

# Laboratory for Atmospheric and Space Physics



Activity Report  
*2015*  
University of Colorado at Boulder

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### ***LASP: A Brief History***

In 1946-47, a handful of American universities joined with the military and with industry to initiate the era of space exploration. The University of Colorado was one of those pioneering universities. The first experiments to be performed in space were lofted by sub-orbital rockets. A key obstacle to these first rocket flights was providing a stabilized platform for cameras and other experiments. With support from the Naval Research Center and the Air Force Cambridge Research Laboratory (now the Phillips Laboratory), the University of Colorado formed a research group called the Upper Air Laboratory (UAL) to solve this problem. Their solution – called the biaxial pointing platform – cleared the way for some of the first major scientific discoveries made in space. Researchers and engineers from the UAL flew experiments into space on over 50 rocket flights before Sputnik. By 1965, the UAL had grown substantially. Along with this growth came a new building on campus and a new name: the Laboratory for Atmospheric and Space Physics. The public is invited to tour our facility and to observe the work that LASP does today.

## *A Message from the Director*

The history of the Laboratory for Atmospheric and Space Physics has been recounted by many different people in many ways. Most such retelling of the story includes early rocket-based research within the Physics Department of the University of Colorado. The founding of the Upper Air Laboratory in the late 1940s and the transition to what is now known as LASP in the 1950s have been watershed moments. The evolution from those early days to the present level and scope of LASP research and infrastructure has been quite amazing.

This annual report tells a bit of the LASP story, focused on the last year or so. Research in atmospheric science, planetary exploration, and solar and space physics has met major milestones and returned remarkable results. Engineering, data systems, and mission operations parts of the Laboratory have had wonderful successes as well. Underpinning all of this has been the education and training mission of LASP that is preparing new generations of students for the worldwide space workforce.

I commend to each reader of this report the stories told by our LASP publications, seminars and lectures, and our novel investigations. While we focus often – and appropriately – on space flight programs, I emphasize strongly how important our theory, modeling, and data analysis efforts are. This core scientific work is the foundation on which all else is built.

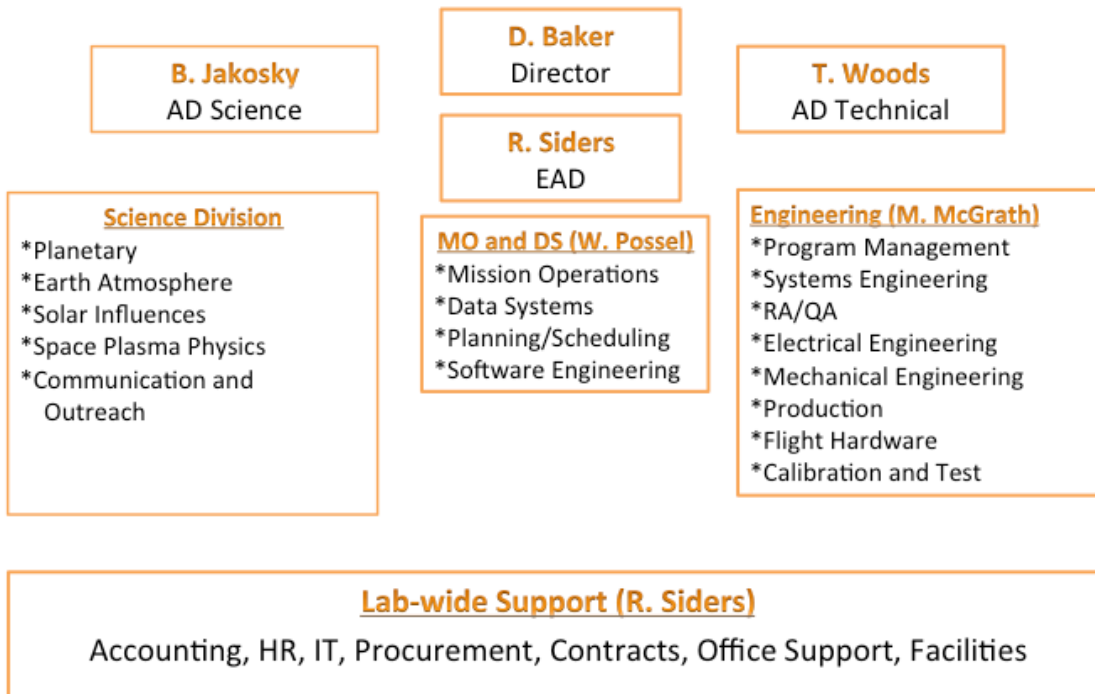
In previous reports, I have emphasized the unique role LASP plays on the national and international stage. I believe more than ever that academic research is at the core of a successful world space program. This fact must be fully acknowledged by policy makers, by business leaders, and by academic institutions themselves. I have contended that there should be a reaffirmation of a commitment to space research in the academic setting. LASP remains ready to do all it can to make this commitment a reality.

LASP succeeds by having the support of CU and its people. I especially want to thank the Vice Chancellor for Research, the Dean of the Graduate School, the Provost, and the Chancellor for their unflinching support of LASP and its mission. I thank very much the people in contracts administration, procurement, facilities management, and other key areas that help us do our unique job. I also thank the staff, faculty, and students of LASP for their tireless work. Finally, special thanks go to Ann Alfaro for her careful efforts in preparing this report for 2015.

*Daniel N. Baker*

Please visit LASP's Website for the latest developments: <http://lasp.colorado.edu>

# LASP Organization Chart



## ***LASP Appropriated Funding***

During the period 1/1/2015 to 12/31/2015 LASP appropriated funding totaled \$69,794,505 for support of 147 grants and contracts.

Source of Funding	Total Grant Dollars
<i>Federal Agencies:</i>	
Jet Propulsion Laboratory	3,415,045
Los Alamos National Laboratory	33,270
NASA	7,053,264
NASA Ames	1,423,901
NASA Goddard	30,493,758
NASA Headquarters	418,156
National Science Foundation	500,150
Space Telescope Science Institute	342,593
<i>Non-Federal Agencies:</i>	
Ball Aerospace Systems Division	1,346,991
Blue Canyon Technologies LLC	52
Carnegie Institution of Washington	540,000
Global Science and Technology, Inc	20,833
Hampton University	1,085,090
Jet Propulsion Laboratory	3,415,045
Johns Hopkins University	357,451
Lockheed Martin Corporation	164,828
Los Alamos National Laboratory	33,270
National Ecological Observatory Network	15,000
Net-Centric Design Professionals (NDP)	88,007
Planetary Science Institute	35,000
Prisma Basic Research, Inc.	80,570
Research Foundation of State University of New York (SUNY)	89,212
Southwest Research Institute (SwRI)	4,707,220
Space Science Institute	18,105
Stellar Solutions	24,859
University Corporation of Atmospheric Research	46,670
University of Arizona	4,163
University of California Berkeley	1,221,532
University of California Los Angeles	59,559
University of Central Florida	14,650,000
University of Iowa	125,273
University of Maryland at College Park	67,647
University of Minnesota	200,000
University of New Hampshire	1,073,417
Virginia Polytechnic Institute and State University	92,888
<b>Grand Total</b>	<b>69,794,505</b>

***Daniel N. Baker, Director***  
***LASP Scientists***

**Tenure Track:**

David Brain  
Axel Brandenburg  
Benjamin Brown  
Steven Cranmer  
Robert Ergun  
Larry W. Esposito  
Kevin France  
Mihály Horányi  
Brian Hynek  
Bruce M. Jakosky  
Sasha Kempf  
Adam Kowalski  
Xinlin Li  
Peter Pilewskie  
Cora E. Randall  
Mark P. Rast  
Sebastian Schmidt  
Nicholas M. Schneider  
Zoltan Sternovsky  
Owen B. Toon

**Research Scientist:**

Nicole Albers

Laila Anderssen  
Klaus-Michael Aye  
Frances Bagenal  
Timothy A. Cassidy  
Odele Coddington  
Frank Crary  
Vincent Dols  
Scot Elkington  
Francis G. Eparvier  
Stefan Eriksson  
Xiaohua Fang  
Jerald W. Harder  
Lynn Harvey  
Greg Holsclaw  
Sean Hsu  
Allison Jaynes  
Andrew Jones  
Lars Kalnajs  
Bruce Kindel  
Michael King  
Greg Kopp  
Wenlong Liu  
Brian McClellan  
William E. McClintock

Tom McCollom  
Kevin McGouldrick  
David Malaspina  
Jose Marino  
Steven Massie  
Aimee Merkel  
Mikki M. Osterloo  
William Peterson  
Ganna Portyankina  
Erik C. Richard  
Thomas Rimmele  
Martin Snow  
Miodrag Sremcevic  
Glen R. Stewart  
Karlheinz Trattner  
Weichao Tu  
Maria Usanova  
Xu Wang  
Frederick Wilder  
Robert J. Wilson  
Eric T. Wolf  
Thomas N. Woods  
Yunqian Zhu

***Visiting Scholars***

Gianna Cauzzi, National Institute for Astrophysics, Florence, Italy  
Eberhard Grün, Max Planck Institute for Nuclear Physics, Heidelberg, Germany  
Antal Juhasz, KFKI Research Institute for Particle and Nuclear Physics, Budapest, Hungary  
Robert McPherron, UCLA, IGPP, Los Angeles, CA  
Jim McTiernan, UC, Berkeley, CA  
Joseph Michalski, Planetary Science Institute, Tucson, AZ  
Wayne Pryor, Central Arizona Coolidge, Coolidge, AZ  
Theodore Sarris, Department of Physics University of Athens, Athens Greece  
Harry Warren, National Research Laboratory

## *Engineering/Mission Ops/Administration/Science*

### *Engineering*

Nicholas Aberle	Scott Gurst	Shashank Pasupuleti
Gregg Allison	Laura Hale	Nicholas Patzer
Christine Andrews	David Hall	Norman C. Perish
Mike Anfinson	Jeffrey Hanel	Scott Piggott
Rory Barrett	David Harber	Brian Pramann
Susan Batiste	Kelly Hepburn	Amal Chandran
Wayne Baumann	Karl Heuerman	Ramachandran Nair
Helmut P. Bay (Ret.)	Carl Himpfel	Joe Ramas
Christopher Belting	Patricia Soto Hoffman	Thomas Reese
Neal Bland	Thomas Hollowell	Mary Rider
Bryce Bolton	Alan Hoskins	Timothy Ruske
Mary Bolton	Vaughn Hoxie	Joel Rutkowski
Brian D. Boyle	Karl Hubble	Cameron Seamans
Shelley Bramer	Jack Hunsaker	Durbin Seidel
Diane Brening	Marston R. Jacobson	Elizabeth Sholes
Nathaniel Brennan	David James	Patti Sicken
Patrick Brown	Lisa Jilek	Erin Simons-Brown
Linda Buckhannon	Magnus Karlsson	Alan Sims
Zachary G. Castleman	Nicholas Kenny	Kokila Siva
Elizabeth Cervelli	Mark Kien	Matthew Smith
Matthew Cirbo	Matthew King	Paul Smith
David Crotser	Brian M. Kirby	Thomas Sparn
Wayne Davis	Camden Kittredge	Jerry Spivey
Elizabeth Devito	Michael Klapetzky	Jacob Sprunk
Sharon Dooley	Scott Knappmiller	Stephen Steg
Nathan Dorsey	Edith Knehans	Michelle Stephens
Virginia Drake	Richard Kohnert	Selby Stout
Charles Dumont	Kraig Koski	Kathleen Summers
Gary Eldridge	Chelsey Krug	Dwayne Swieter
Darren Erickson	Daniel Kubitschek	Gail Tate
Joey Espejo	Jean-Francois Lalonde	Trenton Taylor
Nathaniel Farber	Bret Lamprecht	Jon Theide
Donald Farneth	Ryan Lewis	Wayne Tighe
Brian Fenton	Ian Macfarlane	Matt Triplett
Nicolas Ferrington	Michael McGrath	Kathy Troxel
Charles Fisher	Karen Mackison	Scott A. Tucker
Kathleen Fletcher	Mat Merkow	Kush Tyagi
Nicolas Ferrington	David Meyer	Gregory Ucker
John Fontanese	Colin Miller	Ryan Van Halle
Kier Fortier	James Morton	Douglas Vincent
David Gathright	Aref Nammari	Tracy Vincent
Andrew Germer	James Neeley	Stacy Wade
Alan Goodrich	Gregory Newcomb	Pamela J. Wagner
Reid Gurnee	Darren O'Connor	Isaac Wanamaker
	Glen Otzinger	Neil White
	Heather Passe	Heather Reed Withnell

Peter Withnell  
Greg Wright  
Ray Wrigley  
Ed Wullschleger  
Alan Yehle  
Kenny J.S. Yoo  
Jason Young

### ***Mission Ops/Data Systems***

Madeline Alanko  
William Barrett  
Jason Beech  
Stephane Beland  
Gabe Bershenyi  
Michelle Bourgeois  
Karen Beth Bryant  
Michael Bryant  
Benjamin Busby  
Steve Carson  
Rachael Collins  
Michael Cox  
James Craft  
Charles Davies  
Matt DeNeen  
Alexandra DeWolfe  
Teddy Eberts  
Thomas Eden  
Jack Faber  
Sierra Flynn  
Sasha Forsyth  
Tyler Fox  
Jason Gabbert  
Samuel Gagnard  
John Gaidos  
Tess Geiger  
Taylor Graham  
Evan Graser  
Ken Griest  
Luke Groeninger  
Jason Gurgel  
Bryan Harter  
Edward Hartnett  
Ryan Held  
Michael Hutchison  
Christian Jeppesen  
Alain J. Jouchoux

David E. Judd  
Jesse Keefer  
Michelle Kelley  
Bu Sun Kim  
Roberto Kingley  
Barry Knapp  
Laura Kohnert  
Kim Kokkonen  
Gina Lafferty  
Kristopher Larsen  
Christopher Lindholm  
Douglas M. Lindholm  
Huikang Ma  
John Martin  
Carolyn Mason  
Taylor Maurer  
Debra McCabe  
Brian McClellan  
Sean McGill  
Randy Meisner  
Lucas Migliorini  
Jerel Moffatt  
Steve P. Monk  
Steven Mueller  
Matthew Muszynski  
Irfan Nadiadi  
Georgia Nelson  
Darren Osborne  
Michael Packard  
Chris Pankratz  
Russell Panneton  
Scarlet Parenteau  
Thomas Patton  
Nicholas Peper  
Jessica Petty  
Emily Pilinski  
Susan Pope  
Bill Possel  
Brian Putnam  
Michelle Redick  
Tyler Redick  
Lee Reedy  
Jennifer Reiter  
Lillian Reynolds  
Pat Ringrose  
Esteban Rodriguez  
Alissa Roe  
Stephen Roughton  
Wayne Russell

Sean Ryan  
Yoshifumi Saito  
Crystal Salcido  
Cory Schafer  
Nathan Sheiko  
Erin Simons-Brown  
Jacquelyn Smith  
Patrick Smith  
Robert Stimpfling  
John Stone  
Jacob Stufflebeam  
Ryan Sullivan  
Scott Taylor  
Brian Templeman  
Dale Theiling  
Jonathan Thomas  
Tyler Traver  
Blake Vanier  
Karen Vohra  
Martin Wasiewicz  
Zachary Wehner  
David Welch  
David Wescott  
Brett Wiesman  
Margaret Williams  
Forrest Williams  
Anne Wilson  
Paul Wood  
Donald Woodraska  
Jonnie L. Yaptengco  
Nathan Yeo

### ***Administration***

Cristina Barcion  
Donovan Bonney  
Rachel Booth  
Jeff Brown  
Kyle Burklow  
Terri Capinski  
Paul deFalco  
Dean Dennis  
Michael Dillon  
Zachary Eaton  
Brian Evans  
Jason Feickert  
Nicandro Flores  
Darcy Gallagher  
Virginia Garrison



Christin Gearhart  
Debbie Gordillo  
Alex Green  
Don Gritzmacher  
Matthew Groening  
Vincent Guarino  
Barbara Hahn  
Molly Hand  
Spenser Hang  
Bonnie W. Hotard (Ret.)  
John Janiczek  
Edgar Johannson  
Seth Kaplan  
Brad Keiser  
Diane Kelly  
Jason LaClair  
Cara Little  
Richard Loche  
Brett Madden  
Lindsay McCandless  
Andrew May  
Jennifer Methlie  
Greg Mecca  
Brook Motz  
Debra Nastaj  
John M. Padgett  
Katherine Pilewskie  
Radu Popescu  
Katherine Pilewskie  
Austin Puckett  
Randy Reukauf  
Robert Rezendes  
Susan Rogers  
Fernando Sanchez  
Susan Sand  
Randy Siders  
Dona Smith  
Doug Smith  
Debra Sparn  
Jerry Spivey  
Thomas Spooner  
Karen Springfield  
Ryan Starkey  
Anne Tavarckzy-Barchas  
Darby Tejada  
William VanOrden  
Nicholas Vita  
Carole Wimert  
Peter Wise

## *Science*

Ann Alfaro (Ret.)  
Asher Ali  
Iris Altman  
Evan Anders  
Samantha Ballard  
Edward Barratt  
Devin Bazata  
Laura Bearden  
Shawn Beckman  
Edwin Bernardoni  
Elizabeth Bernhardt  
Megan Bela  
Laura Bloom  
Lauren Blum  
Kaleb Bodisch  
Nicholas Boschert  
Spenser Burrows  
Michele Callagy  
Samuel Califf  
Matthew Carton  
Michael Chaffin  
Tiffany Chamandy  
Ransom Christofferson  
Kathleen Cirbo  
Bronwen Cohn-Cort  
Jean-Francois Cossette  
Bradley Cox  
Frank Crary  
Ian Dahlke  
Justin Deighan  
Michael Deluca  
Ryan Dewey  
Christopher Donaldson  
Logan Dougherty  
Andrea Egan  
Jason English  
Abram Farley  
Brian Fleming  
Kier Fortier  
Christopher Fowler  
Jeff France  
Max Genecov  
Vanessa George  
Erin George  
Ariana Giorgi  
Codie Gladney

Katherine Goodrich  
Kathleen Hanley  
Victoria Hartwick  
Jessica Haskins  
Caitlin Heath  
Jacob Hermann  
Richard Hodges  
Nancy Holden  
Bryan Holler  
Justin Holmes  
Casey Honniball  
Joao Moreira Hooks  
John Janiczek  
Rebecca Jolitz  
Robert Kane  
Margaux Krahe  
Andrew Kren  
Hanna Kristensen  
Mariah Law  
Spencer LeBlanc  
Hannah Letourneau  
Keita Linden  
Kristina Lu  
Pattilyn Mclaughlin  
Lindsay McTague  
Thomas Mason  
Steven Massie  
Jacob Miller  
Michiko Morooka  
Joshua Murphy  
Rudolfs Namikis  
James Negus  
William Nelson  
Edward Nerney  
Paige Northway  
Leela O'Brien  
Ethan Peck  
Courtney Peck  
Joshua Pettit  
Juliet Pilewskie  
Marcus Piquette  
Ganna Portyankina  
Emily Randall  
Drake Ranquist  
Willow Reed  
Morgan Rehnberg  
David Rice  
Kate Richardson  
Mark Robbins

Emily Royer  
Adam Schiff  
Anthony Shu  
Evan Sidrow  
Scott Siler  
Karen Simmons  
Mark Slipski  
Jake Snow  
Shi Song  
Benjamin Southworth  
Jared Stanley  
Julia Stawarz  
Demi St John  
Jordan Stone  
Sara Swenson

Jamey Szalay  
Evan Thomas  
Rebecca Thomas  
Daniel Thompson  
Summer Thresher  
Chana Tilevitz  
Karlheinz Trattner  
Zachary Ulibarri  
Samuel Van Kooten  
Natalie Vezina  
Xu Wang  
Ethan Williams  
Eleanor Williamson  
William Wilson  
Erin Wood

Adam Woodson  
Logan Wright  
Kevin Wyld  
Derek Young  
Pengei Yu  
Kun Zhang  
Hong Zhao  
Yunqian Zhu

## ***Collaborators***

Waleed Abdalati  
Plyush Agrawal  
Joseph Ajello  
John Alcorn  
Fatmah Alkindi  
Cody Allard  
Molly Anderson  
David Andrews  
Klaus-Michael Aye  
Levon Avanov  
Scott Bailey  
Jeff Baltrush  
Charles F. Bardeen  
Arnold Barnes  
Alexander Barrie  
Jesse Batson  
Gerd Baumgarten  
Laura Beckerman  
Ryan Behner  
Timothy Berman  
Ronald Black  
J. Bernard Blake  
Michael Bland  
Laura Blum  
Jeffrey Blunck  
Kaleb Bodish  
Michael Bonnici  
Dennis Borden  
Renan Borelli  
Susan Bortfeldt

Matthias Brakebusch  
Thiago Brito  
Lawrence Brown  
James Burch  
Matthew Burger  
Kevin Burke  
Justin Carstens  
Amir Caspi  
Gianna Cauzzi  
Jean-Yves Chaufray  
Hong Chen  
Mark Chutter  
John Clarke  
James Clemmons  
Victoria Coffey  
Wesley D. Cole  
Gregory A. Colegrove  
John Correia  
Jean-Francois Cossette  
Anthea Coster  
James Cox  
William Crain  
Steven Cranmer  
Joanne Dardano  
James Davey  
Gregory Delory  
Terry Deshler  
Elizabeth DeVito  
Charles Dickson  
Leonid Didkovsky

Yaxue Dong  
Ivan Dors  
Nathan Dorsey  
Francis Dumont  
Richard Eastes  
Dennis Ebbets  
Stanley Edwin  
Andrew Engelmann  
Jason English  
Kari Evans  
Joseph Scott Evans  
Joseph Fennel  
Teresa Ferguson  
Charles Fisher  
Charles Fleet  
James Flemer  
Brent Forsyth  
Kevin France  
Judith Furman  
Stephen Fuselier  
Jason M. Gabbert  
John Gaidos  
Warren Gallaher  
Virginia Garrison  
David Gerhardt  
Barbara Giles  
Franz Giner  
Ulrik Gliese  
Roman Gomez  
Debbie Gordillo

Cheryl Gramling  
James Green  
Mary Griffin  
Reid Gurnee  
Julien Gruyer  
Ryan Hacala  
Alexandra Hackett  
Michael T. Hackman  
Laura Hale  
Todd Harris  
Bryan Harter  
William Hays  
Steven Hearn  
Kaitlin Hegarty  
Ryan Held  
Patrick Hill  
Rachel Hock  
Laura Holt  
Janet Houser  
Jack Hunsaker  
Gabriel Ingram  
Stephen Jaskulek  
Harald Jeszenszky  
Jonathan Johnson  
Patrick Kenneally  
Yuri Khotyaintsev  
Rosemary Killen  
Brian M. Kirby  
Alan Kittelman  
Robert Klar  
Ekaterina Koroteeva  
Andrey Krywonos  
Daniel Kubitschek  
Brett Landin  
Kevin Langone  
Oliver Le Contel  
Franck Lefevre  
John Lehman  
Pierre-Luc Levesque  
Jacob Lilley  
Ying-tsen Lin  
Per-Arne Lindqvist  
Daniel Lo  
Anna Long  
Jesse Lord  
Kristina Lu  
Jerry Lumpe  
Dan Mabry  
Katelynn McCalmont

Jessica McCarthy  
Paul McDivitt  
Joshua McGhee  
Robert McPherron  
Janet Machol  
John Macri  
Brett Madden  
Jose Marino  
Joseph Martin  
Valentin Martinez Pillet  
Hirahara Masafumi  
Steven Massie  
Karunari Matsunaga  
Kei Matsunaga  
Majd Matta  
Barry Mauk  
John Meluso  
Justin Mercier  
Christopher Messick  
Katherine Mills  
Tyler Mitchell  
Ronan Modolo  
Franck Montmessin  
Thomas Moore  
Wendy Morgenstern  
Linda Morris  
Ian Moss  
Anondo Mukherjee  
Rumi Nakamura  
Siddhesh Naik  
Amal Ramachandran  
Nair  
Gerald Needell  
Rintaro Okamura  
Tenzin Olsen  
Angel Otarola  
Andria Palmer  
Scott Palo  
Jeffrey Parker  
Nicholas Patzer  
Courtney Peck  
Ethan Peck  
Dale Phelps  
Scott Piggott  
Craig Pollack  
Susan Pope  
Frank Postberg  
Samuel Powell  
Gustav Prattes

William Purcell  
Brian Rainwater  
David Rau  
Kevin Reardon  
Noora Rashed-Alsaed  
Jessica Roberts  
Brent Robertson  
Craig Rodger  
Graziele Rogowski  
Thomas Rimmele  
Jessica Roberts  
Frank Robison  
Craig Rodger  
Thomas Rose  
Timothy Ross  
Joseph Rosse  
Colden Rouleau  
Justin Rouse  
Yoshifumi Saito  
Chad Salo  
Kerry Scarlott  
Megan Scheele  
Charles Schlemm  
Eric Shreve  
Steven Schwartz  
Mindy Short  
Katherine Singer  
Benjamin Southworth  
Peter Spidaliere  
Daniel J. Spiess  
Brian Staley  
Ryan Starkey  
Kenneth Stevens  
Arnaud Stiepen  
Stacey Sueoka  
Andrew Sturner  
Daniel Sutermeister  
Sara Swenson  
Jonathan Thomas  
Barbara Thompson  
Eric Threet  
Nathan Tomlin  
Craig Tooley  
Roy Torbert  
Drew Turner  
Hans Vaith  
Ronald Vervack  
Martin Wacker  
Jan-Erik Wahlund

Abel Wakrim  
Robert Wallner  
Benjamin Walter  
Lu Wang  
Dale Ward  
Robert Watt  
Mark Warner

James Webster  
Joseph Westlake  
Seth Wieman  
David Welch  
Erik Wilkinson  
Carol Wimert  
Michael Wolff

Paul Wood  
Kevin Wyld  
Andrew Yau  
Kathryn Young  
Patti Young  
Justin Yonker  
Yucheng Zhao

## ***EMM (Emirates Mars Mission) Collaborators***

Mohsen Al Awadhi  
Omran Al Hammadi  
Nour Al Teneiji  
Mustafa Alblooshi  
Rashid Aldallal  
Suhail Aldhafri  
Saeed Algergawi  
Hamad Alijaziri  
Majid Alloghani  
Saeed Almansoori  
Essa Almehairi  
Ibrahim Almidfa

Ibrahim Alqasimi  
Adnan Alrais  
Mohammad Alsahool  
Amer Alsayegh  
Maryam Alshamsi  
Meera Alshamsi  
Zakareyya Alshamsi  
Omar Alshehhi  
Amel Amin  
Sarah Amiri  
Khalid Annohi  
Abdalla Harmoul

Omar Hussain  
Saud Karmustaji  
Mohammed Khoory  
Eman Mohamed  
Mohammed Naji  
Ahmed Salem  
Omar Sharaf  
Omran Sharaf  
Ayesha Sharafi  
Mohammed Wali

## ***2015 Retirees***

Mark Lankton  
Ann Perez de Tejada

David Rusch  
A. Ian Stewart

## ***2015 Ph.D. Graduate***

Hong Zhao, Department of Aerospace Engineering Sciences

Date of Graduation: December, 2015

Thesis Title: *“Unveiled characteristics of energetic electrons and ions in the inner radiation belt, slot region, and ring current”*

Thesis Advisor: Prof. Xinlin Li.

## ***Graduate Students***

Piyush Agrawal  
Asher F. Ali  
Evan Anders  
Courtney Ballard  
Timothy J. Beatty  
Laura Beckerman  
Andrew Berg  
James Binney  
Lauren Weber Blum  
Baylee Bordwell  
Matthew J. Carton  
Michael Chaffin  
Sabrina Cochrane  
Michael Deluca  
Mariel Desroche  
Daniel Everding  
Jason Farmer  
Seth Folley  
Kier Fortier  
Tyler Fox  
Mark Gerber  
Alexandra (Adrianna) Hackett  
Max Hampson  
Keri Hoadley  
Justin Holmes  
Rachel Humphrey  
Briana Ingermann

Rebecca Jolitz  
Jesse Keefer  
Villam Klein  
Margaux Krahe  
Andrew C. Kren  
Nicholas Kruczek  
Jennifer Kulow  
Dane Larsen  
Alexander Lanzano  
Spencer LeBlanc  
Jesse Lord  
Robert Loyd  
Sean McGill  
Matthew McJunkin  
Sreenivas  
Madhusudhanan  
John Martin  
Colin A. Miller  
Joshua J. Murphy  
Rudolfs Namikis  
Nicholas Nell  
Vu Nguyen  
Courtney Peck  
Emily B. Pilinski  
Andrew Poppe  
Drake Ranquist  
Morgan Rehnberg

Jessica Roberts  
Javier Rocha  
Miranda Rohlffing  
Adam Schiff  
Quintin Schiller  
Anthony Shu  
Gary Simmons  
Marek Slipski  
Shi Song  
Benjamin Southworth  
James Stewart-Moore  
David Stokowski  
Jack Swanson  
Jamey Robert Szalay  
Scott F. Taylor  
Andrew Tomchek  
Tyler Traver  
Corinne Vannatta  
Lu Wang  
Tristan Weber  
Donovan Wheeler  
Jesse Witbrod  
Eric Wolf  
Allison Youngblood  
Pengfei Yu  
Yunqian Zhu

## ***Undergraduate Students***

Chris Anaya  
Eric A. Anderson  
Graham Annett  
Trevor Aparicio  
Casey Backes  
Kirsten Baker

Robyn Barber  
Robert Beadles  
Nicholas R. Beaty  
Gabriel Bershenyi  
Kaleb Bodish  
Donovan Bonney

Michael F. Bonnici  
Charlie Bowers  
Natalie Bremer  
Zarah Brown  
Emma Bunnell  
Tyler Bussell

Christian Carter  
Colin Chen  
Dain Cilke  
Matthew Cirbo  
Rachel Anne Collins  
Daniel J. Copel  
Alexander Cordero  
Michael Cox  
Martin Crespo  
Martin Czerep  
David M. Borncamp  
Damien Burks  
Joseph Christopher Burns  
Spenser James Burrows  
Benjamin Busby  
Jesse Caldwell  
Michael Carl  
Lane Caudill  
Dain Cilke  
Adam J. Clarke  
Daniel J. Copel  
Martin Czerep  
Raymond Dao  
Bryan DiLaura  
Elizabeth A. DeVito  
Ryan Dewey  
Zachary J. Dischner  
Christopher Donaldson  
Alexander Dornan  
Logan Dougherty  
David Eason  
Justin Edrington  
David Emmert  
Kristina Entzel  
Paul L. Fagerburg  
Colin Fitzgerald  
Christopher Flemming  
Sierra Flynn  
John Fontanese  
Tyler R. Fox  
Andrew H. Fruge  
Erin George  
Michael Gerard  
M. Tess Geiger  
Lewis Gillis  
Nicolette Goulart  
Taylor Graham  
Evan Graser  
Erin Griggs

Gabrielle Guneratne  
Amber Hall  
Spenser Hang  
Andrew S. Haynes  
Hidalgo-Cuellar, Gerardo  
Emily A. Howard  
Rachel Humphrey  
Michael D. Hutchinson  
Valentin Vadimovich  
Ivanitski  
John Janiczek  
Jennifer Kampmeier  
Joshua Tree Karpel  
Jesse Keefer  
Scott Yong Kim  
Roberto Kingsley  
Andrew Krodinger  
Jean-Francois Lalonde  
Christopher J. LaPanse  
Dane T. Larsen  
Huy Le  
Samuel LeBlanc  
Zuni Levin  
Jacob Levine  
Jeremy D. Lewis  
Keita Linden  
Nicholas Lindholm  
Steven James MacCoun  
Ian MacFarlane  
Abhisek Mahendrakumar  
Sudarsh Suresh Mallaya  
Carolyn Mason  
Taylor Maurer  
Scott Mende  
Lucas Migliorini  
Bridget Morales  
Paul E. Morgan  
James Mothersbaugh  
Matthew Muszynski  
Irfan Nadiadi  
Muralikrishna  
Nallamotheu  
Kareem Nammari  
James Neeley  
Georgia Nelson  
Alexia Newgord  
Shawn Noland  
Michael Nothem  
Alexandra Okeson

John O'Neal  
Sean Ortiz  
Morgan Dene Osborne  
Kaitlyn Parsons  
Nicholas Peper  
Bryce A. Peters  
Samantha Pettus  
Rachel Plesha  
Shawn Polson  
Kareesha Potter  
Zachary Y. Pranger  
Taylor Quist  
Drake Ranquist  
Marcus Reason  
Willow Reed  
Matthew Reichenbach  
Lillian Reynolds  
Joe Rickard  
Dave Rimel  
Esteban Rodriguez  
Alex Rolfmeier  
Mikayla Roth  
Danielle Russell  
Wayne Russell  
Cassidy Sainsbury  
Jason Schelz  
Cora Schneck  
Joseph Schwan  
Tanvi Shah  
Cristopher Shearer-  
Cooper  
Max Schwarz  
Evan Sidrow  
Erin Simons-Brown  
Alijah Smith  
Matt A. Smith  
Terry Smith  
Benjamin Southworth  
Landon Spear  
Thomas Spooner  
Justin Spurgeon  
Gregory Steiner  
Colin Stewart  
Joseph Stewart  
Jason Strong  
Jacob Stufflebeam  
Stacey Sueoka  
Katherine (Wren) Sues  
Ryan Sullivan

Ryan Talley  
Scott F. Taylor  
Evan Thomas  
Cassidy Damon  
Thompson  
Allison Toltz  
Levey Trac Tran  
Tyler J. Traver  
Wiechao Tu  
Samuel Van Dresser  
William Van Orden

Audrey M. Vertovec  
Timothy Villabona  
Khoa Chao Vu  
Lindsay Walton  
Isaac R. Wanamaker  
Christopher J. Warren  
Zachary J. Wehner  
Max Weiner  
Brett Michael Weisman  
Dylan Whitman  
Ethan Williams

Margaret Williams  
Matthew Williams  
Tyler Wingfield  
Jesse Witbrod  
Adam Wolf  
Paul Wright  
Hanchao Wu  
Nathan Yeo  
Frank Li Zhang  
Michael Zucker

## ***Faculty Scientific Research Interests***

### ***Laila Andersson***

Kinetic processes in space plasmas such as double layers, electron phase space holes and Alfvén waves (anywhere where measurement has or will be made).

Atmospheric loss through ion outflow for objects such as Earth and Mars.

Instrumentation for space plasma missions, for the moment to develop new techniques for future missions.

[laila.andersson@lasp.colorado.edu](mailto:laila.andersson@lasp.colorado.edu)  
(303) 492-1689

### ***Frances Bagenal***

Magnetic fields and plasma environments of solar system objects—mainly Jupiter and the Sun, but more recently, other planets, comets and asteroids.

[bagenal@colorado.edu](mailto:bagenal@colorado.edu)  
(303) 492-2598

### ***Daniel N. Baker***

Research in space instrument design and calibration, space physics data analysis, and magnetospheric modeling. Study of plasma physical and energetic particle phenomena in the magnetospheres of Jupiter and Mercury, along with the plasma sheet and magnetopause boundary regions of the Earth's magnetosphere. Analysis of large data sets from spacecraft; involvement in missions to Earth's deep magnetotail and comets; the study of solar wind-magnetospheric energy coupling; theoretical modeling of magnetotail instabilities. Study of magnetosphere-atmosphere coupling; applying space plasma physics to study of astrophysical systems. Research to understand space weather and effects on human technology. Teaching of space physics and public policy, as well as public outreach to space technology community and general public.

[daniel.baker@lasp.colorado.edu](mailto:daniel.baker@lasp.colorado.edu)  
(303) 492-4509

### ***David Brain***

Plasma environments and atmospheres of unmagnetized planets and influence on planetary climate. Atmospheric source and loss processes. Exchange of energy and material between unmagnetized planets and their surroundings. Analysis of spacecraft observations of planetary upper atmospheres and plasma environments.

[david.brain@lasp.colorado.edu](mailto:david.brain@lasp.colorado.edu)  
(303) 735-5606

### ***Axel Brandenburg***

Astrophysical Fluid dynamics; astrobiology. Magnetic field generation from turbulent motions with applications to the Sun and stars, accretion discs, galaxies, and the early universe.

[axel.brandenberg@lasp.colorado.edu](mailto:axel.brandenberg@lasp.colorado.edu)  
303-735-7738

### ***Benjamin Brown***

Focus on astrophysical fluid dynamics and magnetohydrodynamics of stellar interiors. Special focus on global-scale dynamo action and the properties of convection, studying how large-scale fields can be built in the convection zone of a star.

[benjamin.brown@lasp.colorado.edu](mailto:benjamin.brown@lasp.colorado.edu)  
303-735-2774

### ***Steven Cranmer***

Heating and energization of particles in the solar corona, acceleration of the solar wind, and waves and turbulence of astrophysical plasmas. Radiative transfer in stellar atmospheres, kinetic plasma physics, dynamics of winds from rotating hot stars, and nonradial stellar pulsations.

[Steven.Cranmer@lasp.colorado.edu](mailto:Steven.Cranmer@lasp.colorado.edu)



303-735-1265

### ***Scot Elkington***

Space physics theory and modeling, primarily understanding energetic particle dynamics in the inner magnetosphere in the context of radial diffusion and adiabatic transport processes within the radiation belts. Also working on models of plasma sheet access of energetic particles to the inner magnetosphere through convection/substorm injection, development of physical space weather radiation belt models, and magnetohydro-dynamic/particle simulations.  
[elkington@lasp.colorado.edu](mailto:elkington@lasp.colorado.edu)  
(303) 735-0810

### ***Francis G. Eparvier***

Research interests include the aeronomy of the upper atmosphere, the effects of solar irradiance and particle flux variability on the upper atmosphere, and the sources of that solar variability. Approaches include rocket and satellite measurements of the solar outputs and of the atmosphere, and data analysis and theoretical modeling. Currently Co-Investigator on the Thermosphere-Ionosphere-Mesosphere Energetics and Dynamics (TIMED) satellite Solar EUV Experiment (SEE).  
[eparvier@colorado.edu](mailto:eparvier@colorado.edu),  
(303) 492-4546,  
<http://stripe.colorado.edu/~eparvier>

### ***Robert Ergun***

Robert Ergun specializes in space and astrophysical plasmas with applications to Earth's and Jupiter's magnetosphere, Mars' ionosphere, and the solar wind. He has developed space-flight electric field instruments for several NASA mission. Theoretical programs focus on small-scale plasma phenomena at Earth, Jupiter, Mars, and the solar wind, and include simulation and analytical modeling of magnetic reconnection, electron phase-space holes,

parallel electric fields carried by double layers, and solar wind turbulence.  
[bob.ergun@lasp.colorado.edu](mailto:bob.ergun@lasp.colorado.edu)  
(303) 492-1560

### ***Larry W. Esposito***

Teaching Planetary Astronomy. Leading Cassini Ultraviolet Spectrometer Team; observing Saturn's magnetosphere, atmosphere, rings, and moons.  
[espo@lasp.colorado.edu](mailto:espo@lasp.colorado.edu)  
(303) 492-7325

### ***Kevin France***

Astronomical research, classroom teaching, and graduate student mentoring. Research projects ranged from pure data analysis works, modeling cool stars, and technical development of new flight hardware.  
[kevin.france@lasp.colorado.edu](mailto:kevin.france@lasp.colorado.edu)  
(303) 492-1429

### ***Jerald Harder***

Measurement and interpretation of solar spectral irradiance; Development of space-borne prism spectrometers.  
[jerry.harder@lasp.colorado.edu](mailto:jerry.harder@lasp.colorado.edu)  
(303) 492-1891

### ***Mihály Horányi***

Theoretical and experimental investigations of space and laboratory dusty plasmas. Electro-dynamic processes and their role in the origin and evolution of the solar system, comets, planetary rings, plasma surface interactions. Dust charging, in situ and remote observations of dust. Dusty plasma laboratory experiments and space hardware development.  
[mihaly.horanyi@lasp.colorado.edu](mailto:mihaly.horanyi@lasp.colorado.edu)  
(303) 492-6903

### ***Brian M. Hynes***

Geological processes that have affected terrestrial planets. Studies of water on Mars:

geochemical history of Mars; planetary geologic mapping; studying impact craters to better address the history of planets.

[brian.hynek@lasp.colorado.edu](mailto:brian.hynek@lasp.colorado.edu)

(303) 735-4312

### ***Bruce M. Jakosky***

Research focus on understanding the nature of planetary surfaces and atmospheres and the possibility of existence of life in the universe. Principal Investigator of the MAVEN mission to Mars. Associate Director for Science at LASP.

[bruce.jakosky@argyre.colorado.edu](mailto:bruce.jakosky@argyre.colorado.edu)

(303) 492-8004

### ***Greg Kopp***

Development and characterization of the SORCE, Glory, and NPOESS Total Irradiance Monitors for solar irradiance measurements. Solar physics. Electro-optical instrumentation and electrical substitution radiometry.

[Greg.Kopp@lasp.colorado.edu](mailto:Greg.Kopp@lasp.colorado.edu)

(303) 735-0934

### ***Xinlin Li***

Space physics, data analysis and modeling. Especially interested in understanding the dynamics of relativistic electrons in the magnetosphere: the source, loss, and transportation of these MeV electrons; also interested in charged particle injections into inner magnetosphere during magnetic storms and substorms, and magnetosphere-atmosphere coupling due to energetic particle precipitations.

[lix@kotron.colorado.edu](mailto:lix@kotron.colorado.edu)

(303) 492-3514

### ***William E. McClintock***

Observational Astrophysics - Ultraviolet observations of the outer atmospheres of cool stars and the very local ( $d < 20$  pc) interstellar medium. Ultraviolet Observations of Planetary Atmospheres. Development of

state-of-the-art instrumentation for high-resolution spectroscopy for the 900-2500/ wavelength range.

[bill.mcclintock@lasp.colorado.edu](mailto:bill.mcclintock@lasp.colorado.edu)

(303) 492-8407

### ***Peter Pilewskie***

Research interests include solar spectral variability and its effects on terrestrial climate; SORCE and JPSS measurements and analysis of solar irradiance; quantifying the Earth-atmosphere radiative energy budget; surface, airborne, and satellite remote sensing of clouds and aerosols; and theoretical atmospheric radiative transfer.

[peter.pilewskie@lasp.colorado.edu](mailto:peter.pilewskie@lasp.colorado.edu)

(303) 735-5589

### ***Cora E. Randall***

Main area of expertise is remote sensing of the earth's middle atmosphere, with particular emphasis on the polar regions. Investigation processes related to stratospheric ozone mesospheric clouds, and atmospheric coupling through solar and magnetospheric energetic particle precipitation. Principal investigator on Cloud Imaging and Particle Size (CIPS).

[cora.randall@lasp.colorado.edu](mailto:cora.randall@lasp.colorado.edu)

(303) 492-8208

### ***Mark Rast***

Astrophysical fluid dynamics with emphasis on convective dynamics and scale selection, turbulence, the excitation of the solar p-modes, and the origin of solar/stellar irradiance variations. In addition to theoretical and computational work, efforts include operation of the Precision Solar Photometric Telescope (PSPT) at Mauna Loa Solar Observatory (MLSO) that obtains full disk images of the Sun at five wavelengths with 0.1% photometric precision.

[mark.rast@lasp.colorado.edu](mailto:mark.rast@lasp.colorado.edu)

(303) 492-5348

### ***Nicholas M. Schneider***

The physics of planetary magnetospheres, particularly the interactions between planetary plasmas and the satellites of the outer planets. Extensive ground-based observations of the Jupiter/IO system, especially imaging and spectroscopy of the IO atmosphere and plasma torus. Program has been expanded to include Hubble Space Telescope observations. Designing and building of a spacecraft to study the Jupiter/IO system.

[nick.schneider@lasp.colorado.edu](mailto:nick.schneider@lasp.colorado.edu)

(303) 492-7672

<http://ganesh.colorado.edu/nick>

### ***Martin Snow***

Primary research interests include ultraviolet spectroscopy of stars and the sun and the interaction of comets with the solar wind. The SOLSTICE instruments on UARS and SORCE provide a wealth of information about solar activity in the 115-300 nm range on a variety of timescales, ranging from minutes (solar flares) to decades (solar cycle). Understanding the variation in the solar output will lead to understanding its influence on the Earth. The interaction of comets with the solar wind is best-studied using wide-field photography. Both amateur and professional astronomers contribute to this effort, and one research activity has been to help coordinate the interaction of the two groups.

[marty.snow@lasp.colorado.edu](mailto:marty.snow@lasp.colorado.edu)

(303) 735-2143

### ***Zoltan Sternovsky***

Laboratory plasma physics and related experimental measurements, and developing instruments for space. Instrument scientist on two sounding rocket campaigns and more recently for the Lunar Dust experiment instrument launched onboard Lunar atmosphere and Dust Environment Explorer

spacecraft. Development of a dust analyzer for the Europa mission by NASA.

[Zoltan.sternovsky@lasp.colorado.edu](mailto:Zoltan.sternovsky@lasp.colorado.edu)

(303) 735-6272

### ***A. Ian F. Stewart***

The investigation by ultraviolet emissions of the aeronomy of planetary and satellite atmospheres, cometary comae, and IO's plasma torus.

[stewart@viralf.colorado.edu](mailto:stewart@viralf.colorado.edu)

(303) 492-4630

### ***Glen R. Stewart***

Origin and evolution of the solar system, with an emphasis on modeling the solid-body accretion of the terrestrial planets and the solid cores of the giant planets. Accretion of the Moon after a giant impact on the Earth. Modeling of satellite wakes and spiral density waves in planetary rings. Nonlinear dynamics of the three-body problem as applied to problems in solar system dynamics.

[glen.stewart@lasp.colorado.edu](mailto:glen.stewart@lasp.colorado.edu)

(303) 492-3737

### ***Owen B. Toon***

Climate models for Earth, Mars and exoplanets. Simulating the climate of the Earth at the time of the origin of life. Interest in the role of clouds and aerosols in climate. Investigations of volcanic aerosols and studies of polar stratospheric clouds; theoretical studies of tropospheric clouds, aerosols and radiative transfer; experimental investigations of stratospheric and tropospheric phenomena; theoretical investigations of planetary atmospheres.

[btoon@lasp.colorado.edu](mailto:btoon@lasp.colorado.edu)

(303) 492-1534

### ***Thomas N. Woods***

Observational studies of the solar ultraviolet (UV) radiation, its variability, and its interaction with Earth's atmosphere. Principal

investigator of NASA suborbital program to study the solar irradiance and thermospheric airglow. Principal investigator of the Solar EUV Experiment (SEE) on the TIMED mission. Co-investigator of the Solar Stellar Irradiance Comparison (SOLSTICE) experiment currently making solar UV irradiance measurements on the Upper Atmosphere Research Satellite (UARS) and planned for the Earth Observing System (EOS) missions.

*tom.woods@lasp.colorado.edu*  
(303) 492-4224

## ***Faculty Activities***

### ***Air Force Technical Applications Center (AFTAC)***

Baker, Daniel (Chair, Satellite Review Panel)

### ***American Association for the Advancement of Science (AAAS)***

Baker, Daniel (Fellow)

King, Michael (Fellow)

Randall, Cora (Fellow)

### ***American Astronomical Society (AAS)***

Bagenal, Frances (Chair, Heinemann Prize committee)

Bagenal, Frances (Chair of Local Organizing Committee, Division of Planetary Sciences (DPS))

Brown, Benjamin (Member, Employment Committee)

Brown, Benjamin (Member, Computational Infrastructure for Geodynamics)

Cranmer, Steven (Member, Nominating Committee of the Solar Physics Division of the AAS)

Schneider, N.M. (Shapley Lecturer)

### ***American Geophysical Union (AGU)***

Bagenal, Frances (Chair, Planetary Section Honors Committee)

Baker, Daniel (Member)

Baker, Daniel (Fellow)

Brain, David (Session Convenor for AGU Fall meeting)

Esposito, Larry (Session Organizer, AGU Fall meeting, Planetary Rings)

Fang, Xiaohua (Judged Outstanding Student Paper for Fall AGU meeting)

Jaynes, Allison N. (Convenor of two sessions at AGU Fall Meeting 2015)

Osterloo, Mikki (Chaired session for 2015 Fall meeting)

Usanova, Maria (Convenor and Chair of two Joint Assembly sessions)

Usanova, Maria (Joint Assembly 2015 Session Convenor, Fall AGU meeting)

Zhao, H., (Outstanding Student paper Award (American Geophysical Union))

### ***American Meteorological Society (AMS)***

King, Michael (Member, Atmospheric Research Awards Committee)

### ***Asia Oceania Geosciences Society (AOGS)***

Jaynes, Allison N. (Convenor of session)

### ***American Physical Society Division of Plasma Physics (APS DPP)***

Sternovsky, Zoltan (Member)

### ***Boulder Solar Alliance***

Baker, Daniel (Member)

Kopp, Greg (Chair)

Snow, Martin (Member)

### ***Boulder Solar Day***

Kopp, Greg (Chair, Organizing Committee: Boulder Solar Day)  
Colorado Science and Engineering Fair (CSEF)  
Portyankina, Ganna (Judge at the Fair, 2015)

***CLUSTER Science Working Team***

Baker, Daniel (Member)

***Committee on Space Research (COSPAR)***

Baker, Daniel (Member, Commission D)  
Esposito, Larry (Member)

***Dust, Atmosphere, and Plasma: The Moon and Small Bodies***

Horányi, Mihály (Meeting Organizer)

***Editor or Editorial Board Member***

Baker, Daniel (Co-editor of Encyclopedia of Planetary Landforms, Springer Press)  
Baker, Daniel (Editor of Journal of Atmospheric and Solar Terrestrial Physics and Space Weather Journal)  
Brain, David (Associate Editor for the Journal of Geophysical Research – Space Physics)  
Hsu, H.-W. (Sean) (Editor of new book project “Cosmic dust from the Lab to the Stars”)  
Hynek, Brian (Co-editor for Encyclopedia of Planetary Landforms, Springer Press, 2015)  
King, Michael (Guest Editor, Atmospheric Chemistry and Physics, and Atmospheric Measurement Techniques)  
Li, Xinlin (Member, Editorial Committee of J. of Chinese Space Sciences)  
McCullom, T.M. (Associate Editor, *Geochimica et Cosmochimica Acta*)  
Peterson, William K. (Editor, Geophys. Res. Lett.)  
Schmidt, K. Sebastian (Associate Editor, Atmospheric Measurement Techniques)  
Sternovsky, Zoltan (Senior Editor, IEEE Transaction of Plasma Science)  
Toon, Owen (Associate editor for JGR)

***Education and Public Outreach***

Aye, K.-M.  
Eparvier, Frank (Chair)  
Brain, David  
Coddington, Odele  
Holsclaw Greg  
Kalnajs, Lars  
Malaspina, David  
McClintock, William  
McCullom, Thomas  
McGouldrick, Kevin  
Horányi, Mihály  
Osterloo, M.M.  
Pospel, Bill  
Reed, Heather  
Richard, Erik

Snow, Martin  
Wood, Erin

***European Fleet for Airborne Research (EUFAR)***

Pilewskie, Peter (Member)

***Faculty Awards***

Baker, Daniel, Solar and Terrestrial Sciences Distinguished Lectureship, Asia Oceania Geosciences Society (AOGS)

Baker, Daniel (Associate Fellow, American Institute of Aeronautics and Astronautics (AIAA))

Baker, Daniel, American Astronomical Society (AAS) Kavli Prize Lectureship Award

Baker, Daniel, Shen Kuo Award for Interdisciplinary Achievements, International Association of Geomagnetism and Aeronomy (IAGA),

Baker, Daniel, Vikram A. Sarabhai Professorship Award, Indian Physical Research Laboratory

NASA Group Achievement Award, CLARREO Mission Concept Team

NASA Group Achievement Award, MAVEN Phase B Team

NASA Group Achievement Award, SDO Science Investigation Team

Peterson, William (Elected Fellow of American Geophysical Union)

***Inner Magnetosphere Coupling III (IMC III)***

Usanova, Maria (Organizer)

***International Academy of Astronautics (IAA)***

Baker, Daniel (Member)

Baker, Daniel (Vice Chair, Commission 1)

***International Association of Geomagnetism and Aeronomy (IAGA)***

Baker, Daniel (Member)

***International Association of Meteorology and Atmospheric Sciences (IAMAS)***

Pilewskie, Peter (Member, International Radiation Commission (IRC))

***International Space Science Institute (ISSI)***

Baker, Daniel (Member, Institute Working Group)

Deca, Jan (PI of International Research Team 336, Bern, Switzerland)

Eparvier, Frank (Member, ISSI Solar Heliospheric Lyman Alpha Profile Effects (SHAPE) Team)

McGouldrick, Kevin (Working Group on Understanding the Venus Cloud System)

Snow, Martin (Editor of ISSI Scientific Report #13: Cross Calibration of past and present for UV spectra of solar system objects and the heliosphere)

Snow, Martin (Member, ISSI Working Group)

Stewart, Glen (Organizer of International Team – Plasma Surface Interactions with Airless Bodies meeting)

***International Union of Geodesy and Geophysics (IUGG)***

Baker, Daniel (Member)

Elkington, Scot (Organizer and chair of 4 sessions for 2015 IUGG/IAGA General Assembly, Prague)

***Laboratory for Atmospheric and Space Physics***

Baker, Daniel (Director)

**Associate Director for Science**

Jakosky, Bruce

**Associate Director for Technical Divisions**

Woods, Thomas

**Atmospheric Division**

Richard, Erik (Member, RA Evaluation Committee)

**Barth Memorial Symposium/Barth/Gosling Scholarship Committee)**

Eparvier, Frank (Member, Organizing Committee)

Esposito, L.W. (Organizer, Barth Memorial Symposium)

Esposito, L.W., (Chair, Barth Scholarship Committee)

King, Michael (Member, Scholarship Committee)

**Business Committee**

Baker, Dan (Chair)

Jakosky, Bruce

McGrath, Mike

Possel, Bill

Woods, Tom

**Computer Systems Advisory Committee (CSAC)**

Elkington, Scot (Chair)

Kopp, Greg (Chair Emeritus)

Dennis, Dean (Admin)

Eriksson, Stefan (Space Phys.)

Fang, Xiaohua (Atmospheric)

Jones, Andrew (Solar)

Lewis, Ryan (Engineering)

Methlie, Jennifer (IS)

Osborne, Darren (MO&DS)

Pankratz, Chris (Data Syst.)

Ramas, Joe (Engineering/Cal)

Siders, Randy (Admin)

Spivey, Jerry (IT)

Stewart, Glen (Planetary)

Summers, David (Engineering)

**EMM Science Apprenticeship Program**

Deighan, Justin (served as mentor)

**Education and Public Outreach Advisory Committee (EPO)**

Coddington, Odele (presented a 1-hour seminar titled “The Earth’s lower atmosphere and its role in regulating climate”.)



Coddington, Odele (Q&A session with High School students who were touring LASP with their teacher to learn about careers in science)

**Evaluations Committee**

Brain, David (Member, 2015 Faculty Performance Evaluation Committee)

Eparvier, Frank (Member, 2015 evaluations committee)

McClintock, W.E. (Member)

**Executive Associate Director**

Siders, Randy

**Executive Committee**

Baker, Dan (Chair)

Elkington, Scot

Jakosky, Bruce

Jones, Andrew

King, Michael

Kopp, Greg

McClintock, Bill

McGrath, Mike

Pilewskie, Peter

Possel, Bill

Randall, Cora

Toon, Owen B.

Woods, Tom

Callagy, Michele (ex-comm support)

**Fellowship Committees**

Bagenal, Frances (Gosling and Barth Fellowships)

**Friends of Magnetospheres (FOM) Seminar Series**

Jaynes, Allison N. (Organizer)

Wilder, Frederick (Co-Organizer)

**LASP LISIRD Steering Committee**

Jones, Andrew

Kopp, Greg

Richard, Erik

Snow, Martin

**LASP Office of Communications and Outreach Director Hiring Committee**

Brain, David (Member)

**LASP RA Review Panel**

Stewart, Glen

**LASP Seminar Series Committee**

Sternovsky, Zoltan (Chair)  
Collette, Andrew (co-organizer)  
Schmidt, K. Sebastian (co-organizer)  
Osterloo, Mikki

**LASP Seminar Series**

Schmidt, Konrad (Co-organizer)

**LASP Scholarship Committee**

Eparvier, Frank (Member)

**LASP Space Weather Initiative Committee**

Elkington, Scot

**LASP Tablet Users Group**

Brown, Pat  
Evans, Brian  
Gathright, David  
Jones, Andrew  
Lewis, Ryan  
Mack, James  
Wilson, Rob  
Yehle, Alan

**Los Alamos National Laboratory**

Elkington, Scot (External Advisory Board member, IGPPS)

**Office of Communication and Outreach**

Brain, David (Member, Advisory Committee)  
Brain, David (Member, Director Hiring Committee)

**Office Space Committee (SPSC)**

Bagenal, Frances

**Planetary Journal Club**

Albers, Nicole (Organizer)

**Proposal Development Committee (PDC)**

Woods, Tom (Chair)  
Jakosky, Bruce (Member)  
Baker, Dan  
DeNeen, Matt  
Drake, Ginger  
Ergun, Robert  
George, Vanessa (PDC support0)

Jakosky, Bruce  
Rick Kohnert  
Kopp, Greg  
Lankton, Mark  
McClintock, W.E.  
McGrath, Mike  
Malaspina, David  
Pankratz, Chris  
Possel, Bill  
Reed, Heather  
Renfrow, Stephanie  
Richard, Erik  
Ryan, Sean  
Spam, Tom  
Sternovsky, Zoltan  
Tate, Gail  
White, Neil  
Wrigley, Ray

**Search Committee**

Eparvier (Chair, committee for new LASP EPO lead)  
Kalnajs, Lars

**Social Committee**

Bloom, Laura (Chair)  
Bryant, Karen  
Cirbo, Kathleen  
DeNeen, Mathew  
Ferrington, Nic  
Griest, Ken  
Hand, Molly  
Harvey, Lynn  
Osborne, Darren  
Possel, Bill  
Reddick, Michelle  
Theiling, Dale

**SORCE Science Meeting Organizing Committee**

Pilewskie, Peter (Member)  
Richard, Erik (Co-Organizer of 2012 Meeting; Session Chair for 2012 Meeting)

**Sponsored Visitor Committee**

Harder, Jerry (Chair)  
Bagenal, Fran  
Coddington, Odelle  
Collette, Andrew

Eparvier, Frank  
Eriksson, Stefan  
Harvey, V. Lynn  
King, Michael  
Rast, Mark  
Renfrow, Stephanie  
Schmidt, Sebastian

***Magnetospheres of the Outer Planets***

Bagenal, Frances (Member, Scientific Organizing Committee)

***Mauna Loa User Committee***

Harder, Jerry (Member, Advisory Group)

***National Academies***

Baker, Daniel (Chair, Steering Committee: A decadal survey for solar and space physics)

King, Michael (Member, Committee on Earth Science and Application from Space)

***National Academy of Engineering (NAE)***

Baker, Daniel (Member)

Woods, Tom (Panel Member Space Studies Board)

***National Academy of Sciences (NAS)***

Baker, Daniel (Associate Member)

Baker, Daniel (Chair, Committee on Solar and Space Physics)

Esposito, Larry (Organizer, workshop on Decadal Surveys, November 2012)

***National Aeronautics and Space Administration (NASA)***

Albers, N., (served on NASA review panel for NASA-ROSES)

Aye, K.-M. (Member NASA's Ocean World Roadmap team)

Bagenal, Frances (Chair, Planetary Science Survey)

Bagenal, Frances (Panel Chair, Review of Cassini Data Analysis Program)

Bagenal, Frances (Member, Science Definition Team for Europa Mission)

Baker, Daniel (Member, NASA Planetary Data System Committee)

Baker, Daniel (Member, SAMPEX Science Working Team)

Baker, Daniel (Member, Magnetospheric multiscale mission Science Team)

Baker, Daniel (Member, MESSENGER/Mercury Orbiter Science Working Team)

Brain, David (Member NASA review panel for MAVEN Participating Scientist Program)

Cassidy, Tim (Member, 2 NASA ROSES panels)

France, Kevin (Member, Executive committee – NASA's sounding rocket working group)

France, Kevin (Member, Science Interest Group on future large UVOIR astronomy missions)

France, Kevin (Panelist – NASA Astronomy and Physics Research and Analysis grant program)

France, Kevin (Panelist – NASA Space Technology Research Fellowship program)

Horányi, Mihály (Member, NASA Planetary Data System Small Bodies Node Advisory Board)

Horányi, Mihály (Member, NASA Planetary Sciences Subcommittee)

Horányi, Mihály (Member, NASA Solar System Exploration Research Virtual Institute)  
Jakosky, Bruce (Member, NASA Mars Exploration Program Analysis Group (MEPAG))  
Jakosky, Bruce (Member, NASA-ISRO Mars Science Working Group)  
Jones, Andrew (NASA RHG Exceptional Achievement for Science, SDO)  
King, Michael (Member of Proposal Review Panel on Remote Sensing Theory)  
Kopp, Greg (Member, Science Definition Team for Decadal Survey Mission)  
Pilewskie, Peter (Member, Science Definition Team for NASA Climate Absolute Radiance and Refractivity Observatory (CLARREO) Decadal Survey Mission)  
Randall, Cora (Co-Organizer of NASA LWS workshop on Extreme Events)  
Sternovsky, Zoltan (Panel chair on NASA ROSES program)  
Stewart, Glen (served on NASA review panel for NASA-ROSES)  
Usanova, M.E. (NASA Heliophysics Guest Investigator Award)

***National Center for Atmospheric Research (NCAR)***

Randall, Cora (Member, Steering Committee for NASA Living With a Star Heliophysics Postdoctoral program)  
Richard, Erik (Member NSF Site Visit Review Panel)

***National Oceanic and Atmospheric Administration (NOAA)***

Baker, Daniel (Member Strategic Planning Group, External)

***National Research Council (NRC)***

King, Michael (Member and Vice Chair, Committee on a Framework for Analyzing the Needs and Continuity of NASA-sustained remote sensing observations of the Earth from Space)  
King, Michael (Member, Committee on NASA Science Mission Extensions)  
Pilewskie, Peter (Member, Committee on the Effects of solar variability on Earth's climate: A workshop)

***National Science Foundation (NSF)***

Baker, Daniel (Member, Geosciences Advisory Committee)  
Baker, Daniel (Chair, Committee on Visitors – Geospace)  
Elkington, Scot (Coordinator, NSF Geospace Environment Modeling Program Steering Committee)  
Merkel, Aimee (Member, Cubesat review panel, 2012)

***Optical Society of America***

Kopp, Greg (Director at Large for Rocky Mountain Section)

***Planetary Society***

Jakosky, Bruce (Member, Advisory Board)

***Radiation Belt Storm Probe Science Team***

Baker, Daniel (Member)

***Reviewer of Proposals, Manuscripts, or Creative Work***

Albers, Nicole (Reviewer of manuscripts for Icarus and Astronomical Journal)  
Andersson, L. (Reviewer of manuscripts for Planetary and Space Science and Geophys. Res. Letters)

Andersson, L. (Reviewer of  
Aye, K.-M. (Reviewer of proposals for NASA)  
Bagenal, Frances (Reviewer of manuscripts for AGU)  
Bagenal, Frances (Reviewer of proposals)  
Baker, Daniel (Reviewer of manuscripts for Geophysical Research Letters, Journal of Atmospheric and Terrestrial Physics, Journal of Geophysical Research, Nature, Nature Geoscience, Icarus, and Planetary and Space Science)  
Baker, Daniel (Review of proposals for NASA and NSF)  
Brain, David (External peer reviews of funding proposals for NASA Programs)  
Brain, David (Reviewer of manuscripts for Planetary and Space Science, Geophysical Research Letters, and Journal of Geophysical Research – Space Physics)  
Brain, David (Review panel for NASA’s Planetary Atmospheres Program)  
Brain, David (Reviewer of proposals for NASA)  
Cassidy, Tim (Reviewer of manuscripts)  
Cassidy, Tim (Reviewer of proposals for NASA)  
Coddington, Odelle (Reviewer of manuscripts for Space Weather, Space Climate, Remote Sensing, and Atmospheric Chemistry and Physics)  
Collette, Andrew (Reviewer of manuscript for IEEE Transactions on Plasma Science)  
Cranmer, Steven (Reviewer of papers for ApJ, MNRAS, J. Scientific Exploration, JRG, Applied Optics, ApJ, AJP)  
Deca, Jan (Reviewer of manuscripts for Planetary and Space Science Journal; The Astrophysical Journal, and J. Geophys. Res.; Proposal reviewer for National Research Development and Innovation Fund of Hungary)  
Deighan, Justin (Reviewer of proposals; reviewer of manuscripts for GRL and JGR)  
Dong, Yaxue (Reviewer of manuscripts for GRL; reviewer of proposals for NASA)  
Elkington, Scot (Reviewer of manuscripts for GRL, JGR)  
Elkington, Scot (Reviewer of proposals for NASA and LANL)  
Eparvier, Frank (Reviewer of manuscripts for Solar Physics, Solar Energy, and Advances in Space Research)  
Ergun, Robert (Reviewer of manuscripts for J. Geophys. Res., Geophys. Res. Lett., and Physics of Plasmas)  
Ericksson, Stefan (Reviewer of manuscripts for Geophys. Res. Lett.)  
Esposito, Larry (Reviewer of manuscripts for Science, Icarus, Geophys. Res. Lett.)  
Esposito, Larry (Reviewer of proposals for NASA and NSF, Cambridge U. Press, Arizona Press, Physics Today)  
Fang, X. (Reviewer of papers for Geophys. Research Letters and JASTP)  
Fang, X. (Reviewer of proposals for NASA)  
France, Kevin (Reviewer for Astrophysical Journal, Icarus)  
Harder, Jerry (Reviewer of manuscripts for JASTP, A&A, Remote Sensing, Nature Scientific Data, NASA Earth Science, and ApJ.)  
Harder, Jerry (Review of proposals for National Science Foundation)  
Harvey, V. Lynn (Reviewer of proposals for NSERC of Canada, NASA LWS program, and NSF)  
Harvey, V. Lynn (Reviewer of manuscripts for J. Geophys. Res., Atmos. Chemistry and Physics, and Geophys. Res. Lett.)  
Holsclaw, Greg (Reviewer of proposal for NASA; external reviewer for PDS dataset)

Horányi, Mihály (Reviewer of manuscripts for J. Geophys. Res., Nature, Icarus, and Physics of Plasmas)

Horányi, Mihály (Reviewer of proposals for NSF, DOE, and NASA)

Hsu, H.-W. (Reviewer of posters for 2015 EGU General Assembly)

Jaynes, A.N. (Reviewer of manuscripts for GRL, JGR)

Jaynes, A.N. (Reviewer of proposals for NASA)

Jones, Andrew (Primary reviewer for 3 IRD proposals and secondary reviewer for 1)

Jones, Andrew (Reviewer of NASA proposals; Solar Physics reviews)

Kalnajs, Lars (Reviewer of manuscripts for Journal of Atmospheric and Oceanic Technology)

Kalnajs, Lars (Reviewer of proposals for NSF)

Kindel, Bruce (Review of manuscripts for Atmospheric Chemistry and Physics and Atmospheric Measurement Techniques)

King, Michael (Reviewer of manuscripts for Applied Optics, Remote Sensing of Environment, J. Geophys. Res., Geoscientific Model Development, NASA proposals)

Kopp, Greg (Reviewer of manuscripts for Astronomy and Astrophysics, Solar Physics, Atmospheric Chemistry and Physics, and Surveys in Geophysics)

Li, Xinlin (Reviewer of proposals for NASA and NSF)

Li, Xinlin (Reviewer of manuscripts for J. Geophys. Res., Geophys. Res. Lett., J. Space Weather, J. Atmos. and Solar-Terrestrial Physics, and Annales Geophysicae)

Malaspina, D.N. (Reviewer of manuscripts for Geophysical Res. Letters, Physics of Plasmas, and Journal of Geophysical Research)

McCullom, T.M. (Reviewer of manuscripts for Science, Nature, J. Geophys. Res., Earth and Planetary Science Lett., Astrobiology, Phil. Transaction of Royal Society, Lithos, Organic Geochemistry)

McClintock, William (Reviewer of manuscripts for Icarus and Jour. Geophys. Res.)

McClintock, William (Two write-in reviews for Discovery Data Analysis Program. 3 ICON engineering Peer Reviews to support Goddard Explorers Office, other papers for Icarus, Applied Optics, and J. Geophys. Res.)

McCullom, T.M. (Reviewer of proposals for National Science Foundation, NASA and Petroleum Research Fund)

McCullom, Thomas (NASA, Member of three Review Panels)

McCullom, T.M. (Reviewer of manuscripts for J. Geophys. Res., Geophys. Res. Lett., Nature Geosciences, National Science Foundation, and Chemical Geology)

McGouldrick, Kevin (Reviewer of proposals for NASA)

McGouldrick, Kevin (Reviewer of manuscripts for Advances in Space Research and Icarus)

Merkel, Aimee (Reviewer of Proposals for NASA)

Merkel, Aimee (reviewer of manuscripts for J. Geophys. Res. and Geophys. Res. Lett.)

Osterloo, M.M. (Reviewer of papers and proposals for NASA's Mars Science Laboratory Participating Scientist review panel, NASA's Planetary Instrument Concepts for Advancement of Solar System Observations, NASA's Lunar data analysis Program, and chair for NASA's Earth and Space Science Fellowship (NESSF) program)

Osterloo, Mikki (Reviewer of manuscripts for J. Geophys. Res. and Geophys. Res. Letters)

Pilewskie, Peter (Panel Reviewer, NASA New Investigator Program)

Pilewskie, Peter (Reviewer of manuscripts for J. Atmospheric Chemistry and Physics and Surveys in Geophysics)

Randall, Cora (Reviewer of manuscripts for J. Geophys. Res., Geophys. Res. Letters, and AGU Union Eos publication)  
Randall, Cora (Reviewer of proposals for NASA and NSF)  
Rast, Mark (Reviewer of Astronomy and Astrophysics)  
Richard, Erik (Reviewed 2 papers for Journal of Space Weather and Space Climate)  
Schmidt, K. Sebastian (Reviewer of proposals for NASA)  
Schmidt, K. Sebastian (Reviewer of manuscripts for AMT, SCP, JGR, and JAMC)  
Schneider, Nicholas (Reviewer of proposals for NASA and NSF)  
Snow, Martin (Reviewer of proposals for NSF)  
Sternovsky, Zoltan (Reviewer of proposals for NSF/DOE)  
Sternovsky, Zoltan (Reviewer of manuscripts for Annales Geophysicae, Planetary and Space Science, Advances in Space Research)  
Stewart, Glen (Reviewer of proposals for NASA; Reviewer of papers for JGR, GRL, ASR, PSS, IEEE-TPS, APH and JPP)  
Toon, Owen B. (Reviewer of manuscripts for NASA and NSF)  
Usanova, Marie (Reviewer of papers for Geophys. Res. Lett., J. Geophys. Res., and Annales Geophysicae)  
Wang, X. (Reviewer of manuscripts for PSS, Icarus and IEEE)  
Wilson, R.J. (Reviewer of NASA proposals)  
Wilson, R.J. (Reviewer of manuscripts for AGU and JGR)  
Wolf, E.T. (Reviewer of manuscripts for Nature, Nature geoscience, and Astrophysical Journal Letters)  
Wolf, E.T., Reviewer of proposals for NASA)  
Woods, T.N. (Reviewer of papers for A&A, Solar Physics, and JGR)  
Woods, T.N. (Reviewer of proposals for NASA and LWS)  
Zhao, H. (Reviewer of papers for J. Geophys. Res., and Geophys. Res. Letters)

***Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)***

Baker, Daniel (Member)  
Merkel, Aimee (Member CAWSES II Task-2 Project 3 Member)  
Merkel, Aimee (Member, CAWSES II organizing committee)  
Randall, Cora (Co-Chair, CAWSES 11 Theme Group 1)

***Sigma Xi***

Baker, Daniel (Member)

***Student Advising***

Andersson, Laila  
Brain, David  
Cassidy, Tim  
Collette, Andrew  
Crary, Frank J.  
Elkington, Scot  
Eparvier, Frank  
Eriksson, Stefan  
Fang, Fang



France, Jeff  
Harder, Jerry  
Harvey, V. Lynn  
Hsu, H.-W. (Sean)  
Hynek, Brian  
Jaynes, Allison  
Kalnajs, Lars  
Kindel, Bruce  
Kopp, Greg  
Li, Xinlin  
McCollom, Tom  
Malaspina, David  
Merkel, Aimee  
Osterloo, Mikki  
Peterson, W.K.  
Richard, Erik  
Schmidt, K. Sebastian  
Schneider, Nicholas  
Snow, Martin  
Stewart, Glen  
Toon, Owen  
Usanova, M.E.  
Wang, X.  
Woods, T.

***Sun-Climate Research Center***

Richard, Erik (Fellow)  
Woods, Tom (Workshop Organizer)

***University Center for Atmospheric Research***

Bagenal, Frances

***University of Colorado***

**Aerospace Engineering Department (ASEN)**

Baker, Daniel (Member, External Advisory Board)  
Li, Xinlin (Member, Graduate Committee)  
Li, Xinlin (Member, Tanner Evaluation Committee)  
Li, Xinlin (Member, Undergraduate Teaching Curriculum Committee)  
Randall, Cora (Member, Aerospace ventures executive committee)  
Sternovsky, Zoltan (Member, Undergraduate Committee)  
Sternovsky, Zoltan (Member, Graduate Committee)  
Sternovsky, Zoltan (Major revision of existing course ASEN3300)

**Arts and Sciences (A&S)**

Horányi, Mihály (Physics advising)

Randall, Cora (Member, Dean's Advisory Committee)  
Randall, Cora (Co-Chair, Committee on revising core curriculum)

### **Astrophysics and Planetary Sciences (APS)**

Bagenal, Frances (Member, Faculty Search Committee)  
Baker, Daniel (Member, Graduate Admissions Committee)  
Brain, David (Member, Executive Committee)  
Brain, David (Department Lead, Undergraduate Mentor)  
Brain, David (Faculty Search Committee)  
Cranmer, Steven (Member, APS Department Colloquium Committee)  
Cranmer, Steven (Member, Department Graduate Curriculum Committee)  
Cranmer, Steven (Member, Department Undergraduate Curriculum Committee)  
Ergun, Robert (Member, Faculty Search Committee)  
Ergun, Robert (Member, Graduate Concerns Committee)  
Ergun, Robert (Associate Chair, Fall, 2015)  
Ergun, Robert (Member, Executive Committee)  
Ergun, Robert (Member, Graduate Curriculum Committee)  
Esposito, L.W., (Admissions Committee)  
Rast, Mark (Undergraduate Advisor)  
Rast, Mark (Examinations Committee)  
Rast, Mark (Executive Committee)  
Richard, Erik (Review Team Member for EMX EMIRS Instrument; Review Team Member, MinXSS Pre-Ship Review)  
Schneider, Nicholas (Undergraduate Program Director, Lead Mentor, Lead Course Scheduler, and Curriculum Committee Chair)

### **Atmospheric and Oceanic Sciences Department (ATOC)**

Coddington, Odelle (ATOC Recruit visit committee)  
Harvey, V.L. (Member, Admissions Committee)  
Harvey, V.L. (Judge for ATOC student poster conference)  
Pilewskie, Peter (Chair, Laboratory and facilities Committee)  
Pilewskie, Peter (Member, Course Fees Committee)  
Randall, Cora (Department Chair, 2010-present)  
Randall, Cora (Member ATOC curriculum committee)  
Randall, Cora (ATOC poster conference committee, 2015)  
Randall, Cora (ATOC Fest presentation, 2015)  
Smith, Jamison (Hosted Seminar Series)  
Toon, Owen B. (Executive Committee member)

### **Boulder Faculty Assembly**

Eparvier, Francis (Member at Large)  
Harvey, Lynn (LASP Research Scientist Representative)

### **Boulder Faculty Survey (HERI CU)**

Rast, Mark (Member)

### **Center for Astrophysics and Space Astronomy (CASA)**

France, Kevin (Member, Executive Committee)

France, Kevin (Member, Joint LASP/CASA committee on space solutions on East Campus)

Woods, Thomas

### **Chancellor's Federal Relations Advisory Committee (FRAC)**

Baker, Daniel (Member)

### **Conference on World Affairs**

Schneider, Nicholas (Moderator; "An Apple Fell into a Bar")

### **Excellence in Leadership Program**

Randall, Cora (Participant)

### **External Advisory Board (Aerospace Engineering)**

Baker, Daniel (Member)

### **Geology Department**

Hynek, Brian (Member Executive Committee)

Hynek, Brian ((Member, Undergraduate Curriculum Committee)

### **Graduate School**

Baker, Daniel (Member, Institute Directors Group)

Bagenal, Frances (Member, Executive Advisory Council)

Randall, Cora (Member Executive Advisory Council)

### **Joint Faculty (Aerospace)**

Li, Xinlin

Sternovsky, Zoltan

### **Joint Faculty (Astrophysics and Planetary Sciences Department (APS)**

Bagenal, Frances

Baker, Daniel

Ergun, Robert

Esposito, Larry

Rast, Mark

Schneider, Nicholas

### **Joint Faculty (Atmospheric and Oceanic Sciences Department (ATOC)**

Toon, Owen B. (Chair)

Pilewskie, Peter

Randall, Cora E.

### **Joint Faculty (Geology Department)**

Hynek, Brian (Member, Executive Committee)

Jakosky, Bruce (Member)

**Joint Faculty (Physics Department)**

Horányi, Mihaly (Graduate Committee)

**National Solar Observatory (NSO)**

Cranmer, S.R., Member, Hale postdoctoral fellowship selection committee

Cranmer, S.R., Member, Hale visiting faculty selection committee

***Member of a Dissertation Committee***

Andersson, Laila

Bagenal, Frances

Baker, Daniel

Brain, David

Coddington, Odelle

Crary, Frank

Elkington, Scot

Ergun, Robert

Fang, Xiaohua

France, Kevin

Harvey, V. Lynn

Horányi, Mihaly

Hsu, Hsiang-Wen (Sean)

Hynek, Brian

Jakosky, Bruce

Kalnajs, Lars

Kempf, Sasha

King, Michael

Li, Xinlin

McCollom, Thomas M.

Newman, David L.

Peterson, W.K.

Pilewskie, Peter

Randall, Cora

Rast, Mark

Schmidt, Konrad

Schneider, Nicholas

Smith, Jamison

Sternovsky, Zoltan

Stewart, Glen

Toon, Owen B.

***Member of a Masters or Ph.D. Qualifying Examination Committee***

Bagenal, Frances

Brain, David

Ergun, Robert  
Fang, Xiaohua  
France, Kevin  
Horányi, Mihaly  
Hynek, Brian  
Jones, Andrew  
Kempf, Sasha  
Li, Xinlin  
Pilewskie, Peter  
Randall, Cora  
Rast, Mark  
Schneider, Nicholas  
Sternovsky, Zoltan

***New Course Development***

Cranmer, Steven  
France, Kevin  
Hynek, Brian  
Rast, Mark  
Schneider, Nicholas  
Toon, Owen B.

***Postdoc Association of Colorado***

Royer, E.M., Co-President

***Principal Dissertation/Thesis Advisor***

Andersson, Laila  
Bagenal, Frances  
Baker, Daniel  
Brain, David  
Brown, Benjamin  
Cranmer, Steven  
Deighan, Justin  
Delamere, Peter  
Elkington, Scot  
Ergun, Robert  
Esposito, Larry  
Harvey, V.L.  
Horányi, Mihaly  
Hynek, Brian  
Jakosky, Bruce  
Kalnajs, Lars  
King, Michael  
Kopp, Greg  
Li, Xinlin  
Malaspina, David

Pilewskie, Peter  
Randall, Cora  
Rast, Mark  
Schneider, Nicholas  
Sternovsky, Zoltan  
Toon, Owen B.  
Woods, Tom

***Student Advising***

Andersson, Laila  
Bagenal, Frances  
Baker, Daniel  
Brain, David  
Brown, Benjamin  
Cassidy, Tim  
Chaffin, Michael  
Coddington, Odelle  
Cranmer, Steven  
Delamere, Peter  
Ergun, Robert  
Harvey, V.L.  
Hynek, Brian  
Jones, Andrew  
Kindel, Bruce  
Kopp, Greg  
McClintock, William E.  
Malaspina, David  
Merkel, Aimee  
Osterloo, Mikki  
Randall, Cora  
Rast, Mark  
Erik Richard  
Schmidt, Konrad  
Schneider, Nicholas  
Snow, Martin  
Stewart, Glen  
Toon, O.B.  
Wilson, R.J.  
Woods, Tom

***Sungazing Comets Working Group***

Snow, Martin (Member)

***Supervisor of Postdoctoral Researchers***

Bagenal, Frances  
Schneider, Nicholas

Sternovsky, Zoltan

***Vice Chancellor's Research Cabinet***

Baker, Daniel (Member)

***University of Northern Iowa***

Baker, Daniel (Member, External Advisory Board, Department of Earth Sciences)

Hynek, Brian (Member, External Advisory Board, Department of Earth Sciences)

***University Space Research Association (USRA)***

Baker, Daniel (Council of Institutes Representative)

***Whole Heliospheric Interval Science Team***

Snow, Martin (Member)

***Workshop on Radiation Belts***

Baker, Daniel (Organizing Committee)

***Faculty Honors/Awards***

Baker, Daniel: Named Kavli Foundation Plenary Lectureship prizewinner, January, 2015

France, Kevin: NASA Nancy Grace Roman Early Career Award, 2015.

King, Michael: Elected Fellow, Institute of Electrical and Electronics Engineers, 2015.

Toon, Owen B.: NASA Group Achievement Award for the SEAC4RS field program, 2015.

## *Courses Taught by LASP Faculty*

Brain, David	ASTR 4840 Independent Study
Brain, David	ASTR 1030 Accelerated Introductory Astronomy
Brain, David	Guest lecturer in ASTR 3720, ASTR 5550, and ASTR 3710
Brown, Benjamin	ASTR 5540, Mathematical Methods
Cranmer, Steven	ASTR 3760, Solar and Space Physics
Cranmer, Steven	ASTR 6000, Colloquium Seminar
Cranmer, Steven	ASTR 5140, Astrophysical and Space Plasmas
Ergun, Robert	ASTR 5140 Intro to Astrophysical and Space Plasmas
Esposito, Larry	ASTR 3710 Planets, Moons and Rings
Esposito, Larry	ASTR 4800 Space Science Practice and Policy
Esposito, Larry	ASTR 5835 Seminar in Planetary Science; Venus
France, Kevin	ASTR 5760 Astronomical Instrumentation
France, Kevin	ASTR 7500 Space Mission Concept Development
Hynek, Brian	GEOL 3950 Natural catastrophes and geologic hazards
Hynek, Brian	GEOL/ASTR/ATOC 5835 Planetary Science Seminar
Hynek, Brian	GEOL/ASTR/ATOC 5800 Planetary Surfaces and Interiors
Hynek, Brian	GEOL 5700 Planetary Field Geology
Kalnajs, Lars	ATOC 5600 Clouds and aerosols
McGouldrick, Kevin	ASTR 5835, Planetary Graduate Seminar
Osterloo, Mikki	ASTR/ATOC/GEOL 5835 Planetary Seminar
Randall, Cora	ATOC 5235 Intro to remote sensing and radiative transfer
Randall, Cora	ATOC 6020 Middle atmosphere investigations
Richard, Erik	Aerospace 101 Lecture series: "Introduction to Remote Sensing"
Sternovsky, Zoltan	ASEN 3300 Electronics and communication
Toon, Owen	ATOC 7500 Reading the IPCC report, WG II and WG III
Toon, Owen	ATOC 6020 Clouds and Aerosols



Toon, Owen	ATOC 5600 Physics and Chemistry of clouds and aerosols
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## *LASP Seminar Talks*

Albers, Nicole, CU/LASP, NASA's Cassini mission: Continuing to explore the Saturn system

Anderson, F. Scott, SwRI, Reassessing lunar, Martian, and solar system history based on in-situ radiometric dating, chemistry, and organics analyses using a laser ablation resonance ionization mass spectrometer

Baker, Daniel, and Allison Jaynes, Source and seed populations for relativistic electrons; Their roles in radiation belt changes

Bandfield, Josh, SSI, Unusual impact-related processes revealed by the Lunar Reconnaissance orbiter

Black, Carrie, NASA/Goddard Space Flight Center, Understanding magnetic reconnection: The physical mechanism driving space weather

Brain, David, CU/LASP, Fun physics at Martian crustal fields

Brain, David, CU/LASP, The Emirates Mars Mission

Brito, Thiago, CU/LASP, Radiation belt electron precipitation response to ULF waves

Britt, Daniel, Central Florida, Space weathering on volatile-rich asteroids: or How rocks can make glass, iron, and life

Bryans, Paul, UCAR, Using comets as solar probes

Cash, Webster, CU/CASA, Starshades and the search for life in the universe

Cassidy, Tim, CU/LASP, LASP at Mercury: The MASCS instrument on the MESSENGER spacecraft

Chandrian, Amal, CU/LASP, International collaborative opportunities for small satellite missions

Coddington, Odelle, CU/LASP, LASP and the International Space Station: Future measurements of solar Irradiance and the continuation of a climate data record

Cohen, Barbara, NASA/Marshall Space Flight Center, The potassium-Argon laser experiment (KArLE): In Situ geochronology for planetary robotic missions

Connor, Hyunju Kim, Oak Ridge National Laboratory and NASA-Goddard Space Flight Center, Dispersed cusp ion signatures and their relation to magnetopause reconnection

Cranmer, Steven, CU/LASP, Solar and stellar winds: Progress, puzzles, and prospects

Cranmer, Steven, CU/LASP, Solar wind turbulent dissipation: A collisionless zoo

Dols, V., CU/LASP, Europa's neutral loss

Dols, V., CU/LASP, Atmospheric loss of Europa

Ellison, C. Leland, Princeton Plasma Physics Laboratory, Variational integrators in plasma physics; Sewing the geometric fabric of physics into numerical models

Farrand, Bill (SSI), Glasses and poorly crystalline materials on Mars

Fuller, Jim, Caltech, Saturn seismology: Complex interactions between the planet, the rings, and the moons

Gerard, Jean-Claude, Univ. of Liege, The Mars discrete aurora: Mars Express observations and modeling

Guimaraes, Anna Helena F., DRAAM, Universidade Presbiteriana Mackenzie, Sao Paulo, The Search for Exomoons

Hoffman, Lars, Juelich Research Center, Satellite observations of stratospheric gravity waves from AIRS and IASI: Mountain waves and storm sources

Horányi, Mihály, CU/LASP, Rosetta Results

Hynek, Brian, CU/LASP, Impact craters as a tool for planetary exploration

Hutchinson, Ian, MIT, Understanding electron-hole instabilities in the lunar plasma wake

Iwabuchi, Hironobu, Tohoku University, Spatiotemporal variability of cirrus cloud properties inferred from MODIS infrared band measurements

Jakosky, Bruce, CU/LASP, Early results from the MAVEN mission to Mars

Jaynes, Allison, CU/LASP, LASP magnetosphere seminar

Jaynes, Allison, CU/LASP, The Origins and Mystery of the Aurora

Jones, Andrew, CU/LASP, Exploring the boundaries between science and engineering at LASP: A view from a scientist who still likes to make things

Jones, Andrew, CU/LASP, Rocket Science at LASP

Jones, Andrew, CU/LASP, EXI measurement equation and uncertainty budget, EMM-SRR/SDR

Jones, Andrew, CU/LASP, EVE flight software update review

Kalemci, Emrah, Sabaci University (Turkey), Development and in-orbit testing of an X-ray detector on BeeagleSAT, a 2U Cubesat

Sasha Kempf, CU/LASP, The Hidden Ocean, NASA's Europa Mission and the search for habitability

Kivelson, Margaret, UCLA/U. of Michigan, Magnetic fields from the ocean floor to outer space

Kucharek Harald, U. of New Hampshire, Investigating our Helio-spheric environment: IBEX observations

Malaspina, David, CU/LASP, Kinetic Alfvén waves in the inner magnetosphere generated by magnetospheric response to an interplanetary shock

Mason, James, CU/LASP, MinXSS-CubeSat Science, Students, and System Development

Michalski, Joseph, PSI, Did Mars ever have a lively underground scene? New perspectives on the habitability of

subsurface environments on Mars and beyond

Nakajima, Teruyuki, EORC, Japan Aerospace Exploration Agency, Progress on the microphysical remote sensing of clouds and aerosols for improved understanding of Earth's climate

Olkin, Cathy, SwRI, Pluto's Atmosphere and Surface Composition

Pereira, Tiago, U. of Oslo), Toward a deeper understanding of solar spectra through forward modeling

Poduval, Bala, SSI, Space weather and the current sheet source (CSSS) model

Putzig, Than, SwRI, Subsurface imaging with SHARAD and implications for the recent climate history of Mars

Rafkin, Scot, SwRI, When it rains on Titan, it pours: and then it evaporates

Russell, Christopher, UCLA) Dawn at Ceres

Simmons, Karen, Randy Davis, Phil Evans, Margie Klemp, Dave Stern, Ken Kelly, Elaine Hansen, Sabine Schaffner, Alain Jouchoux, and Rionda Osman-Jouchoux, Preserving the Past: The History of LASP Missions Operations

Smith, Isaac, SwRI, The polar caps of Mars: a record of recent climate

Soto, Alejandro, SwRI, The Martian atmosphere through thick and thin

Sterken, Veerle, International Space Science Institute, Understanding interstellar dust dynamics in the heliosphere

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## ***Talks Presented at Scientific Meetings***

- Albers, N., Saturn's Rings – Theory and observations by Cassini UVIS and ISS – Granular matter in low gravity, Erlangen, Germany, 2015.
- Albers, N., Of gaps and edges, UVIS Team Meeting, 2015.
- Albers, N., A new moon-induced structure, European Planetary Science Congress, Nantes, France, 2015.
- Albers, N., A traveling feature in Janus spiral density waves, DPS, Tucson, AZ, 2015.
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- Albers, N., Intrinsic structure in Saturn's rings, European Planetary Science Congress, Nantes, France, 2015.
- Ali, A., and S.R. Elkington, Radial diffusion coefficients using E and B field data from the Van Allen Probes, GEM Summer Workshop, Snowmass, CO, June 2015.
- Ali, A., and S.R. Elkington, Azimuthal ULF structure and radial transport of charged particles, Fall AGU, San Francisco, CA, December 2015.
- Ali, A., and S.R. Elkington, From Van Allen Probes E and B measurements to radial diffusion coefficients, GEM Summer Workshop, Snowmass, CO, June 2015.
- Anderson, M.M., and M. Osterloo, Using remote sensing techniques to assess the geologic context of olivine-bearing materials in Terra Sirenu, Mars, Fall AGU, San Francisco, CA, December 2015.
- Andersson, L., Current sheets on the dayside of the Mars magnetosphere; Chapman Conference, Alaska, 2015.
- Andersson, L., Plasma interactions in the Martian night side ionosphere, Fall AGU, San Francisco, CA,
- Jarvinen, R., et al., Energization of oxygen ions at Mars: Comparison of the global hybrid model to in situ observations Fall AGU, San Francisco, CA, December, 2015.
- Andersson, L., Long awaited fundamental measurement of the Martian Upper Atmosphere from the Langmuir probe and waves instrument on the MAVEN mission, LPS, Woodlands, TX, March 16-20, 2015.
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- Andersson, L., et al., Oxygen transport in the magnetotail during active times, MMS Launch meeting, Florida, 2015.
- Andersson, L., et al., Long awaited fundamental measurement of the Martian Upper Atmosphere from the Langmuir probe and waves instrument on the MAVEN mission, EGU, 2015.
- Andersson, L., Monitoring the ionosphere, MTSSP, Boulder, CO, 2015.
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- Andrews, D., et al., Martian ionospheric plasma densities: First results from MAVEN/LPW of the near-terminator ionosphere in the northern hemisphere of Mars, EGU, 2015.
- Aye, K.-M., et al., First results of the PlanetFour Citizen Science project, 47th American Astronomical Society 2015.
- Bagenal, F., Pluto, Near and Far: PEPSSI measurements of energetic particles during the New Horizons Flyby and Investigating a Pluto torus of

- circumsolar neutral gas, DPS meeting, Nov. 2015.
- Bagenal, F., Extended neutral cloud around Pluto's orbit, DPS meeting, Nov. 2015.
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- Bagenal, F., Ionosphere-magnetosphere coupling studies with Juno and Cassini proximal orbits, European Planetary Science Congress, Nantes, France, Oct. 2015.
- Bagenal, F., Solar wind interaction with Pluto's escaping atmosphere, Fall AGU, San Francisco, CA, December 2015.
- Bagenal, F., Auroral physics at Jupiter: Outstanding issues to be addressed by Juno, European Planetary Science Congress, Nantes, France, Oct. 2015.
- Bagenal, F., Solar wind at 33 AU: Setting bounds on the Pluto interaction, Fall AGU, San Francisco, CA, December 2015.
- Bagenal, F., Distribution of heavy ions in the Jovian magnetosphere from Re-Analysis of Voyager PLS data, Fall AGU, San Francisco, CA, December 2015.
- Bagenal, F., Dust inventory through the solar system: From Earth to Pluto, Fall AGU, San Francisco, CA, December 2015.
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- Bagenal, F., Europa's plasma environment: A reanalysis of Galileo PLS and PWS observations Fall AGU, San Francisco, CA, December 2015.
- Bagenal, F., et al., Plasma conditions at Europa's orbit, Magnetosphere of the outer planets meeting, Atlanta, 2015.
- Bagenal, F., Observational constraints on a Pluto torus of circumsolar neutral gas, Fall AGU, San Francisco, CA, December 2015.
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- Bagenal, F., The atmospheric escape of Europa: The role of symmetrical O<sub>2</sub> charge exchanges, Fall AGU, San Francisco, CA, December 2015.
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- Beland, S., et al., The latest SORCE SIM degradation model and the resulting SSI measurements, from 2003 to 2015, Fall AGU, San Francisco, CA, December 2015.
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- Brain, D., et al., MAVEN measurements of the ion escape rate from Mars, 46th Lunar and Planetary Science Conference, Texas, March, 2015.
- Brain, D., et al., MAVEN measurements of the ion escape rate from Mars, EGU, Vienna, Austria, April, 2015.
- Brain, D., et al., MAVN measurements of ion escape from the atmosphere of Mars, Comparative Climates of Terrestrial Planets II. California, September, 2015.
- Brain, D., et al., Escaping ion flux maps and rates, MAVEN PSF meeting, Boulder, CO, June, 2015.
- Brain, D., et al., The loss rate of ions from the Martian atmosphere, Fall AGU, San Francisco, CA, December 2015.
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- Brown, et al., Characteristics of small scale wave structure near strong Janus inner lindblad resonances, DPS, Tucson, AZ, 2015.
- Burger, M., et al., Mercury's calcium exosphere in the MESSENGER era, BepiColombo Joint Science Team Meeting, Germany, June 2015.
- Cassidy, T., A search for correlations between Mercury's sodium exosphere and magnetospheric activity, MESSENGER Science Team Meeting, Washington, DC, March 2015.
- Cassidy, T., et al., Europa's plasma environment: A reanalysis of Galileo PLS and PWS observations, Fall AGU, San Francisco, CA, December 2015.
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- Chaffin, M., et al., Mars atmospheric escape constrained using MAVEN IUVS coronal observations, *Division of Planetary Science*, 2015.
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- Chaufray, et al., Plasma and wave properties downstream of Martian bow shock: Hybrid simulations and MAVEN observations, *AAS/AGU*, 2015.
- Chaufray, U.-Y., et al., Study of the cold oxygen corona with IUVS/MAVEN European Planetary Science Congress, France, 2015.
- Clarke, J.T., Early results from the MAVEN IUVS Echelle channel, *LPS conference*, March 2015.
- Coddington, O., et al., Attribution of Earth-reflected hyperspectral data using Bayesian positive source separation, *HISE*, Lake Arrowhead, CA, 1-4 March, 2015.
- Coddington, O., et al., The solar irradiance climate data record, 20th Conference on satellite meteorology and oceanography, *AMS*, 4-8 Jan, 2015.
- Coddington, O., et al., A new climate data record of solar spectral irradiance from 1610 to present, Fall AGU, San Francisco, CA, December 2015.
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- Coddington, O., et al., Development, production, and validation of the NOAA solar irradiance climate data record, Fall AGU, San Francisco, CA, December 2015.
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- Coddington, O., et al., Navel Research Laboratory Solar Spectral Irradiance, Version 2: An update, *SOLARIS/HEPPA Working Group Meeting*, Boulder, CO, Nov. 2015.
- Coddington, O., et al., Total Solar Irradiance (TSI), NOAA Climate Data Record Program Annual Meeting, Asheville, NC, August, 2015.
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- Collinson, G., et al., Electric Mars: The first survey of Martian parallel electric fields, Fall AGU, San Francisco, CA, December 2015.
- Connerney, J., et al., First results of the MAVEN magnetic field investigation, Fall AGU, San Francisco, CA, December 2015.
- Cossette, J.-F., et al., Deep-seated dynamo-driven modulation of solar and stellar luminosities, *IAU General Assembly*, Hawaii, 2015.
- Cranmer, S.R., The role of electrons in the turbulent corona and solar wind, *SHINE Workshop*, Vermont, July 2015.
- Cranmer, S.R., Turbulent origins of solar and stellar winds, *CITA*, May, 2015.
- Cranmer, S.R., Faculty Research Talk, October, 2015.
- Cranmer, S.R., Solar wind turbulent dissipation: A collisionless zoo, *LASP FOM Seminar*, Boulder, CO, April, 2015.
- Cranmer, S.R., Turbulent origins of solar and stellar winds, Faculty Research Talk, U. of Colorado, January 2015.
- Cranmer, S.R., Solar and stellar winds: Progress, puzzles, and prospects, *LASP Science Seminar*, March 2015.
- Cranmer, S.R., *Coronal Science: Preparing for the DKIST Era*, *DKIST Science*

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- Cranmer, S.R., Turbulent origins of solar and stellar winds, Canadian Inst. for Theoretical Astrophysics,
- Cranmer, S.R., Driving jets and spicules with Alfvén waves: The idea that won't go away, IRIS-4 Workshop, Boulder, CO, 2015.
- Crary, F., et al., Initial MAVEN observations of ion cyclotron waves and pickup protons: A measurement of hydrogen loss in the upper Martian exosphere, LPS, Woodlands, TX, 17-21 March, 2015.
- Crary, F., Enhanced electromagnetic sounding of Europa's ocean using CubeSats, EGU, 12-17 April, 2015.
- Crary, F., Electron impact ionization in Saturn's magnetosphere: Direct calculations using observed, non-thermal electron distributions, EGU, 12-17 April, 2015.
- Crary, F.J., et al., Ion cyclotron waves near Mars: Solar wind control of pickup ion instability, Fall AGU, San Francisco, CA, December 2015.
- Crary, F.J., Ion cyclotron wave at Saturn: Latitude structure and implications for the vertical extent of the neutral cloud, EPS congress, France, September 2015.
- Curry, S., et al., Data-model comparisons of Planetary ions at Mars, EPSE, Nantes, France, September, 2015.
- Curry, S., et al., MAVEN data-model comparisons of planetary ions, LPSC, Texas, March 2015.
- Curry, S., et al., ICME effects: Data-model comparison with high-energy heavy ions, MAVEN PSG, Boulder, CO, June, 2015.
- Curry, S., et al., MAVEN data-model comparison of the response of heavy pick-up ions during extreme conditions at Mars, Mars Upper Atmosphere Network Meeting, Maryland, November 2015.
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- Curry, S., et al., Consequences of simulated ion precipitation and sputtering during extreme conditions at Mars: comparison to MAVEN observations, Fall AGU, San Francisco, CA, December 2015.
- Deca, J., Multiscale PIC simulations: From spacecraft charging to the solar wind interaction with Lunar magnetic anomalies, CNRS, France, 2015.
- Deca, J., Multi-scale PIC simulations of the solar wind interaction with lunar magnetic anomalies: Ion and electron dynamics under various solar wind conditions, ISSS12, Prague, 2015.
- Deca, J., Electromagnetic PIC simulations of the solar wind interactions with lunar magnetic anomalies: Ion and electron dynamics, NASA / SSERVI Exploration Science Forum, San Jose, CA, 2015.
- Deca, J., 3-D full-kinetic simulations of the solar wind interaction with lunar magnetic anomalies: Particle behavior, Fall AGU, San Francisco, CA, December 2015.
- Deca, J., Multi-scale kinetic simulations with iPic3D: solar wind interaction with lunar magnetic anomalies and possibilities for SSERVI/IMPACT, Impact All-Hands meeting, Boulder, CO, 2015.
- Deca, J., Solar wind interaction with lunar magnetic anomalies: Vertical vs. horizontal dipole model, LPS Conference, Texas, 2015.
- Deighan, J., The Martian hot oxygen corona: First results from MAVEN IUVS, LPS conference, March 2015.
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- Deighan, J., Structure and variability of the Martian upper atmosphere:

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- Delamere, P.A., et al., Pluto's atmosphere-plasma interaction: Hybrid simulations, Fall AGU, San Francisco, CA, December 2015.
- DeLand, M., et al., Overview of the NASA Solar irradiance science Team (SIST) program, Sun-Climate Symposium – Multi-Decadal Variability in Sun and Earth during the Space Era, Savannah, Nov., 2015.
- Delory, et al., Design and performance of the Langmuir probe on the MAVEN mission, LPS, TX, 16-20 March, 2015.
- DiBraccio, G., et al., MAVEN observations of magnetic reconnection on the dayside Martian magnetosphere, LPS Conference, Houston, March, 2015.
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- DiBraccio, G., et al., MAVEN observations of ionosphere magnetization at Mars: Implications for atmospheric escape, Fall AGU, San Francisco, CA, December 2015.
- Dols, V., et al., Europa's atmospheric neutral escape: Importance of Symmetrical O<sub>2</sub> charge exchange. Magnetosphere of the Outer Planets, Atlanta, 2015.
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- Dong, Y., et al., MAVEN observations of escaping planetary ions from the Martian atmosphere: Mass, velocity, and spatial distributions, TESS, Indiana, April, 2015.
- Dong, Y., et al., A substantial plume of escaping planetary ions in the MSE northern hemisphere observed by MAVEN, Fall AGU, San Francisco, CA, December 2015.
- Dong, Y., et al., MAVEN observed strong polar plume fluxes: An important planetary ion escape Channel, MAVEN PSG meeting, LASP, University of Colorado, 2015.
- Dong, Y., et al., Planetary ion escape from Mars: Plume variations with upstream conditions, MAVEN PSG meeting, Greenbelt, MD, October 2015.
- Dudok, T., et al., Making of composites out of multiple observations: The new Total Solar Irradiance and MgII index composites, Sun-Climate Symposium, Nov., 2015.
- Elliot, H., The Solar Wind interaction with Pluto: Part 1, Fall AGU, San Francisco, CA, December 2015.
- Elkington, S.R., Earth's radiation belts: characteristics, sources and losses, NCAR Advanced Stud Program, Boulder, CO, July, 2015.
- Elkington, S.R., et al., Plasma sheet access to the inner magnetosphere during the October 2-5, 2013 geomagnetic storm, IMC-III workshop, UCLA, March 2015.
- Elkington, S.R., Transport and trapping of energetic plasma sheet electrons in the inner magnetosphere, LWS-EST team meeting, Houston, TX, February 2015.
- Elkington, S.R., Physical models of the Van Allen radiation belts, Invited talk, CISM Space Weather Summer School, Boulder, CO, July 2015.
- Elkington, S.R., Geosynchronous observations and global models of the radiation belts, NOAA GOES-X Project Definition Panel, Boulder, April, 2015.

- Elkington, S.R., et al., A comprehensive simulation method for examining radiation belt dynamics, GEM Summer workshop, June, 2015.
- Elkington, S.R., Wave activity during the March 17, 2015 event, GEM Workshop, Snowmass, CO, June, 2015.
- Elkington, S.R., et al., Access and evolution of plasmashet electrons and ions in the inner magnetosphere during the October 2-5, 2013 geomagnetic storm, IUGG General Assembly, Prague, June 2015.
- Elkington, S.R., et al., January 15-27, 2013: Modulation of VLF wave activity and trapped particle precipitation, Fall AGU, San Francisco, CA, December 2015.
- Elphic, R.C., et al., LADEE Results: Implications for exploration and sciences, LEAG, 2015.
- Ergun, R.E., MMS observations of parallel electric fields, Fall AGU, San Francisco, CA, December 2015.
- Ergun, R.E., et al., Parallel electric fields, magnetic reconnection, particle acceleration, and turbulence, Chapman Conference on Magnetospheric dynamics, Alaska, 2015.
- Ergun, R.E., Measurement of three dimensional electric fields in space, Measurement Techniques in Solar and Space Physics, Boulder, CO, 2015.
- Ergun, R.E., and F. Bagenal, Auroral Acceleration, What to expect at Jupiter, Juno/Cassini Jupiter-Saturn Magnetospheres Meeting, Georgia, 2015.
- Eriksson, S., Polar observations of tripolar guide field perturbations at the Earth's magnetopause, Magnetic Reconnection in Plasmas, Stockholm, Sweden, 2015.
- Eriksson, S., et al., On multiple reconnection X-lines and tripolar guide-magnetic field perturbations in a strong guide field, Japan Aerospace Exploration Agency, Japan, 2015.
- Eriksson, S., et al., MMS observations of vortex induced ion reconnection exhausts during a Kelvin-Helmholtz event on 8 September 2015, MMS Science Working team Meeting, Texas, Nov. 2015.
- Eriksson, S., et al., Sub-solar magnetopause observation and kinetic simulation of a tripolar guide-magnetic field perturbation, Fall AGU, San Francisco, CA, December 2015.
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- Eparvier, F.G., et al., Using the MAVEN EUV monitor to validate far-side and over-the-limb solar activity predictions, Fall AGU, San Francisco, CA, December 2015.
- Escoubet, C.P., et al., Cluster observations of reconnection along the dusk flank of the magnetosphere, EGU meeting, Vienna, Austria, April 2015.
- Espley, J., et al., Early results from the MAVEN magnetometer, Triennial Sun-Summit Conference, Indianapolis, April, 2015.
- Espley, J., et al., A comet engulfs Mars: MAVEN observations of Comet Siding Spring's effects on the Martian magnetosphere, DPS, Maryland, November 2015.
- Esposito, L., Non-linear dynamics of Saturn's rings, Geophys. Inst., UNAM, Mexico City, August 2015.
- Evans, J.S., et al., Optimal estimation retrieval of neutral and ion composition in the Martian thermosphere using dayglow observations from the imaging ultraviolet spectrograph on MAVEN; preliminary results, LPS conference, March, 2015.
- Fang, F., et al., Eruption of solar jets in simulations of flux emergence, Flux Emergence Workshop, Boulder, CO, 2015.
- Fang, F., Formation of complex active regions in numerical simulations, SHINE workshop, Stowe, VT, 2015.
- Fang, X., et al., The dependence of Mars atmospheric loss on crustal field location" MAVEN observation and



- comparison with a MHD model, Fall AGU, San Francisco, CA, December 2015.
- Fang, X., et al., Control of Mars global atmospheric loss by the continuous rotation of the crustal magnetic field: A time-dependent MHD study, MAVEN PSG meeting, Boulder, CO, June 2015.
- Fillingim, M.O., et al., Currents and electrojets in the ionosphere of Mars, TESS, Indianapolis, April, 2015.
- Fowler, et al., First results of the Martian plasma environment below 500 km from the Langmuir probe and waves instrument on the MAVEN mission, LPS, TX, 16-20 March, 2015.
- France, J.A., et al., Mesospheric inversion layers in FR-WACCM, CESM Whole Atmosphere Working Group Meeting, Boulder, Colorado, 17-18 February 2015.
- France, J.A., et al., CIPS observations of the quasi 5-day planetary wave, ATOC Poster Conference, Boulder, CO, 2015.
- France, J.A., et al., CIPS observations of the quasi 5-day planetary wave, AIM Science Team Meeting, Boulder, CO, 2015.
- France, J.A., et al., Interhemispheric coupling and 5-day wave effects on PC during the Northern Hemisphere 2014 season, AIM Science Team Meeting, Virginia, June 2015.
- France, J.A., et al., Interhemispheric coupling and 5-day wave effects on Polar mesospheric clouds during the northern hemisphere 2014 season, Young Scientists Symposium for Atmospheric Research, October, 2015.
- France, J.A., et al., Interhemispheric coupling and 5-day wave effects on Polar mesospheric clouds during the northern hemisphere 2014 season, Layered Phenomena in the Mesopause Region, August, 2015.
- Funke, B., et al., HEPPA-II model-observation intercomparison project: EPP indirect effects during the dynamically perturbed NH winter 2008/2009, SCC Conference, Kiel/Germany, 16-19 March, 2015.
- Giordano, M., et al., Ozone, Iodine, and MSA – Case studies in Antarctic aerosol composition from the 2ODIAC Campaign, Fall AGU, San Francisco, CA, December 2015.
- Gröller, H., et al., Martian CO<sub>2</sub> and O<sub>2</sub> abundances obtained from MAVEN/IUVS stellar occultations, European Planetary Science Congress, France, 2015.
- Gröller, H., et al., Probing the Martian atmosphere with MAVEN/IUVS stellar occultations, Fall AGU, San Francisco, CA, December 2015.
- Haberreiter, M., et al., Modeling the EUV/UV irradiance within the FP7 SOLID Project, EGU Assembly, Vienna, 12-17 April, 2015.
- Halekas, et al., MAVEN observations of the Martian magnetosphere and its response to solar wind drivers, LPS, TX, 16-20 March, 2015.
- Hara, T., et al., Estimation of ionospheric plasma content inside Martian magnetic flux ropes based on MAVEN observations, LPL, TX, 16-20 March, 2015.
- Hara, T., et al., MAVEN observations of high-altitude magnetic flux ropes around Mars, Fall AGU, San Francisco, CA, December 2015.
- Harada, et al., MAVEN observations of Marsward ion flux in the near Mars magnetotail, LPL, TX, 16-20 March, 2015.
- Harber, E., et al., Vertically-align carbon nanotube (VACNT) bolometer for space-based solar spectral irradiance measurements, Conf. on Advancements in Nanotube Bolometers, NIST, July, 2015.
- Harberreiter, M., et al., Modeling the EUV/UV irradiance within the FP7 SOLID Project, Fall AGU, San Francisco, CA, December 2015.
- Harder, J., et al., The importance of solar spectral irradiance to the Sun-Earth connection: Lessons-learned from

- SORCE and their relevance to future missions, University of Montreal, 12 March, 2015.
- Harder, J., et al., LASP and the SOLAR Mission, SOLAR Facility Science Team Meeting, Noordwijk, Netherlands, 2015.
- Harder, J., et al., Measurement equation approach to both preflight calibration and on-orbit degradation corrections, SOLAR Facility Science Team Meeting, Noordwijk, Netherlands, 2015.
- Harvey, V.L., et al., Shape and chemical diagnostics of the polar vortices in WACCM, CESM Meeting, Boulder, Colorado, February 2015.
- Harvey, V.L., et al., Shape and Chemical diagnostics of the polar vortices in WACCM, ISSI Meeting, Prague, Hungary, 27 January 2015.
- Harvey, V.L., et al., Shape and Chemical diagnostics of the polar vortices in WACCM, American Meteor. Soc., 18th Middle Atmosphere Meeting, Phoenix, Arizona, January, 2015.
- Harvey, V.L., Chemical and dynamical definitions of the stratospheric and mesospheric polar vortices, Stockholm University Atmospheric Science Seminar, Stockholm, Sweden, 16 April, 2015.
- Hill, M., et al., Observational constraints on a Pluto torus of circumsolar neutral gas, Fall AGU, San Francisco, CA, December 2015.
- Hill, M., et al., Pluto, Near and Far, PEPSSI measurements of energetic particles during the New Horizons flyby and investigating Pluto torus of circumsolar neutral gas, DPS, 2015.
- Hioki, S., et al., Inference of ice cloud particle roughness in optically thin clouds using satellite polarimetric observations, Fall AGU, San Francisco, CA, December 2015.
- Holsclaw, G.M., The balloon infrared spectrograph for surface thermal emission (BIRSTE) of Venus, Venus Lab and technology Workshop. April, 2015.
- Horanyi, M., et al., LDEX observations of the dust environment of the Moon, 46th LPS Conf., 2015.
- Horanyi, M., The dust environment of the Martian moons, Phobos and Deimos, Brown and UCF Seminar Series, 2015.
- Horanyi, M., Charged dust measurements by the Lunar Dust Experiment, WPDP, Alabama, 2015.
- Horanyi, M., Sources of dust in the solar system, Workshop on Cosmic Dust, Boulder, CO, 2015.
- Horanyi, M. The New Horizons Mission: First Results, Physics Colloquium, Boulder, CO, 2015.
- Horanyi, M., The Rosetta Mission, Boulder, CO, 2015.
- Horanyi, M., The New Horizons Mission to Pluto, Physics Colloquium, Lawrence, KS, 2015.
- Horanyi, M., Characterizing the lunar regolith: Laboratory and Space Experiments, Granular Matter in Low Gravity, Germany, 2015.
- Hsu, H.-W., Radiolysis of ice in Saturn's F Ring, EGU Assembly, Vienna, 12-17 April, 2015.
- Hsu, H.-W., Laboratory investigation of E field antenna signals from dust impacts on spacecraft during the Proximal orbits, Cassini Project Science Group Meeting, #66, 2015.
- Hsu, H.-W., Dust impact detection by the Cassini Langmuir probe, European Planetary Science Congress, France, 2015.
- Hsu, H.-W., Analysis of RPWS dust impact signals aided by laboratory measurements, Cassini Project Science Group meeting #67, 2015.
- Hsu, H.-W., Dust impact detection by the Cassini Langmuir Probe, Cassini Project Science Group meeting #67, 2015.
- Hsu, H.-W., Nano-grains and plumes of Enceladus and Europa, SUDA team meeting, Boulder, CO, 2015.
- Hynek, B.M., et al., Late stage formation of Martian chloride salts through ponding

- and evaporation, Lunar and Planetary Science Conference, 2015.
- Jakosky, B., The MAVEN mission to Mars: early results, GSFC symposium, Greenbelt, MD, 2015.
- Jakosky, B., The MAVEN mission to Mars: early results, LPSC, Houston, TX, 2015.
- Jakosky, B., Results from the MAVEN mission to Mars, DPS annual meeting, Maryland, 2015.
- Jakosky, B., Results from MAVEN: Argon isotopes and loss to space Fall AGU, San Francisco, CA, December 2015.
- Jakosky, B., MAVEN early results, EGU, Vienna, Austria, 2015.
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- Jakosky, B., Results from the MAVEN mission to Mars, AOGS, Singapore, 2105.
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- Jain, S.K., et al., Mars' ultraviolet dayglow observations by IUUVS/MAVEN: Structure and variability of Martian upper atmosphere, Fall AGU, San Francisco, CA, December 2015.
- Jain, S.K., et al., Two types of Aurora on Mars as observed by MAVEN's imaging ultraviolet spectrograph, Fall AGU, San Francisco, CA, December 2015.
- Jaynes, A.N., et al., The role of substorms and whistler-mode chorus waves in the rebuilding of Earth's radiation belts, Dartmouth College Space Plasma Seminar, NH, 2015.
- Jaynes, A.N., et al., Correlated Pc4-5 ULF waves, whistler-mode chorus and pulsating aurora observed by the Van Allen Probes and ground-based systems, Fall AGU, San Francisco, CA, December 2015.
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- Jaynes, A.N., et al., Source and seed populations for relativistic electrons: Their roles in radiation belt changes, GEM Meeting, Snowmass, CO, 2015.
- Jaynes, A.N., et al., Fast radial diffusion of ultra-relativistic electrons: March 2015 storm event, GEM meeting, Snowmass, CO, 2015.
- Jaynes, A.N., et al., Investigating MeV electron enhancements and relationship to ULF waves using Van Allen Probes data in conjunction with LFM simulation results, IUGG-IAGA, Prague, Czech Republic, 2015.
- Jaynes, A.N., et al., Investigating MeV electron enhancements during storms and their relationship to ULF waves: Van Allen Probes data in conjunction with LFM simulation results, AOGS, Singapore.
- Jaynes, A.N., et al., Fast diffusion of ultra-relativistic electrons: Marcy 17, 2015 storm event, AGU Chapman Conference, Fairbanks, AK, 2015.
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- Jolitz, R.D., et al., Atmospheric effects of solar energetic particle events in

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- Jones, Andrew, CU/LASP, Flare location: Quadrant detector and pinhole camera on SDO-EVE, GOES VW meeting, Boulder, 2015.
- Kalnajs, L., Fiber optic temperature sensing for atmospheric measurements, NOA-ESRL-CDS Seminar, 2015.
- Kalnajs, L., Lessons learned during three years of autonomous chemical measurements in Antarctic, Polar Technology Conference, Lockheed Martin, 2015.
- Kalnajs, L., and T. Deshler, A new generation of balloon borne aerosol sizing instruments to extend the Midlatitude stratosphere aerosol record, Stratospheric sulfur and its role in climate workshop, Potsdam, Germany
- Kalnajs, L., et al., Antarctic aerosols at the continental margins; Sources, Composition and Chemistry, Halogen Chemistry over the sea ice in the Antarctic winter and spring meeting, France.
- Kalnajs, L., et al., Strateole 2: A unique super pressure balloon campaign for long duration, Quasi-Lagrangian, chemical and dynamical measurements in the tropical tropopause layer, Composition and transport in the tropical troposphere and lower stratosphere meeting, Boulder, CO.
- Kalnajs, L., et al., Blowing snow-A major source of aerosol in the polar regions?, Fall AGU, San Francisco, CA, December 2015.
- Kempf, S., et al., How much dust does Enceladus eject? 46th LPS Conf., 2015.
- Kindel, B., Radiative flux measurements during the ATTREX Guam deployment, Fall AGU, San Francisco, CA, December 2015.
- King, Michael, MODIS Observes our changing planet, AAAS Annual Meeting, 2015.
- Kollmann, P., et al., First results on Pluto's energetic particle environment from the PEPSSI instrument, DPS, 2015.
- Kollman, P., et al., Energetic particles in the far and near environment of Pluto, Fall AGU, San Francisco, CA, December 2015.
- Kopp, G., et al., Compact electrical substitution radiometers using carbon nanotube bolometers, Conf. on Advancements in Nanotube Bolometers, NIST, July 2015.
- Kopp, G., et al., The TSIS TSI and SSI measurements from Space, 2nd Conf. on Solar Metrology, Belgium, Sept., 2015.
- Kopp, G. and E. Richard, Modern TSI and SSI measurements, Space Climate 6 Symposium, Finland, April, 2016.
- Kopp, G., et al., The impact of the Revised sunspot record on solar irradiance reconstructions, Fall AGU, San Francisco, CA, December 2015.
- Kopp, G., Solar variability magnitudes and timescales, IAU XXIX General Assembly, 2015.
- Kopp, G., Wanted: A TSI measurement record, Sun-climate symposium, Nov 2015.
- Kopp, G., The four flight total irradiance monitors, Sun-Climate Symposium, Nov 2015.
- Kopp, G., et al., Compact absolute electrical substitution radiometers using carbon nanotube bolometers, Nanotube Bolometer Workshop, NIST, 22-23 July 2015.
- Kurth, W., Auroral physics at Jupiter: Outstanding issues to be addressed by Juno, European Planetary Science Congress, France, 2015.
- Leblanc, R., et al., MAVEN: Atmospheric loss induced by sputtering, LPSC, Texas, March, 2015.
- Lee, C.O., et al., Solar energetic particle events observed by MAVEN, Fall AGU, San Francisco, CA, December, 2015.
- Lee, Pascal, et al., PADME: A proposed NASA discovery mission to investigate

- the two Moons of Mars, 46<sup>th</sup> LPS Conf., 2015.
- Lefevre, F., et al., Ozone mapping on Mars: first results from MAVEN IUVE, LPS conference, March 2015.
- Lo, D.Y., et al., Twilight limb observations of aerosols in the Martian atmosphere by MAVEN IUVS, LPS, 2015.
- Lo, D.Y., et al., Tides in the Martian atmosphere as observed by MAVEN IUVS, Fall AGU, San Francisco, CA, December 2015.
- Lu, K., et al., A new look at DE-1 escaping ion observations, NSF GEM meeting, Snowmass, CO, 2015.
- Luhmann, J., et al., 'Ground Truth' insights on space weather effects at habitable zone terrestrial planets, IAU General Assembly, Hawaii, August 2015.
- Luhmann, J., et al., Are there magnetic storms at Mars?, LPS Conference, Houston, March, 2015.
- Luhmann, J., et al., Mars' magnetospheric response to interplanetary field orientation: Inferences from Models for MAVEN investigation, EPSC, Nantes, France, September, 2015.
- Luhmann, J., et al., "Ground Truth" insights on space weather effects at habitable zone planets, IAU, Hawaii, August, 2015.
- Luhmann, J., et al., Implications of MAVEN Mars near-wake measurements and models, Fall AGU, San Francisco, CA, December, 2015.
- Ma, Y., et al., Time-dependent MHD study of the March 8, 2015 ICME Event, MAVEN PSG meeting, Boulder, CO, June, 2015.
- Ma, Y., et al., MHD model results of solar wind interaction with Mars and comparison with MAVEN plasma observations, Fall AGU, San Francisco, CA, December 2015.
- McClintock, W.E., Global scale observations of the limb and disk: Observing the Earth's ionosphere-thermosphere with a hosted payload on a communications satellite, Science Team, Measurement Techniques in Solar and Space Physics, Boulder, CO, April 2015.
- McClintock, W.E., Observations of Mercury's surface-bounded exosphere from orbit: Results from the Mercury atmospheric and surface composition spectrometer aboard the MESSENGER spacecraft, Fall AGU, San Francisco, CA, December 2015.
- McClintock, W., et al., Exploring Mercury's surface-bound exosphere from orbit: Observations by the Mercury Atmospheric and Surface Composition Spectrometer aboard the MESSENGER spacecraft, 5th MESSENGER-BepiColombo Joint Science Team Meeting, Germany, June 2015.
- McClintock, W., et al., Observations of Mercury's surface-bounded exosphere from orbit: Results from Mercury atmosphere and Surface Composition spectrometer aboard the MESSENGER spacecraft, Fall AGU, San Francisco, CA, December 2015.
- McCollom, T.M., Karyn Rogers and Brian Hynek, Fumaroles as Long-term habitats for photosynthetic life on Mars, Astrobiology Science Conference, June 2015.
- McComas, D., et al., The Solar Wind interaction with Pluto: Part 1, Fall AGU, San Francisco, CA, December 2015.
- McEnulty, Tess, et al., Density structures within the Martian ionosphere from the Langmuir probe and waves instrument on the MAVEN mission, AGU/AAS, 2015.
- McFadden, et al., Structure of the Martian ionosphere and atmospheric loss: MAVEN STATIC first results, LPI, 2015.
- McFadden, et al., Structure of the Martian ionosphere: MAVEN STATIC first results, AAS/AGU, 2015.
- McGouldrick, K., Variability of the Venus condensational clouds from analysis of VIRTIS-M-IR observations of the near-infrared spectral windows, 47th DPS

- meeting, National Harbor, MD, November, 2015.
- McNutt, R.L., Escape of Pluto's atmosphere: In situ measurements from the Pluto energetic particle horizons and remote observations from the Chandra X-ray observatory, AAS, DPS, Nov. 2015.
- McNutt, R.L., Escape of Pluto's atmosphere: In situ measurements from the Pluto energetic particle horizons and remote observations from the Chandra X-ray observatory, Fall AGU, San Francisco, CA, December 2015.
- Machol, J., et al., Exospheric hydrogen density estimates from GOES solar Lyman-alpha measurements, EGU General Assembly, Vienna, Austria, 2015.
- Machol, J., et al., Exospheric hydrogen density estimates from absorption dips in GOES solar irradiance measurements, Fall AGU, San Francisco, CA, December 2015.
- Machol, J., et al., Exospheric hydrogen density determined from Lyman-alpha irradiance, Sun-Climate Symposium, Savannah, GA, 2015.
- Malaspina, David, The solar wind and solar probe, Northern Colorado Astronomical Society, Fort Collins, January, 2015.
- Malaspina, David, et al., Kinetic Alfven waves driven by magnetospheric compression, International Workshop on Energetic Particle Processes of the near-Earth Space, Paris, France, May 2015.
- Malaspina, David, et al., Digital fields board DFB subsystem, Solar Probe Plus Instrument Critical Design Review, Berkeley, CA, January 2015.
- Malaspina, David, A new class of wave-particle interaction in the inner magnetosphere, APL Plasma physics group seminar, Laurel, MD, July 2015.
- Malaspina, David, et al., Kinetic Alfven Waves in the inner magnetosphere driven by a magnetospheric compression response to an interplanetary shock, Friends of the Magnetosphere Seminar, LASP, April 2015.
- Malaspina, David, et al., The digital fields board (DFB) on solar probe plus: analog and digital signal processing for FIELDS, Measurement Techniques in Solar and Space Physics, Boulder, CO, April 2015.
- Malaspina, David, Et al., Kinetic Alfven waves in the Inner magnetosphere triggered by an interplanetary shock, Fall AGU, San Francisco, CA, December 2015.
- Malaspina, David, et al., Kinetic Alfven waves in the inner magnetosphere an interplanetary shock, Van Allen Probes Science working Group, APL, Laurel MD, July, 2015.
- Malaspina, David, et al., Electric field structures and waves at plasma boundaries in the inner magnetosphere: Statistics and Event Studies, International Workshop on Energetic Particle Processes of the near-Earth Space, Paris, France, May 2015.
- Malaspina, David, et al., Dipolarization fronts in the inner magnetosphere: wave activity and propagation, Inner Magnetospheric Coupling III, Los Angeles, CA, March 2015.
- Malaspina, D., Progress understanding plasma waves of the inner magnetosphere from the Van Allen Probes and MMS missions, IUGG meeting, Prague, June, 2015.
- Matsunaga, K., et al., O+ pickup ions reflected from the Martian bow shock, MAVEN PSG meeting, Boulder, CO, June, 2015.
- Matsunaga, K., et al., Sunward O+ ion jets reflected below the Martian bow shock: MAVEN observations, Fall AGU, San Francisco, CA, December 2015.
- Matsunaga, K., et al., Comparison of Martian magnetic pileup boundary with ion composition boundary observed by MAVEN, Fall AGU, San Francisco, CA, December, 2015.

- Matta, M., et al., Insights for chemistry at Mars: Integrating atmospheric measurements from MAVEN NGIMS and IUVS into a 1-D photochemical model, LPS conference, March 2015.
- Mitchell, et al., The particles and fields package for the MAVEN mission, LPI, 2015.
- Mitchell, et al., Structure of the Martian ionosphere: Observations of suprathermal electrons by MAVEN-SWEA, AAS/AGU, 2015.
- Mitchell, et al., MAVEN observations of the Martian ionosphere and magnetosheath, LPI, 2015.
- Montmessin, F., et al., MAVEN IUVS in stellar occultation mode: A first look at Martian atmospheric density and temperature profiles, LPS conference, March 2015.
- Montmessin, F., et al., Combined analysis of far UV and mid UV spectra obtained by the MAVEN IVUS instrument in a stellar occultation mode, DPS, 2015.
- Morooka, M., et al., Langmuir probe observation of Mars ionosphere by the MAVEN-LPW, LPS, TX, 16-20 March, 2015.
- Osterloo, M.M., et al., Detailed spectroscopic analysis of Chloride salt deposits, Fall AGU, San Francisco, CA, December 2015.
- Osterloo, M.M., The history of Martian climate as revealed by surface geology, EMM Science Team meeting, Dubai, October 2015.
- Osterloo, M.M., Disk integrated Hapke photometric parameters of the lunar surface in the ultraviolet, Lunar and Planetary Science Conference, 2015.
- Osterloo, M.M., and B.M. Hynek, Martian chloride deposits: The last gasps of widespread surface water, Lunar and Planetary Science Conference, 2015.
- Palo, S., et al., Space weather CubeSat projects at the University of Colorado Boulder, AIAA, November 2015.
- Pankratz, C., et al., Accessing solar irradiance data via LISIRD, Fall AGU, San Francisco, CA, December 2015.
- Peterson, W.K., Solar ionizing radiation at Mars: Predictions vs. MAVEN observations, Fall AGU, San Francisco, CA, December 2015.
- Peterson, W.K., Weak arc electrodynamicism in the per-midnight sector using ePOP and DMSP observations, Joint Assembly of AGU and others, Montreal, CA, December 2015.
- Pilewski, P., et al., TSIS on the International Space Station: Continuity of the solar irradiance data record, AMS, Phoenix, AZ, January 2015.
- Pilewski, P., et al., The Earth Climate hyper-spectral Observatory: Advances in cloud and aerosol remote sensing, EGU, Vienna, April, 2015.
- Piquette, M., et al., Dust inventory through the Solar System: From Earth to Pluto, Fall AGU, San Francisco, CA, December 2015.
- Rand, L., et al., The magnetic heartbeat of the Sun: diagnosing pulses in the solar MgII index using wavelet analysis, Fall AGU, San Francisco, CA, December 2015.
- Randall, C.E., et al., SH 2014-2015 PMC Season, AIM Science Team Meeting, Virginia, June 2015.
- Randall, C.E., Overview of cloud imaging and particle size instrument, Aeronomy of Ice in the Mesosphere Science meeting, Boulder, CO, Oct 2015.
- Randall, C.E., Inferences of dynamical coupling in recent PMC Seasons, Layered Phenomena in the Mesopause Region, Boulder, 2015.
- Randall, C.E., Overview of key results from the exploration of the Pluto system by New Horizons, Fall AGU, San Francisco, CA, December 2015.
- Randall, C.E., Distribution of heavy ions in the Jovian magnetosphere from Re-analysis of Voyager PLS data, Fall AGU, San Francisco, CA, December 2015.

- Randall, C.E., Synthesis lecture on energetic particle precipitation effects on the atmosphere, NCAR Advanced Studies Program summer workshop on Climate, Space Climate, and Couplings between, Boulder, CO, 2015.
- Randall, C.E., Simulation of EPP effects in 2003-2004 Sun-to-Ice science team meeting, Boulder, CO, 2015.
- Randall, C.E., Status of the cloud Imaging and Particle Size Instrument, Aeronomy of Ice in the Mesosphere Science meeting, VA, 2015.
- Randall, C.E., Southern Hemisphere 2015-2015 Polar mesospheric cloud season, Aeronomy of Ice in the Mesosphere Science meeting, VA, 2015.
- Randall, C.E., Comparison of SC-WACCM CCM1 REFC 1SD simulation of NH 2003-2004 winter to observations, Response of the Atmosphere to impulsive solar events science meeting, 2015.
- Randall, C.E., Ionosphere-magnetosphere coupling studies with Juno and Cassini proximal orbits, European Planetary Science Congress, Nantes, France, Oct 2015.
- Remer, L., et al., Advances in atmospheric correction for NASA's PACE mission, Fall AGU, San Francisco, CA, December 2015.
- Richard, E., Development of a compact solar spectral irradiance monitor (CISM) for future solar measurements from space, AMS, Phoenix, AZ, January, 2015.
- Richard, E., et al., A compact solar spectral irradiance monitor for future small satellite and CubeSat science opportunities, Sun-Climate Symposium "Multi-decadal variability in Sun and Earth during the Space Era, Savannah, GA, Nov 2015.
- Richard, E., et al., Solar Spectral irradiance observations: Updates and Outlook, SPARC Working Group Meeting, Boulder, CO April 2015.
- Richard, E., et al., A compact solar spectral irradiance monitor for future small satellite and CubeSat science opportunities, Sun-Climate Symposium, Nov., 2015.
- Richard, E., et al., Solar spectral irradiance observations: Updates and outlook, SPARC SOLARIS-HEPPA , April, 2015.
- Royer, E.M., Investigating Titan airglow's sources, using the imaging capabilities of the Cassini-UVIS Instrument, Fall AGU, San Francisco, CA, December 2015.
- Royer, E.M., The UVIS Titan Library: Description and Applications, UVIS Team Meeting, Boulder, CO, June 2015.
- Royer, E.M., Titan Enhanced Airglow, UVIS team meeting, Pasadena, CA, 2015.
- Ruhunusiri, S., et al., MAVEN observations of magnetosonic like waves upstream of Mars, LPS Conference, Houston, March, 2015.
- Ruhunusiri, S., et al., Characterization of low frequency plasma waves and their energy deposition in the Martian magnetosphere with MAVEN, Fall AGU, San Francisco, CA, December, 2015.
- Russell, C.E., et al., Inferences of dynamical coupling in recent PMC seasons, Layered Phenomena in the Mesopause Region, Boulder, CO, 2015.
- Sakai, S., et al., Electron energies in the Martian ionosphere: Model comparisons with MAVEN data, Fall AGU, San Francisco, CA, December 2015.
- Schmidt, K.S., Spectral radiative effects of aerosols in absence and presence of clouds from the SSFR/4STAR perspective, Phil Russell Symposium, NASA Ames, March 2015.
- Schmidt, K.S., et al., Solar spectral irradiance from ARISE – Precision, Accuracy and Data Aggregation for validation and remote sensing, ARISE Science team meeting, NASA/Goddard, May 2015.
- Schmidt, K.S., et al., Linking the radiative energy budget and remote sensing of complex cloud and aerosol fields,



- SEAC<sup>4</sup>RS science team meeting, Pasadena, CA, May 2015.
- Schneider, N.M., et al., MAVEN IUVS observations of the aftermath of comet siding spring's meteor shower, LPS Conference, March 2015.
- Schneider, N.M., et al., First results from MAVEN's imaging UV spectrograph, LPS conference, March 2015.
- Schneider, N.M., et al., First results from MAVEN's imaging UV spectrograph, European Planetary Science Congress, 2015.
- Schneider, N.M., et al., Two types of aurora on Mars as observed by MAVEN's IUVS, DPS, 2015.
- Schneider, N.M., Two types of aurora on Mars as observed by MAVEN's imaging ultraviolet spectrograph, Fall AGU, San Francisco, CA, December, 2015.
- Scott, L., et al., The Mars Moons Exploration, Reconnaissance and Landed Investigation, 46th LPS Conference, 2015.
- Segal-Rosenheimer, M., et al., Cloud radiative forcing sensitivity to atmospheric regimes, surface type, cloud phase and cloud properties during Fall 2014 Arctic radiation, IceBridge and Sea-Ice Experiment (ARISE) Campaign, EGU Assembly, Vienna, 12-17 April, 2015.
- Seki, K., et al., Structure of plasma boundaries with a large density gradient observed by MAVEN and its effects on the Kelvin-Helmholtz instability, Fall AGU, San Francisco, CA, December, 2015.
- Sidrow, E., et al., Extended neutral cloud around Pluto's orbit, AAS, DPS, November 2015.
- Snow, M., et al., The EUV and X-ray irradiance sensors (EXIS): GOES-R and Beyond!, Sun-Climate Symposium, Savannah, GA, 2015.
- Snow, M., et al., Understanding the sources of MgII irradiance variations using IRIS mosaics, ALMA-IRIS-DKIST Workshop, Boulder, CO, 2015.
- Snow, M., and E. Wood, SORCE undergraduate researchers, Sun-Climate Symposium, Savannah, GA, 2015.
- Snow, M., et al., Exospheric hydrogen density estimates from GOES solar Lyman-alpha measurements, EGU General Assembly, Vienna, Austria, 2015.
- Snow, M., et al., Lyman alpha solar spectral irradiance line profile observations and models, EGU General Assembly, Vienna, Austria, 2015.
- Snow, M., and E. Wood, Research experience for undergraduates in solar and space physics, Boulder Solar Day, 2015.
- Snow, M., Sun-climate symposium meeting summary, Sun-Climate Symposium, Savannah, GA, 2015.
- Snow, M., Progress on SHAPE Team Projects, ISSI team meeting, Bern, Switzerland, 2015.
- Snow, M., Care and feeding of REU students before, during and after, Fall AGU, San Francisco, CA, December 2015.
- Snow, M., et al., Lyman alpha line profile observations from SORCE SOLSTICE, Fall AGU, San Francisco, CA, December 2015.
- Snow, M., and E. Wood, Measuring REU success through longitudinal tracking, Fall AGU, San Francisco, CA, December 2015.
- Soobiah, Y., et al., MAVEN MAG observations of magnetic field enhancements and decreases in the induced magnetosphere of Mars, Fall AGU, San Francisco, CA, December, 2015.
- Southworth, B., et al., Modeling Europa's dust plume, 46th LPS Conf., 2015.
- Stern, S.A., The Pluto system, Initial results from the exploration by New Horizons, AAS, DPS meeting, 2015.
- Stevens, M.H., N<sub>2</sub> in the Martian upper atmosphere identified using dayglow observations from the imaging

- ultraviolet spectrograph on MAVEN, LPS conference, March 2015.
- Stevens, M.H., New observations of molecular nitrogen by the imaging ultraviolet spectrograph on MAVEN, DPS, 2015.
- Stewart, G.R., Orbit averaging in perturbed planetary rings, DPS, November 2015.
- Stiepen, A., et al., Preliminary analysis of Martian nightglow and aurora observed by MAVEN's imaging ultraviolet spectrograph, LPS, 46, March, 2015.
- Stiepen, A., et al., Mars nitric oxide nightglow as observed by MAVEN/IUVS, Fall AGU, San Francisco, CA, December 2015.
- Stiepen, A., et al., Discovery of diffuse aurora on Mars, European Planetary Science Congress, 2015.
- Swenson, S.J., et al. Exploring solar signals: A Bayesian approach to developing a composite MgII index record, 12th Conference on Space Weather, AMS meeting, 4-8 Jan, 2015.
- Szalay, J.R., et al., Dust measurements by the Student Dust Counter onboard the New Horizons mission to Pluto, 46th LPS Conf., 2015.
- Tian, H., et al., Prevalence of micro-jets from the network structures of the solar transition region, IRIS-4 Workshop, Colorado. 2015.
- Thiemann, E.M.B., et al., New sub-nanometer spectral estimates of the 0-5 nm solar soft X-ray irradiance at Mars using the EUVM onboard MAVEN, Fall AGU, San Francisco, CA, December 2015.
- Thieman, E., et al., Impact of solar flare heating of the Mars thermosphere on jeans escape of hydrogen, NASA/ AMES Comparative climates of Terrestrial Planets II, September, 2015.
- Thomas, G., 27-day solar forcing of mesospheric temperature, water vapor and polar mesospheric clouds from the AIM/SOFIE and CIPS satellite measurements, EGU General Assembly, Vienna, Austria, 2015.
- Trattner, K.J., et al., Equatorial magnetic reconnection lines during northward IMF conditions, EGU Meeting, Vienna, Austria, April 2015.
- Usanova, M.E., The role of EMIC waves in radiation belt dynamics, EGU Assembly, Vienna, 12-17 April, 2015.
- Usanova, M.E., The role of EMIC waves in radiation belt dynamics, IMC III workshop, Los Angeles, CA, 23-27 March, 2015.
- Usanova, M.E., et al., EMIC waves: A link between the ring current and in the radiation belts, NOAA seminar, Boulder, 19 March, 2015.
- Usanova, M.E., et al., Van Allen Probes observations of oxygen cyclotron harmonic waves in the inner magnetosphere, AGU Joint Assembly, Montreal, Canada, 3-7 May, 2015.
- Usanova, M.E., et al., Van Allen Probes observations of oxygen cyclotron harmonic waves in the inner magnetosphere, Van Allen Probes team meeting, Baltimore, MD, April, 2015.
- Usanova, M.E., et al., Van Allen Probes observations of oxygen cyclotron harmonic waves in the inner magnetosphere, AGU Joint Assembly, Canada, 2015.
- Usanova, M.E., et al., Van Allen Probes observations of oxygen cyclotron harmonic waves in the inner magnetosphere, Chapman Meeting, Alaska, 2015.
- Usanova, M.E., et al., EMIC waves in the inner magnetosphere, Fall AGU, San Francisco, CA, December 2015.
- Usanova, M.E., EMIC wave analysis for GEM group challenge, mini-GEM, Fall AGU, San Francisco, CA, December 2015.
- Usanova, M.E., Wave-particle interactions in the ring current and radiation belts, GEM workshop, Santa Fe,
- Valek, P., et al., Observations of the Jovian mid-magnetosphere by the New

- Horizons Solar Wind Around Pluto (SWAP) ion spectrometer, Fall AGU, San Francisco, CA, December 2015.
- Vervack, J., et al., Mercury's exosphere: New detections, discoveries and insights, DPS, meeting, November 2015.
- Wang, X., et al., Space weathering of airless bodies: An integration of remote sensing data, Laboratory Experiments and Sample Analysis Workshop, LPI, 2015.
- Wang, X., et al., Electrostatic dust transport on the surfaces of airless bodies, Fall AGU, San Francisco, CA, December 2015.
- Wang, X., et al., Investigations of electrostatic dust lofting and its mechanisms, SSERVE Science Forum, NASA Ames, CA, 2015.
- Wang, X., et al., Laboratory investigations of electrostatic dust lofting on comet and asteroid surfaces, European Planetary Science Congress, Nantes, France, 2015.
- Wang, X., Laboratory investigations of electrostatic dust transport on airless bodies and its effects on space weathering, Workshop on Space Weathering on Airless Bodies, Houston, TX, 2015.
- Weber, et al., Dust observations using common mode measurements from the Langmuir probe and waves instrument on the MAVEN mission, LPS, TX, 16-20 March, 2015.
- Wielicki, B.A., et al., CLARREO pathfinder mission: Enabling faster observation of climate change, Fall AGU, San Francisco, CA, December 2015.
- Wilson, A., Interoperable solar data and metadata via LISIRD 2, Fall AGU, San Francisco, CA, December 2015.
- Wilson, A., et al., Interoperable solar data and metadata via LISIRD 3, Fall AGU, San Francisco, CA, December 2015.
- Wilson, R.J., The relative proportions of water group ions in Saturn's inner magnetosphere, Magnetospheres of the Outer Planets conference, Atlanta, GA, 2015.
- Wilson, R.J., Distribution of heavy ions in the Jovian magnetosphere from re-analysis of Voyager PLS data, Fall AGU, San Francisco, CA, December 2015.
- Wilson, R.J., Proton characteristics in the Jovian magnetosphere based on reanalysis of Voyager PLS data, Fall AGU, San Francisco, CA, December 2015.
- Wilson, R.J., The relative proportions of water group ions in Saturn's inner magnetosphere, Fall AGU, San Francisco, CA, December 2015.
- Wolf, E.R., et al., Refining the inner edge of the habitable zone using 3D climate models, Pathways 2015, Bern, Switzerland, July 2015.
- Wolf, E.T., Stratospheric clouds, convection and water vapor in the moist greenhouse climate, SPARC Regional Workshop, Bolder, CO, 2015.
- Wolf, E.T., et al., 3D climate simulations of terrestrial atmospheres near the inner edge of the habitable zone around F, G, and K stars, Astrobiology Science Conference, Chicago, June 2015.
- Wolf, E.T., et al., From snowball to moist greenhouse: The climatological evolution of Earth-analog planets simulated with a 3D climate system model, Extreme Solar Systems III, Hawaii, 2015.
- Wolf, E.T., Atmospheres near the inner edge of the habitable zone, NCAR Early Career Workshop, Boulder, CO, 2015.
- Woods, T.N., Space-based observations of the solar irradiance, IAU #29, August 2015.
- Woods, T.N., et al., A different view of solar spectral irradiance variations: Modeling total energy of a solar outburst period in 2005 and its comparison to solar cycle 23 and 24 measured variability, IAU #29, 2015.
- Woods, T., Solar extreme ultraviolet (EUV) flare observations and findings from the solar dynamics observatory (SDO) EUV variability experiment (EVE), IAU General Assembly, 2015.

Woolsey, L.N., and S.R. Cranmer, Magnetic influences on turbulent heating and jet production in coronal holes, Fall AGU, San Francisco, CA, December 2015.

Woolsey, L.N., and S.R. Cranmer, An investigation of magnetic thresholds for the production of IRIS network jets, SHINE Workshop, Vermont, July 2015.

Wright, L., O. Coddington, and P. Pilewskie, Informed source separation of atmospheric and surface signal contributions in shortwave hyperspectral imagery using non-negative matrix factorization, Fall AGU, San Francisco, CA, December 2015.

Yang, P., et al., A brief history of ice cloud optical property models for applications to remote sensing, Fall AGU, San Francisco, CA, December 2015.

Yau, A.W., High-resolution multi-instrument observations of ion outflows in the topside ionosphere on the enhanced polar outflow probe (e-POP), Fall AGU, San Francisco, CA, December 2015.

### ***Talks to Public Groups***

Bagenal, F., NASA's New Horizons Mission to Pluto, New Vista High School, Boulder, CO, May 19, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, Denver Museum of Nature and Science, June 10, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, Colorado Mountain College, Steamboat Springs, CO, Jan. 28, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, Rocky Mountain Star Stare, Walsenburg, CO, June 12, 2015.

Bagenal, F., NASA's Juno Mission to Jupiter, Rocky Mountain Star Stare, Walsenburg, CO, June 13, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, Longmont Astronomical Society, Longmont, CO, June 18, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, Collegiate Peaks Forum, Buena Vista, CO, July 23, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, Denver Astronomical Society, Denver, CO, August 28, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, CU South Denver Museum, August 29, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, University of Toronto, Canada, 2015.

Bagenal, F., Juno Science, Lockheed Martin, Denver, CO, March 2015.

Bagenal, F., NASA's Juno Mission to Jupiter, U. of Calgary, Canada, March 20, 2015.

Bagenal, F., Every planet is a comet to a space physicist from Jupiter to Pluto, High Altitude Observatory 75th Anniversary, September 1, 2015.

Bagenal, F., Juno: First visit to Jupiter's poles. What are the lessons from Earth? Chapman Conference, Fairbanks, AK, Sept. 28, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, Frasier Meadows Community, Boulder, CO, Oct. 21, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, UCAR Teacher Workshop, Mar 7, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, Orange County Astronomy Club, April 8, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, New Vista High School, Boulder, CO, May 19, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, Denver Museum of Nature and Science, June 10, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, Stapleton Middle School, Denver, Mar 9, 2015.

Bagenal, F., NASA's New Horizons Mission to Pluto, Fiske Planetarium, U. of Colorado, Boulder, Mar 12, 2015.

- Bagenal, F., NASA's New Horizons Mission to Pluto, Orange County, CA April 2015.
- Bagenal, F., NASA's New Horizons Mission to Pluto, Marlar Lecture, Rice University, November 23, 2015.
- Bagenal, F., Juno, Revealing Jupiter's interior, Rice University, November 24, 2015.
- Bagenal, F., Constraining plasmashet composition: Juno + Hisaki/EXCEED+ Physical Chemistry Models, Hisaki Workshop, JAXA, Tokyo, Japan, December 1, 2015.
- Brain, D., What happened to the Ancient Martian atmosphere?, U. of Toronto Physics Colloquium, Toronto, January, 2015.
- Brain, D., What happened to the Martian Atmosphere?, Goddard Space Flight Center, February, 2015.
- Brain, D., Fun Physics at Martian Crustal Fields, Friends of the Magnetosphere Seminar, February, 2015.
- Brain, D., MAVEN mission update and early science, Mars Exploration Program Analysis Group, Pasadena, CA, February, 2015.
- Brain, D., The Martian atmosphere, Global Space and Satellite Forum, Abu Dhabi, May, 2015.
- Brain, D., CU's MAVEN Mission, Boulder Alumni Chapter, Fiske Planetarium, May 2015.
- Brain, D., Do Habitable worlds require magnetic fields?, TEDx Boulder, September, 2015.
- Brain, D., Bubbles I Space, Boulder Bubble Day, May, 2015.
- Brain, D., Evolution of the Martian atmosphere, American University of Sharjah, October 2015.
- Brain, D., Science and science travel ability, LASP PI Training Series, December 2015.
- Coddington, O., TSIS and the International Space Station, Rocky Mountain High Plains chapter of the Institute of Electrical and Electronics Engineers.
- Cranmer, S., Solar Magnetism and activity: Progress, puzzles, and Prospects, 75th Anniversary of the High Altitude Observatory, Boulder, CO, September 2015.
- Eparvier, Frank, MAVEN Mission to Mars, Summit County Rotary Club, June 2015.
- Eparvier, Frank, Aurora and Space Weather, Rocky Mountain National Park, 75th Anniversary talks, July 2015.
- Esposito, L.W., Non-linear dynamics of Saturn's rings, Geophys. Institute, Mexico City, August 2015.
- Hynek, B., et al., Unlocking Mercury's geological history with Rembrandt basin: Year 1, Planetary Mappers Meeting, Honolulu, 2015.
- Hynek, B., et al., Geological mapping of the Coprates chasma, Mars, Year 1, Planetary Mappers Meeting, Honolulu, 2015.
- Hynek, B., et al., Geologic map of the Meridiani region of Mars, Planetary Mappers Meeting, Honolulu, 2015.
- Hynek, B., and Herrick, R., Target property controls on Martian impact crater morphologies, 46th LPS Conf., Texas, 2015.
- Hynek, F., Valley networks and the nature of the late noachian mars climate, 46<sup>th</sup> LPS Conf., Texas, 2015.
- Hynek, B., Late stage formation of Martian chloride salts through ponding and evaporation, 46<sup>th</sup> LPS Conf., Texas, 2015.
- Jakosky, B., Presented 30 talks to various groups on the subject of the MAVEN projects, 2015.
- Jakosky, B., Numerous interviews concerning the MAVEN results, 2015.
- McCullom, T.M., Rock-powered life: Biology that thrives in the absence of photosynthesis, CU Denver Alumni Group, August 2015.
- Richard, Erik, Space Science and Space instruments, Stargate Charter School, Thornton, CO, 26 February, 2015.

## *Sponsored Programs*

Aye, M	UCLA	LRO Diviner Extended Science Mission (Phase E)
Bagenal, F	SwRI	JUICE-UVS: An Ultraviolet Spectrograph for the JUICE Mission
Bagenal, F	SwRI	SwRI Student Task Order #1 Haze Particles in Titans Atmosphere Lanzano
Bagenal, F	SwRI	SwRI Student Task Order #2 Integration, Testing and Flight of a Balloon-Borne Infrasonic Monitoring Payload Ballard
Bagenal, F	SwRI	SwRI Student Task Order #3 Characterizing the Icy Galilean Satellite Surfaces
Bagenal, F	SwRI	SwRI Student Task Order #4 Flight Integration of the ASTERIA Infrasonic Balloon-Borne Payload
Bagenal, F	NASA	Surface Evolution of Pluto and Charon
Bagenal, F	UCAR	The Visiting Scientist Program Heliophysics Summer School 2015
Bagenal, F	SwRI	Spectrometry of Pluto's Variable Atmosphere and Surface
Bagenal, F	SwRI	New Horizon Pluto-Kuiper Belt Mission Phase B
Bagenal, F	SwRI	JUNO Science Support - Phase E Activities
Baker, D	Carnegie Inst.	Science Team Support for the MESSENGER Mission - Phase E
Baker, D	UCAR	REU Summer at LASP: An Interdisciplinary Undergraduate Research Program in Solar & Space Physics with NCAR
Baker, D	JHU	MMS EPD FEEPS- FEEP Data Products - Phases B, C, D, E
Baker, D	NSF	REU Site: An Interdisciplinary Undergraduate Research Experience in Solar and Space Physics
Baker, D	Univ. New Hampshire	Relativistic Electron-Proton Telescope (REPT) Instrument on the "Radiation Belt Storm Probes (RBSP) - Energetic Particle, Composition, and Thermal Plasma (ECT) Suite" (Phase B)

Brain, D	NASA	The First Suprathermal Electron Measurements at Venus: Connections Between the Plasma Environment and Atmosphere
Brain, D	NASA	Influence of Asteroid and Comet Impacts on Atmospheric Abundances at Venus, Earth and Mars
Cassidy, T	Prisma Basic Res.	Investigation of Cassini Data for the Sources of H in the Saturn System
Cassidy, T	NASA	Mercury's Sodium Exosphere from Ground and Space: Comparing Measurements from MESSENGER with Earth Based Observations
Coddington, O	NASA	Retrieval Studies in Support of Cloud Property Products from the PACE Ocean Color Imager
Coddington, O	NASA	How Does the Sun's Spectrum Vary?
Cranmer, S	NSF	SHINE: Accelerating the Turbulent Solar Wind One Flux Tube at a Time
Crary, F	JPL	Cassini Mission Support
Crary, F	JPL	CubeSAT for Ice Layer Thickness (CSALT): A Europa CubeSat Concept Study
Crary, F	NASA	Ion Cyclotron Waves and Pickup Ions: Mapping Plasma Production in Saturn's Magnetosphere
Crary, F	NASA	Ion Cyclotron Waves and Pickup Ions: A Multi-Instrument Study of Ionospheric Loss from Mars
DeNeen, M	JPL	Continuous Integration in a Multi-Mission Environment
Dols, V	NASA	Constraining Io's Mass Loss: Modeling the Magnetosphere-Satellite Interaction
Elkington, S	NASA	Investigating the effects of azimuthal structure on ULF-driven particle transport and energization in the radiation belts (Student: Ashar Ali)
Elkington, S	NASA	Understanding Inner Magnetospheric Chorus Waves Using the Van Allen Probes
Elkington, S	NASA	Investigations of Radiation Belt Precipitation Modulation Observed by the Van Allen Probes and BARREL Campaigns
Elkington, S	NASA	Transport and Trapping of Energetic Plasmasheet Electrons in the Inner Magnetosphere
Eparvier, F	NASA	Extreme Ultraviolet and X-Ray Irradiance Sensors (EXIS) Geostationary Operational Environmental Satellites - R Series (GOES-R)

Ergun, R	Univ. New Hampshire	Magnetospheric Multiscale (MMS) Fields Investigation Digital Signal Processor and Axial Double Probes
Ergun, R	NASA	Solar Terrestrial Relations Observatory (STEREO) Waves Phase E
Ergun, R	Univ. Minnesota	Electric Field and Waves (EFW) Instrument
Ergun, R	UC/Berkeley	Time History of Events and Their Macroscopic Interactions During Substorms (THEMIS)
Ergun, R	UC/Berkeley	Digital Field Boards Solar Probe Plus Investigations
Eriksson, K	NSF	Collaborative Research: Dayside Field-Aligned Current (FAC) Source Regions of Extreme Poynting Flux Events and the Response of the Magnetosphere-Ionosphere-Thermosphere System
Eriksson, S	LANL	Non-linear Coupling between Magnetic Reconnection and the Kelvin-Helmholtz Instability in Magnetospheric Boundary Layers
Esposito, L	JPL	Venus In Situ Explorer (VISE)
Esposito, L	JPL	VASE - Venus Atmosphere and Surface Explorer
Esposito, L	JPL	Cassini Solstice Mission
Fleming, B	STScI	High Efficiency SNAP Survey for Lyman Alpha Emitters at Low Redshift (HST 13761)
Fleming, B	NASA	Prototyping and Flight Qualification of High-Reflectivity Broadband Mirror Coatings for the Next Generation of Space Observatories
France, K	STScI	Unveiling the Circumstellar Environment of the Most Extreme Hot-Jupiter (HST 13859)
France, K	STScI	Stars, Planets, and the Search for Life in the Universe
France, K	STScI	Reconstructing Lyman Alpha Radiation Fields in T Tauri Stars
France, K	JPL	Advanced Coatings Enabling High Performance Instruments for Astrophysics Missions
France, K	NASA	Development of HEROICs: High-sensitivity, High-dynamic Range Detector Systems for Ultraviolet Astronomy
France, K	NASA	Development and Flight-testing of Next Generation Technology for Ultraviolet



		Astronomy
France, K	STScI	The MUSCLES Treasury Survey: Measurements of the Ultraviolet Spectral Characteristics of Low-mass Exoplanetary Systems (HST 13650)
France, K	NASA	Development of HEROICs: High-sensitivity, High-dynamic Range Detector Systems for Ultraviolet Astronomy
France, K	NASA	Development and Flight-testing of Next Generation Technology for Ultraviolet Astronomy
Harder, J	NASA	Construction of a SORCE-based Solar Spectral Irradiance (SSI) Record For Input Into Chemistry Climate Studies of Solar Cycle 23 – 24
Harvey, L	NSF	Collaborative Research: CEDAR -- Understanding the High-to-Mid Latitude Ionospheric Response to Stratospheric Warmings
Hodges, R	NASA	Dynamic Response of Environments at Asteroids, the Moon, and Moons of Mars (DREAM2)
Hodges, R	NASA	LADEE Neutral Mass Spectrometer Investigation (suppl. to NNX09AD75G)
Horanyi, M	JPL	Cassini CDA Solstice (XXM)
Horanyi, M	NASA	The Dusty Plasma Environment of Airless Bodies in the Solar System
Horanyi, M	SwRI	New Horizons Mission Student Dust Counter (SDC) New Horizons Mission Phases C/D
Horanyi, M	JPL	Dusty Plasma Observations by Rosetta
Horanyi, M	NASA	Solar System Exploration Research Virtual Institute (SSERVI)
Hsu, H	NASA	The Plume, The Magnetosphere, and the Solar Wind: A Dusty Point of View
Hynek, B	SwRI	Material Properties of Dune Fields in the Southern Highlands of Mars from Thermophysical Observations and Modeling
Hynek, B	NASA	Structured Light Imaging Module: Advanced Capabilities and Field Tests
Hynek, B	NASA	Geologic Map of the Coprates Chasma (MTM-

		15057), Valles Marineris, Mars
Hynek, B	NASA	Unlocking Mercury's Geologic History with Rembrandt Basin
Jakosky, B	NASA	MAVEN - PI & PI Support, Phase E Science, EPO
Jones, A	NASA	Data Services Upgrade to the GOES Solar Extreme Ultraviolet Irradiance Measurements
Kalnajs, L	NSF	Collaborative Research: High Resolution Study of Atmosphere, Ice, and Aerosol Interactions in Coastal Antarctica
Kempf, S	JPL	Cassini CDA Solstice (XXM)
Kempf, S	JPL	Europa Clipper Mission Concept Data Products: Modeling Plume Composition and Physical Parameters
Kempf, S	NASA	Investigating Dust Exospheres by LADEE
King, M	NASA	Refinement of Cloud Optical and Microphysical Properties and Gridded Atmosphere Products from MODIS
King, M	NASA	Science Team Leader of the NASA Earth Observing System (EOS) Terra and Aqua MODIS Science Team and Associated Research
Kopp, G	NASA	A TSI Community Consensus Composite Based on an Assessment of the Accuracies and Uncertainties of Space-borne TSI Measurements
Kopp, G	NASA	Carbon Absolute Electrical Substitution Radiometers (CAESR)
Li, X	NSF	CubeSat: Colorado Student Space Weather Experiment
Li, X	NASA	On The Precipitation Loss of Outer Belt Electrons
Malaspina, D	NASA	A Dust Impact Database for the Wind Spacecraft
Massie, S	NASA	Aerosol Effects on Cloud Heights and Precipitation
Massie, S	NASA	Absorptive Aerosols and Clouds: Application of the PNNL-MMF Model and Analysis
Massie, S	NASA	The Influences of Clouds and Aerosols on OCO-2 Spectra
Massie, S	NASA	Decadal Changes in Cloud Geographical Distributions

McClintock, W	Virginia Polytechnic Inst.	Rocket Observations of Nitric Oxide in the Polar Night by Stellar Occultation
McClintock, W	Carnegie Inst.	Science Team Support for the MESSENGER Mission - Phase E
McClintock, W	Univ. Central Florida	Global Scale Observation of the Limb and Disk (GOLD) SALMON Project
McCollow, T	USC	Center for Dark Energy Biosphere Investigations (C-DEBI) – Investigation Theme Team Leadership
McCollow, T	Ohio State Univ.	Reduced Carbon in Earth: Origin and Distribution of Abiotic Hydrocarbons
McCollow, T	NASA	Rock Powered Life: Revealing Mechanisms of Energy Flow from the Lithosphere to the Biosphere
McCollow, T	NASA	Methods for Remote Detection of Mineral Composition for the Alunite-Jarosite Group
McCollow, T	NASA	Mobility of Minor Elements During Acid Sulfate Alteration of Pyroclastic Basalt at Cerro Negro Volcano, a Mars Analog Site
McGouldrick, K	NASA	Meteorology of the Lower and Middle Cloud Decks of Venus Using the VIRTIS/Venus Express
McGrath, M	Hampton Univ.	Aeronomy of Ice in the Mesosphere (AIM) Additional Staffing Hours, Materials and Equipment to Complete the CIPS Instrument
McGrath, M	Emirates Inst. Advanced Science/ Tech	Concept and Technology Development Study Proposal Mars Exploration for Emirates Institution for Advanced Science and Technology (EMX)
Merkel, A	DOD Naval Research Lab	Understanding the Polar Lower Atmospheric Hydrogen Hole: Causes and Consequences
Morooka, M	Univ. of Iowa	Cassini Langmuir Probe Data Archiving for the Kronian Magnetosphere
O'Connor, D	NASA	High Rate Cubesat X-band/S-band Communication System
Osterloo, M	State Univ. New York	Spectroscopic and Geologic Analysis of Chloride Salt Deposits on Mars
Osterloo, M	NASA	Assessing Compositional Variability of Martian Deltas
Pilewskie, P	NASA	Solar Spectral Flux Radiometer Measurements for ATTREX

Pilewskie, P	NASA	Total and Spectral Irradiance Sensor (TSIS)
Pilewskie, P	NASA	LASP CLARREO Science Definition Team Studies: Using Measurements of Scattered Spectral Shortwave Radiation to Define Requirements, and to Develop Methods for Trend Detection and Attribution
Portyankina, G	NASA	Interaction of Dusty Polar Cryo Jets with the Lower Atmosphere on Mars
Possel, W	Univ. of Arizona	OSIRIS-REx Science Payload Operations Center Review Board
Possel, W	Stellar Solutions	QuakeFinder Software Development
Possel, W	Univ. of Arizona	Payload Operation Review Panels 2015
Possel, W	Lockheed Martin *	Space Based Infrared Systems (SBIRS) - Engineering Support
Possel, W	Ball Aerospace Tech. Corp.	Kepler Mission Operations: Phase E Extended Mission
Possel, W	Ball Aerospace Tech. Corp.	Mission Operations of the NASA QuikSCAT Satellite
Possel, W	SwRI	Magnetosphere Multiscale (MMS) Mission for Magnetospheric Acceleration, Reconnection and Turbulence (SMART)
Randall, C	Univ. New Hampshire	Sun to Ice - Impacts on Earth of Extreme Solar Events
Randall, C	NASA	Response of the Atmosphere to Impulsive Solar Events (RAISE)
Reed, H	SwRI	CYGNSS STOP Lite Analysis
Richard, E	NASA	Development of a Compact Solar Spectral Irradiance Monitor with High Radiometric Accuracy and Stability
Richard, E	NASA	The Analysis of Improved Laboratory Measurements in the Recalibration and Revaluation of the SORCE SIM Data Record
Schmidt, S	NASA	Measurement of Solar Spectral Irradiance in Support of the Southeast Asia Composition, Cloud, Climate Coupling Regional Study
Schmidt, S	NASA	ORACLES: ObseRvations of Aerosols above CLouds and their intEractionS

Schmidt, S	NASA	Linking the Radiative Energy Budget and Remote Sensing of Cloud and Aerosol Fields
Schmidt, S	NASA	Measurement of Solar Spectral Irradiance in Support of the Southeast Asia Composition, Cloud, Climate Coupling Regional Study
Schneider, N	Planetary Science Inst.	The Ins and Outs of the Io Plasma Torus: A Comparison of Two Decades of Io Plasma Torus and Io Volcanic Data
Schneider, N	NASA	Testing New Models of Water Escape through Analysis of Mars Express Data
Snow, M	NASA	Solar Spectral Irradiance: Lyman Alpha, Magnesium II and Sigma K proxiEs (SSIAMESe)
Snow, M	NASA	Multi-Satellite Ultraviolet Solar Spectral Irradiance Composite (MUSSIC)
Sternovsky, Z	NASA	Nano-Dust Dynamics and Distribution in the Inner Heliosphere
Sternovsky, Z	NASA	Laboratory Investigation of Dust Impacts on Antennas in Space
Sternovsky, Z	NASA	Experimental Investigation of Micrometeoroid Ablation
Sternovsky, Z	NASA	High-performance In-situ Dust Analyzer
Toon, O	NASA	Airborne Tropical Tropopause Experiment (ATTREX) Platform Scientist, 3-D Microphysical Modeling
Toon, O	JPL	Polar Processing Studies of the Arctic and Antarctic: New Constraints from A-Train Observations and the WACCM-SD/CARMA Model
Toon, O	NASA	Constraining Exoplanet Climates and Habitability Using Three-dimensional Climate Methods
Toon, O	NASA	Using Aircraft, Satellite and Ground Based Data to Improve Models Of Clouds and Aerosols and to Apply Them to Problems of Interest to Atmospheric Chemistry and Climate
Toon, O	NASA	Airborne Tropical Tropopause Experiment (ATTREX) Platform Scientist, 3-D Microphysical Modeling
Trattner, K	SwRI	HPCA Bridge

Trattner, K	SwRI	Magnetic Topology at the Earth's Magnetopause: Low Latitude Reconnection for Northward IMF
Trattner, K	SwRI	Phase D and E Science Support for MMS HPCA
Trattner, K	SwRI	ROSETTA/ROSINA ((The ROsetta Spectrometer for Ion and Neutral Analysis) (ROSINA) in the ROSETTA Mission)
Trattner, K	Lockheed Martin	Key Parameter for the Mass and Energy Transfer at the Magnetopause Determined from Cusp Structures
Wilder, F	NSF	GEM: The Role of Magnetosheath Pressure Balance in Magnetosphere-Ionosphere Coupling and Alfvén Wing Formation
Woods, T	NorthWest Research Assoc.	Implementation of Real-Time High-Resolution EUV Solar Spectral Irradiance Forecast
Woods, T	NASA	Miniature X-ray Solar Spectrometer (MinXSS) CubeSat Mission
Woods, T	NASA	Timed See Extended Mission
Woods, T	NASA	Extreme Ultraviolet Variability Experiment (EVE)
Woods, T	NASA	Miniature X-ray Solar Spectrometer (MinXSS) CubeSat Mission
Woods, T	NASA	SORCE/ EOS Solstice