Fundamental Physical Processes in Solar-Terrestrial Research and Their Relevance to Planetary Physics 2018

Kona, Hawaii, 7-13 January 2018

COURTYARD KING KAMEHAMEHA'S KONA BEACH HOTEL

75-5660 Palani Road, Kailua-Kona, HI 96740, USA

	Sunday (Honu's Lawn)	**Monday** (Ballroom)	**Tuesday** (Ballroom)	**Wednesday** (Ballroom)	**Thursday** (Ballroom)	**Friday** (Ballroom)	**Saturday** (Ballroom)
8:00-9:50am		Dayside	Dayside	Inner magnetosphere	Inner magnetosphere	Ionosphere	Planetary physics
9:50-10:10am		**Coffee Break**	**Coffee Break**		**Coffee Break**	**Coffee Break**	
10:10am -12pm		Dayside	Dayside	Field Trip to Volcano Park Boarding10:15, Depart 10:30, Arrive 1:00pm Lunch 1-2pm (It's highly recommended to bring your lunch/snacks because the restaurant in the park can only hold 50 people.) Jaggar Museum 2:10-2:40pm; Kīlauea Overlook and Picnic Area 2:45-3:00pm; Steam Vents 3:10-3:30pm; Lava Tube 3:40-4:00pm Leave Volcano Park at 4:00pm Return to hotel at 6:30pm	Inner magnetosphere	Ionosphere	**Free**
12-1:00pm		**Lunch** (Honu's Restaurant)	**Lunch** (Honu's Restaurant)		**Lunch** (Honu's Restaurant)	**Lunch** (Honu's Restaurant)	
1:00-2:30pm		Dayside	Inner magnetosphere		Magnetotail	Ionosphere	
2:30-2:50pm		**Coffee Break**	**Coffee Break**		**Coffee Break**	**Coffee Break**	
2:50-4:30pm		Dayside	Inner magnetosphere		Magnetotail	Planetary physics	
4:00-6:00pm	Registration						
6:00-8:00pm	Ice breaker (Honu's Lawn which is the lawn directly outside of the hotel restaurant)						
7:00-9:30pm				Banquet with Polynesian show (Luau grounds)			

MONDAY, JANUARY 8

SOLAR WIND, BOW SHOCK, and DAYSIDE MAGNETOSPHERE I (Chair: Hui Zhang)

8:00-8:10am Hui Zhang | Welcome and announcements
8:10-8:30am Melvyn L Goldstein | Recent Results from a Three-dimensional MHD Simulation of the Solar Corona and Solar Wind
8:30-8:45am Marek Vandas | Interplanetary flux ropes of a low twist
8:45-9:05am David Sibeck | Solar Wind Interactions and Soft X-rays
9:05-9:25am Nick Omidi | Planetary Foreshocks: Common & Uncommon Features
9:25-9:45am C. P. Escoubet | Solar wind Magnetosphere Ionosphere Link Explorer (SMILE)

Coffee Break

SOLAR WIND, BOW SHOCK, and DAYSIDE MAGNETOSPHERE II (Chair: David Sibeck)

10:10-10:30am Ian Cohen | The Upstream Energetic Particle Debate at Earth and Beyond
10:30-10:50am Lynn B. Wilson III | The structure of low Mach number, low beta, quasi-perpendicular collisionless shocks
10:50-11:10am George Parks | Plasma Heating of Nonlinear Structures Upstream of Earth's Bow Shock
11:10-11:25am Hui Zhang | MMS Observations of Hot Flow Anomalies
11:25-11:45am Sun-Hee Lee | Particle Acceleration in a Hot Flow Anomaly

Lunch

SOLAR WIND, BOW SHOCK, and DAYSIDE MAGNETOSPHERE III (Chair: C. P. Escoubet)

1:00-1:20pm Drew Turner | Comparing and contrasting transient ion foreshock phenomena observed by MMS and their effectiveness for particle acceleration
1:20-1:40pm Terry Z. Liu | Fermi acceleration of electrons inside foreshock transient cores
1:40-1:55pm Boyi Wang | Dayside magnetosphere and ionosphere responses to transient upstream disturbances measured by satellite-imager coordination
1:55-2:15pm Steven Petrinec | Average and extreme locations and shapes of the magnetopause boundary and associated characteristics at Earth and at other solar system bodies
2:15-2:30pm Harri Laakso | Variations of plasma parameters in the magnetopause region

Coffee Break

SOLAR WIND, BOW SHOCK, and DAYSIDE MAGNETOSPHERE IV (Chair: Drew Turner)

2:50-3:10pm Kyung Sun Park | An MHD simulation of magnetospheric dynamics for the weak solar wind and small-scale magnetic flux rope
3:10-3:30pm Karlheinz J. Trattner | The dayside magnetopause reconnection location: predictions and open questions
3:30-3:50pm Jean Berchem | Variability at Earth's dayside magnetopause
3:50-4:10pm Stephen A. Fuselier | Magnetic Reconnection Variability
4:10-4:30pm Seiji Zenitani | Electron dynamics surrounding the X line in asymmetric magnetic reconnection

TUESDAY, JANUARY 9

SOLAR WIND, BOW SHOCK, and DAYSIDE MAGNETOSPHERE V (Chair: Hiroshi Hasegawa)

8:00-8:20am Craig Pollock | Reconnection and Turbulence: A Timely Nexus of Collisionless Space Plasma Phenomena
8:20-8:40am Tai Phan | MMS Observations of Magnetic Reconnection in Turbulent Magnetosheath Current Sheets
8:40-9:00am Frederick Wilder | The Role of Parallel Electric Fields in Magnetic Reconnection As Observed by MMS
9:00-9:20am Shan Wang | Energy partition during asymmetric reconnection
9:20-9:40am S. Eriksson | On the Ubiquity of Electron Phase Space Holes Deep within Dayside Asymmetric Magnetic Reconnection Exhausts
9:40-9:55pm H. Liu | Electron scale magnetic hole formation and implication
Coffee Break

SOLAR WIND, BOW SHOCK, and DAYSIDE MAGNETOSPHERE VI (Chair: Tai Phan)

10:10-10:30am Kyoung-Joo Hwang | Multi-scale Investigations of Dayside Dynamics
10:30-10:50am Hiroshi Hasegawa | Generation of turbulence observed in magnetopause Kelvin-Helmholtz vortices: Revisiting Magnetospheric Multiscale observations on 8 September 2015
10:50-11:10am Xuanye Ma | Three-dimensional Nonlinear Interaction Between Kelvin–Helmholtz Instability and Magnetic Reconnection
11:10-11:30am K. Nykyri | On the Heating of Plasma due to Kelvin-Helmholtz Instability
11:30-11:45am Linghua Wang | Solar Energetic Electrons detected in the Earth's cusp region by the BD-IES instrument
11:45-12:05pm G. Consolini | On Turbulence and Intermittency in the Polar Ionosphere
Lunch

INNER MAGNETOSPHERIC PHYSICS I (Chair: Robert Rankin)

1:00-1:20pm Daniel N. Baker | Solar Wind-Driven Enhancements and Losses of Radiation Belt Particles: Van Allen Probes Observations
1:20-1:40pm Xinlin Li | The Sources for the Inner Radiation Belt – Revisited
1:40-1:55pm J. F. Fennell | MMS FEEPS Energetic Electron Microinjection Observations During 2016-2017
1:55-2:15pm Qiugang Zong | The Radial Propagation Characteristics of the Injection Front: A Statistical Study Based on BD-IES and Van Allen Probes Observations
2:15-2:30pm German Farinas Perez | Detection of ions injection in RBSPICE data
Coffee Break

INNER MAGNETOSPHERIC PHYSICS II (Chair: Qiugang Zong)

2:50-3:10pm Eun-Hwa Kim | 2D full-wave simulations of EMIC waves in the magnetosphere
3:10-3:30pm Khan-Hyuk Kim | Relationship between EMIC wave occurrence and cold plasma density distribution in the outer magnetosphere: THEMIS observations
3:30-3:45pm Raluca Ilie | The role of heavy ions in the ring current dynamics
3:45-4:00pm Yu-Chun Huang | A Theoretical and Simulation Study of the Expansion of Chorus Waves from a Localized Broadband Chorus Disturbances
4:00-4:15pm Ling-Hsiao Lyu | The Generation of Chorus Waves due to Injection of Energetic Electrons from the Near-Earth Plasma Sheet
4:15-4:30pm Aryan Homayon | Chorus scale size estimation during Van Allen Probes lapping events

WEDNESDAY, JANUARY 10

INNER MAGNETOSPHERIC PHYSICS III (Chair: Guan Le)

8:00-8:15am David Hartley | Determining Plasma Densities from Observations of Whistler-Mode Waves
8:15-8:30am Poorya Hosseini | Investigating Magnetospheric Wave-Particle Dynamics with Ground based Observations
8:30-8:50am Chao Yue | The characteristic response of whistler mode waves to interplanetary shocks
8:50-9:05am David R. Shklyar | Equatorial magnetosonic emission generation and spectral features
9:05-9:25am Natalia Ganushkina | Low energy electrons in the inner Earth's magnetosphere
9:25-9:40am Ying Liu | Electron dropout echoes induced by interplanetary shocks: test particle simulations

10:15am-6:30pm Field Trip

7:00-9:30pm Conference Banquet with Polynesian Show (Luau Grounds)

THURSDAY, JANUARY 11

INNER MAGNETOSPHERIC PHYSICS IV (Chair: Tony Lui)

8:00-8:20am Guan Le | Poloidal and Toroidal Mode Field Line Resonances Observed by MMS
8:20-8:40pm Michael Hartinger | Radiation belt dynamics during large scale, monochromatic ULF wave events
8:40-9:00am A. W. Degeling | Alteration of ULF Wave Power Accessibility and Radiation Belt Energization by Storm-time Convection and Plasma Transport
9:00-9:20am Robert Rankin | ULF Waves and Radiation Belt Ion Dynamics
9:20-9:35am Xuzhi Zhou | Charged particle behavior in localized ultralow frequency waves: Theory and observations
9:35-9:50am Li Li | Nonlinear behavior of charged particles in ultralow frequency waves

Coffee Break

INNER MAGNETOSPHERIC PHYSICS V (Chair: Xuzhi Zhou)

10:10am-10:25am X.-H. MA | The intense substorm incidence and influence on Energetic electron in response to interplanetary shock impacts
10:25am-10:40am Galina Korotova | Multipoint observations of the electric and magnetic fields and particle response to interplanetary shocks
10:40am-10:55am Ankush Bhaskar | Magnetospheric Particles and Field Response to a Fast Reverse Shock
10:55am-11:15am Simon Wing (presenter: Chih-Ping Wang) | Untangling the drivers of nonlinear systems with information theory
11:15am-11:30am S. N. Walker | Space weather forecasts via PROGRESS
11:30am-11:45am Joachim Raeder | Sun to Earth Geomagnetic Storm Predictions with EUHFORIA and OpenGGCM
11:45am-12:00pm Bernie D. Shizgal | The theoretical basis for the Kappa distribution in space physics: Is the Tsallis nonextensive entropy formalism applicable?

Lunch

MAGNETOTAIL DYNAMICS I (Chair: Chih-Ping Wang)

1:00-1:20pm Larry Lyons | Driving of Strong, storm time Nightside Reconnection and Geomagnetic Activity by meso-scale Polar Cap Flow enhancement
1:20-1:40pm Evgeny Panov | Observation of magnetospheric braking oscillations propagating through geospace
1:40-2:00pm Yu Lin | Alfven Waves and Plasma Transport associated with Magnetotail Fast Flows
2:00-2:15pm A. T. Y. Lui | Evaluating the Mechanism of the Substorm Current Circuits
2:15-2:30pm Weijie Sun | THEMIS observations on the plasma sheet pressure variations in the near Earth magnetotail during substorm growth phase

Coffee Break

MAGNETOTAIL DYNAMICS II (Chair: Larry Lyons)

2:50-3:10pm Mikhail Sitnov | Kinetic features of explosive energy conversion and dissipation in magnetotail dipolarizations
3:10-3:30pm Michael G. Henderson | Ground Magnetic Perturbations Associated with Substorms, Pseudo-Breakups, Auroral Streamers and Omega Bands
3:30-3:50pm Jiankui Shi | The FAC in geo-magnetotail and its response to IMF variation
3:50-4:10pm Chih-Ping Wang | Mesoscale Perturbations in the Earth's Mid-Tail
4:10-4:30pm Yoshifumi Futaana | Mini-magnetosphere on the Moon: Influence of ion-scale magnetic field to solar wind plasma

Friday, JANUARY 12

IONOSPHERIC PHYSICS I (Chair: Hyunju Connor)

8:00-8:20am A.W. Yau | Coordinated studies of magnetosphere-ionosphere coupling using e-POP and Swarm
8:20-8:40am Jesper W Gjerloev | FAC's: The fundamental M-I coupling parameter that remains a puzzle
8:40-8:55am Y. X. Sun | Case Study of Dayside Cusp Field-Aligned Current
8:55-9:15am Michael Mendillo | Comparative Ionospheric Variability: Inner versus Outer Solar System Planets
9:15-9:30am Qing-He Zhang | Combined contribution of solar illumination, solar activity, and convection to ion upflow above the polar cap
9:30-9:50am Stein Haaland | Atmospheric erosion - the role of ion outflow

Coffee Break

IONOSPHERIC PHYSICS II (Chair: Yue Deng)

10:10-10:30am Hyunju Connor | High-latitude Thermosphere Neutral Density Response to Solar Wind Dynamic Pressure Enhancement
10:30-10:50am Yongliang Zhang | FUV Remote Sensing of Geospace
10:50-11:10am Jay Johnson (presenter: Peter Delamere) | Shear-Driven Aurora
11:10-11:30am Göran Marklund | Cluster results on auroral particle acceleration and associated auroral density cavities
11:30-11:45am Martin Connors | Spikes to Like or Dislike: Dynamical Processes in Earth's Auroral Zone Revealed
11:45-12:00pm Pai-Shen Wang (presenter: Ling-Hsiao Lyu) | An Improved Magnetosphere-Ionosphere Coupling Model to Simulate the Brightening of the Aurora Arc in the Midnight Sector at Onset of a Substorm

Lunch

IONOSPHERIC PHYSICS III (Chair: Yongliang Zhang)

1:00-1:15pm Yue Deng | Impact of Flow Bursts in the Auroral Zone on the Ionosphere and Thermosphere
1:15-1:30pm Mingwu Jin | Reconstruction of the small-scale electric field in the high latitudes using machine-learning methods
1:30-1:45pm D. H. Zhang | External and internal driving sources of the ionosphere: an analysis based on the wavelet decomposition method
1:45-2:00pm Shunrong Zhang | Solar flare produced traveling ionospheric disturbances on 6 September 2017
2:00-2:15pm Dmitri Kondrashov | Data-adaptive harmonic analysis and modeling of solar wind-magnetosphere coupling
2:15-2:30pm John Richardson | Variability of Plasmas in the Outer Heliosphere and Interstellar Medium

Coffee Break

PLANETARY PHYSICS I (Chair: Dave Brain)

2:50-3:10 pm David McComas | Interstellar Boundary Explorer (IBEX) Observations of our Evolving Heliosphere
3:10-3:30 pm Peter Delamere | Dynamics of the giant planet magnetospheres
3:30-3:50 pm Chihiro Tao | Properties of Jupiter's magnetospheric turbulence observed by the Galileo spacecraft
3:50-4:10 pm Jasper S Halekas | Momentum Transfer Processes at Planets and Moons
4:10-4:30 pm Stamatios M. Krimigis | Magnetospheres in the Outer solar system: the known (Jupiter, Saturn) and the little known (Uranus, Neptune, Heliosphere)

Saturday, JANUARY 13

PLANETARY PHYSICS II (Chair: Peter Delamere)

8:00-8:20am Tomas Karlsson | Plasmoids in the magnetosheaths of Earth and Mercury, and their importance in solar wind-magnetosphere interaction
8:20-8:40am Richard M. Thorne | The Fundamental Role of Wave-Particle Interactions in Planetary Magnetospheres
8:40-8:55am Misa Cowee | Ion cyclotron waves in the solar system
8:55-9:15am Dave Brain | Acceleration and Escape of Ions from the Martian Atmosphere
9:15-9:30am L. Andersson | The Martian ionosphere's response to Solar drivers
9:30-9:45am Ivana Kolmasova | Variability of Jovian electron lightning whistlers detected by the Juno Waves Instrument
9:45-10:00am Ondrej Santolik | Juno observations of ion whistlers at Jupiter
10:00-10:15am Chuxin Chen | Numerical simulation of the Io-torus-driven radial plasma transport