M. Sremčević 2009. Density Waves in Cassini UVIS Stellar Occultations 1. The Cassini Division. *Icarus*, **200**, 574-580, doi:10.1016/j.icarus.2008.12.031.
26. Hansen, C. J., Esposito, Stewart, A. I. F., L. W., Meinke, B., Wallis, B., Colwell, J. E., Hendrix, A. R., Larsen, K., Pryor, W., Tian, F. 2008. Water Vapor Jets inside the Plume of Gas Leaving Enceladus. *Nature* **456**, 477-479, doi:10.1038/nature07542.
27. Colwell, J. E., S. R. Robertson, M. Horányi, X. Wang, A. Poppe, and P. Wheeler 2009. Lunar Dust Levitation. *J. Aerospace Eng.*, **22**, 2-9, doi:10.1061/(ASCE)0893-1321(2009)22:1(2).
28. Pryor, W., P. Gangopadhyay, B. Sandel, T. Forrester, E. Quemerais, E. Moebius, L. Esposito, I. Stewart, B. McClintock, A. Jouchoux, J. Colwell, V. Izmodenov, Y. Malama, K. Tobiska, D. Shemansky, J. Ajello, C. Hansen, M. Bzowski, and P. Frisch 2008. Radiation transport of heliospheric Lyman-alpha from combined Cassini and Voyager data sets. *Astron. Astrophys.* **491**, 21-29.
29. Marty, B., T. Guillot, A. Coustenis, N. Achilleos, Y. Alibert, S. Asmar, D. Atkinson, S. Atreya, G. Babasides, K. Baines, T. Balint, D. Banfield, S. Barber, B. Bézard, G. L. Bjoraker, M. Blanc, S. Bolton, N. Chanover, S. Charnoz, E. Chassefière, J. E. Colwell, E. Deangelis, M. Dougherty, P. Drossart, F. M. Flasar, T. Fouchet, R. Frampton, I. Franchi, D. Gautier, L. Gurvits, R. Hueso, B. Kazeminejad, T. Krimigis, A. Jambon, G. Jones, Y. Langevin, M. Leese, E. Lellouch, J. Lunine, A. Milillo, P. Mahaffy, B. Mauk, A. Morse, M. Moreira, X. Moussas, C. Murray, I. Mueller-Wodarg, T. C. Owen, S. Pogrebenko, R. Prangé, P. Read, A. Sanchez-Lavega, P. Sarda, D. Stam, G. Tinetti, P. Zarka, J. Zarnecki 2008. Kronos: Exploring the Depths of Saturn with Probes and Remote Sensing Through an International Mission. *Experimental Astronomy*, doi:10.1007/s10686-008-9094-9.
30. Colwell, J. E., S. Sture, D. Ashcom, M. Cintala, D. Curtis, D. Durda, T. Goudie, A. Hendrix, M. Kanter, T. Keohane, A. Lemos, M. Lupton, M. Route 2008. Ejecta from Impacts at 0.2-2.3 m/s in Low Gravity. *Icarus* **195**, 908-917, doi:10.1016/j.icarus.2007.12.019.
31. Chambers, L. S., J. N. Cuzzi, E. Asphaug, J. E. Colwell, and S. Sugita 2008. Hydrodynamical and Radiative Transfer Modeling of Meteoroid Impacts into Saturn's Rings. *Icarus* **194**, 623-635, doi:10.1016/j.icarus.2007.11.017.
32. Esposito, L. W., B. M. Meinke, J. E. Colwell, P. D. Nicholson, and M. H. Hedman 2008. Moonlets and Clumps in Saturn's F Ring. *Icarus* **194**, 278-289, doi:10.1016/j.icarus.2007.10.001.
33. Hughes, A. H., J. E. Colwell, A. W. DeWolfé 2008. Electrostatic Dust Transport on Eros: 3-D Simulations of Pond Formation. *Icarus* **195**, 630-648, doi:10.1016/j.icarus.2008.02.008.

34. Ajello, J. M., M. H. Stevens, I. Stewart, K. Larsen, L. Esposito, J. Colwell, W. McClintock, G. Holsclaw, J. Gustin, and W. Pryor 2007. Titan Airglow Spectra from Cassini UVIS: EUV Analysis. *Geophys. Res. Lett.* **34**, L24204, doi:10.1029/2007/GL031555.
35. Colwell, J. E., S. Batiste, M. Horányi, S. Robertson, and S. Sture 2007. Lunar Surface: Dust Dynamics and Regolith Mechanics. *Rev. Geophys.* **45**, RG2006, doi:10.1029/2005RG000184.
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37. Colwell, J. E., L. W. Esposito, M. Sremčević, G. R. Stewart, and W. E. McClintock 2007. Self-Gravity Wakes and Radial Structure of Saturn's B Ring. *Icarus*, doi:10.1016/j.icarus.2007.03.018.
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61. Baillié, K., J. E. Colwell, L. W. Esposito, and M. C. Lewis. Small Propeller Signatures in the C Ring and Cassini Division. American Geophysical Union 2012 Fall Meeting, San Francisco, December 2012, P54B-01. Invited.
62. Whizin, A., J. Cuzzi, R. Hogan, A. Dobrovolskis, J. Colwell, J. Scargle, L. Dones, and M. Showalter. Orbital Evolution of Particles and Stable Zones at the F Ring Core. American Astronomical Society Division of Planetary Sciences meeting #44, #513.02, Reno Nevada, October 2012.

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