

“Surface Bounded Exospheres and Interactions in the Solar System”

ISSI Workshop Program, 20-24 January 2020

Monday, 20 January 2020		
	Overview surface release processes on regolith surface	
Time	Topic	Speaker
08:30-09:00	Registration ISSI, Hallerstrasse 6, 1 st floor	
09:00-09:30	Welcome and Introduction to ISSI	Director, Convener
Chairperson: Milillo		
Session 1	Ion sputtering lab results	
09:30-10:00	Review of ion sputtering on planetary regolith surfaces	Wurz
10:00-10:20	Laboratory experiments on ion sputtering of minerals	Galli
Session 2	Space weathering and Thermal desorption	
10:20-10:50	Exospheric Adsorption, Desorption and Surface Interactions	Teolis
10:50-11:20	<i>Coffee Break</i>	
11:20-11:40	Exosphere-Subsurface Interactions	Schorghofer
11:40-12:00	Solar wind induced hydroxylation process and formation of water/OH on the Moon, Mercury, and asteroids	Orlando
Session 3	Micrometeoroid processes and impact vaporization	
12:00-12:30	Dust vaporization during impact events as a source of atoms of refractory elements in the Hermean exosphere	Berezhnoy
12:30-14:30	<i>Lunch</i>	
Chairperson: Wurz		
14:30-15:00	Lab experiment meteoroid	Horanyi
Session 4	PSD and Electron stimulated desorption	
15:00-15:30	Electron- and photon-stimulated desorption of the Moon, Mercury and Asteroid surfaces	Orlando
15:30-15:50	Energy distributions for PSD of Na and K	Gamborino
15:50-16:20	<i>Coffee Break</i>	
16:20-17:00	<i>Discussion on the surface release processes</i>	Chairperson: Wurz
17:00	<i>Welcome Reception - Hallerstrasse 6, 1st floor</i>	

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Tuesday, 21 January 2020		
Chairperson: Sarantos		
The drivers		
Time	Topic	Speaker
Session 1		
Ions and electrons		
09:00-09:20	Solar wind and plasma environment of the Moon	Harada
09:20-09:45	Ion precipitation at Mercury: flux, drivers and implications	Raines
09:45-10:05	Electron precipitations at Mercury nightside	Lindsay
10:05-10:30	Modeling the Solar wind interaction with magnetic anomalies at the Moon and with Mercury's magnetosphere	Fatemi
10:30-11:00	<i>Coffee Break</i>	
Session 2		
Surface		
11:00-11:30	Temperatures at the Surface-Exosphere Boundary: Lunar Lessons and Applications to Inner Solar System Bodies	Greenhagen
11:30-11:50	Surface regolith properties in the frame of exospheric studies	Capria
Session 3		
Micrometeoroids		
11:50-12:20	Dust distribution in the inner solar system	Hirai
12:20-12:40	The Dust Environment of the Moon from the Surface through the Exosphere	Horanyi
12:40-14:00	<i>Lunch</i>	
Chairperson: Teolis		
14:00-14:30	Meteor Input on Earth and Other Planets- Modeling and measurements	Janches
14:30-14:50	Meteor showers at Mercury	Christou
14:50-15:20	<i>Coffee Break</i>	
15:20-15:40	Space weather at Mercury and at other airless bodies in the solar system and exoplanetary systems	Winslow (remotely)
Session 4		
Surface		
15:40-16:00	Major Mercury surface features involved in the exosphere processes	Cremonese
16:00-16:30	<i>Discussion on the drivers</i>	Chairperson: Teolis
Exosphere		
Session 1		
Back scattering		
16:30-16:50	ENAs from backscattering and their use for remote sensing of the surface	Vorburger
Session 2		
End member of refractories		
16:50-17:10	Heavy ions and neutrals in the lunar exosphere	Nishino
17:10-17:40	MESSENGER Observations of Refractories in the exosphere	Killen
17:40	<i>End of second day</i>	
19:00	<i>Workshop Dinner at the Restaurant Kornhauskeller, Bern</i>	

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Wednesday, 22 January 2020		
Chairperson: Murakami		
Time	Topic	Speaker
Session 3	Long lived volatiles	
09:00-09:30	Overview of ground-based Na (and K) observations Moon, Mercury and other objects in Solar system	Killen
09:30-09:50	Mercury's Na exosphere variability in relation to Sun activity seen by THEMIS solar telescope	Mangano
09:50-10:10	Na exosphere along the Mercury's orbit	Milillo
10:10-10:30	A comprehensive analysis of high-resolution sodium and potassium line profile measurements: Setting constraints on the lunar surface bounded exosphere	Kurupparatchi
10:30-11:00	<i>Coffee Break</i>	
11:00-11:20	Modelling of the Na circulation	Leblanc
11:20-11:40	The exospheric reservoir of alkalis at the Moon: models and validation with measurements	Sarantos
11:40-12:10	<i>Discussion and book introduction</i>	Chairpersons: Milillo and convenors
12:10	<i>Lunch and free afternoon</i>	

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Thursday, 23 January 2020		
Chairperson: Milillo		
Time	Topic	Speaker
Session 4	Extreme volatiles	
09:00-09:30	Ar and He exosphere of Moon	Grava
09:30-09:50	Diffusion Limited Degassing of H ₂ to the Lunar Exosphere	Tucker
Session 5	Water groups	
09:50-10:10	Hydration of the lunar surface inferred from LADEE's observations of exospheric water events	Benna
10:10-10:40	The Putative Water Exosphere of Ceres	Schorghofer
10:40-11:10	<i>Coffee Break</i>	
Session 6	Loss processes of exosphere	
11:10-11:40	Na tail Observations	Schmidt
11:40-12:00	Exospheric model for Mercury, Moon and exoplanets	Mura
12:00-12:20	Photoionization of sodium at Mercury's exosphere	Jasinski
12:20-12:40	Modelling of Exospheric ionisation and its role for populating Mercury's magnetosphere	Wurz
12:40-14:00	<i>Lunch</i>	
14:00-14:15	<i>Discussion on exosphere processes</i>	Chairperson: Milillo
14:15-14:30	<i>Book organization</i>	
14:30-16:00	<i>Book chapter subgroups</i>	
16:00-16:30	<i>Coffee Break</i>	
Chairperson: Grava (TBC)		
	Solar system evolution. Exosphere as a boundary	
16:30-17:00	The Sun in time and the resulting planetary escape for Mercury and the Moon	Lammer
17:00-17:20	The exosphere of the early Moon	Scherf
17:20-17:40	Evaporation of rocky exoplanet close to the star	Ito
17:40	<i>End of fourth day</i>	

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Friday, 24 January 2020		
Chairperson: Sarantos		
Time	Topic	Speaker
	Future directions for observations	
Session 1	Future space missions	
09:00-09:20	Comprehensive investigation of Mercury's exosphere by BepiColombo	Murakami
09:20-09:40	In situ measuring of exospheric densities	Livi
09:40-10:00	Characterization of the lunar exosphere using mass spectrometry technique: Future instrument concepts	Benna
10:00-10:20	Deep Space Gateway Moon exploration	Dandouras
10:20-10:40	Asteroids exospheric exploration	Kameda
10:40-11:10	<i>Coffee Break</i>	
11:10-12:30	<i>Report of subgroup works (about 10 minutes each)</i>	
12:30-14:00	<i>Lunch</i>	
14:00-15:00	<i>Discussion final book organisation and deadlines</i>	Chairperson: Sarantos
15:00	End of Workshop	