

# Phobos MMX Science Workshop 2016, Berlin, April 25-26

## Venue

**Technische Universität Berlin**  
Hardenbergstraße 16-18,  
10623 Berlin

Ground floor, room HBS 005.



## How to get to the Venue

From S/U-Bahn station Zoologischer Garten, it is a five minute walk to the workshop venue building (HBS in location plan above).

### Services to station Zoologischer Garten:

**S-Bahn:** Station Zoologischer Garten, Lines S5, S7, S75 (Red and Purple Lines)

**U-Bahn:** Station Zoologischer Garten, Lines U2, U9 (Red and Orange Lines)

**Bus:** Station Zoologischer Garten, Line X9

**Regional Train:** Station Zoologischer Garten, Lines RB14, RE7

**Arriving from Tegel Airport:** From Tegel airport take the Express bus X9 that reaches the station Zoologischer Garten directly.

**Arriving from Schönefeld Airport:** From Schönefeld airport please take the regional train RB14 or RE7 that reach the station Zoologischer Garten directly or use the S-Bahn S45 to station Bundesplatz (via Südkreuz), and from there change to U-Bahn U9 (direction to Osloer Straße) to the station Zoologischer Garten.

**Arriving from Berlin's Central Station Hauptbahnhof:** Please take any S-Bahn heading West, e.g. towards Potsdam, Charlottenburg etc. All of them reach the station Zoologischer Garten directly.

## Wifi Connection

TU Berlin does provide an eduroam wifi network. If your home institution provides you with eduroam please configure your device at your home institution to get easy internet access at TU Berlin by connecting to the eduroam network with your username and password of your home institution.

For all others wifi guest accounts will be provided.



# Agenda<sup>1</sup>

**Monday, 25. April**

<b>Introduction / Programmatics</b>		<b>Chair</b>	<b>J. Oberst</b>
10:00	Welcome/Logistics		Oberst, Ulamec Fujimoto
10:10	The MMX Mission		Masaki Fujimoto
10:30	Lander Concepts for the MMX Mission		Stephan Ulamec
10:45	ESA Programmatic View		Luigi Colangeli
11:00	<b>Coffee Break</b>		
		<b>Chair</b>	<b>J. Oberst</b>
11:30	Outline and science objectives of Japanese mission of the two moons of Mars (MMX)		Hirdy Miyamoto
11:45	Phobos Sample Return - a study for an ESA-Russia mission		Detlef Koschny
12:00	Phobos and Deimos: Potential Connections to Comets		Pascal Lee
12:15	<b>Group Photo</b>		
12:30	<b>Lunch</b>		
<b>Science From Orbit</b>		<b>Chair</b>	<b>K. Willner</b>
13:30	Autonomous navigation in the orbit of Phobos		Hans Krüger
13:45	Volatile content in Phobos dust and dust loss flux: the VISTA thermogravimeter		Andrea Langobardo
14:00	High Frequency Radar on AIM		Alain Hérique
14:15	The capabilities of gamma-ray spectroscopy from orbital and landed platforms at Phobos		Patrick Peplowski
14:30	New Phobos atlas: from Mars Express images to maps		Jürgen Oberst
14:45	Ellipsoidal harmonic gravitational field model for Phobos		Xuanyu Hu
15:00	Phobos bulk properties: Current knowledge and how to improve		Martin Pätzold
15:15	The evolving dynamical environment of Phobos in relation with mass wasting processes.		Shi Xian
15:30	<b>Coffee Break</b>		

<sup>1</sup> Only presenting authors are listed here

<b>Phobos Origin and Fate</b>		<b>Chair</b>	<b>S. Ulamec</b>
16:00	Rotational motion of Phobos		Nicolas Rambaux
16:15	Surface Ages on Phobos		Nico Schmedemann
16:30	Reconciling the orbital and physical properties of the martian moons		Pierre Vernazza
16:45	Formation of Phobos and Deimos in an extended circum-Martian accretion disk		Pascal Rosenblatt
17:00	Discussion / Spare Time / Splinter /AOB		
18:00	<b>Adjourn</b>		
19:00	<b>Dinner</b>		

**Tuesday, April 26**

<b>Surface Science</b>		<b>Chair</b>	<b>M. Fujimoto</b>
09:00	Investigation of crater chains on Phobos by numerical modeling and remote sensing		Kai Wünnemann
09:15	The MASCOT Concept for Hayabusa2		Tra-Mi Ho
09:30	Stereo Sensor for Inspection, Exploration and Mapping of the Surface of Phobos		Eugen Funk
09:45	Phobos Regolith Characterization using in-situ Experiments		Matthias Grott
10:00	A Raman spectrometer as an analytical instrument for the Phobos sample return mission		Ute Böttger
10:15	LIBS instrument for elemental analysis on Phobos		Shingo Kameda
10:30	MMX lander exploration for geochemistry of regolith on Phobos		Tomohiro Usui
10:45	<b>Coffee Break</b>		
11:15	MMX-L-MAG: Instrument Proposal for a Lander Magnetometer for JAXA's Mars Moon Explorer Mission		Uli Auster
11:30	Micro-imagers for Mars landers		Jean-Luc Josset
11:45	In-situ gravimetric measurements		Ozgur Karatekin
12:00	Geophysical Experiment Package and Deployable Camera Proposed in MMX		Kazumori Ogawa
12:15	Scientific Target of the Seismic Observation package for Mars Moon Exploration Mission		Taichi Kawamura
12:30	Sounding a comet using piezo accelerometers - setup, results, lessons learned		Martin Knapmeyer
12:45	<b>Lunch</b>		

<b>What after the Sample Returns?</b>		<b>Chair</b>	<b>K. Willner</b>
13:45	What comes after the sample returns? The PhoDEx mission proposal to ESA Cosmic Vision		Konrad Willner
14:00	Phobos and Deimos close flybys: An opportunity for joint gravity field mapping, radar sounding, and imaging experiments		Kai Wickhusen
14:15	New ephemerides of the Mars moons and future challenges in the context of an M5 mission		Valerie Lainey
14:30	Tools for ground exploration		Jerzy Grygorczuk
14:45	Highland Terrain Hopper - system description		Lukasz Wisniewski
15:00	<b>Coffee Break</b>		
<b>Landing Technology, Instrumentation, Ground Support</b>		<b>Chair</b>	<b>S. Ulamec</b>
15:30	Scientific applications of the HOPTER jumping robot on Phobos		Daniel Mege
15:45	Studying the composition of Phobos' surface using HOPTER (Highland Terrain Hopper)		Joanna Gurgurewicz
16:00	Concepts and Options for a European surface science package for JAXA's MMX mission		Caroline Lange
16:15	Planetary Spectroscopy Laboratory (PSL) activity in support for spectroscopic measurements		Alessandro Maturili
16:30	The Planetary sampling device PACKMOON		Karol Seweryn
16:45	Experimental and numerical investigations on lander touchdown dynamics – contributions to science and operations		Lars Witte
17:00	<b>Adjourn</b>		

### Poster Presentations

Posters will display throughout the workshop. Viewing is anticipated during coffee and lunch breaks.

<b>Poster</b>		
1	Phobos dust and interior experiments	Alexander Zakharov
2	SeisCube: A small payload for geophysical exploration	Naomi Murdoch
3	Geophysical experiment package proposed in MMX	Kazunori Ogawa et al.
4	MMX DCAM5 multi-deployable camera	Koji Wada et al.
5	Telescopic camera and wide-angle multi band camera for MMX mission	Shingo Kameda
6	Maps of Phobos	Irina Karatchevtseva
7	Seismic observation package for Mars Moon Exploration Mission	Taichi Kawamura
8	Reusable Sampling Device	Alexander Zakharov