HAYABUSA2013: Symposium of Solar System Materials

Venue: ISAS Conference Hall
Date: 16-18 October 2013

DAY-1

09:15 – 18:00 **Registration**

Oct 16, Wed, Morning Chairs: Tatsuaki Okada, Trevor Ireland

Opening

10:00 – 10:05	Logistics from LOC	Tatsuaki Okada
10:05 – 10:10	Greetings	(ISAS Director-General)
10:10 – 10:20	Brief introduction of this symposium: Purposes and Goals	Masaki Fujimoto

Hayabusa Mission Summary

10:20 – 10:45	Summary of remote sensing observations of Itokawa by Hayabusa	Makoto Yoshikawa (Invited)
10:45 – 11:00	Hayabusa's sampling site coordinates on Itokawa: Connecting in-situ data and returned samples	Hajime Yano
11:00 – 11:25	Outline of Hayabusa sample preliminary examination results	Akira Tsuchiyama (Invited)

Science from the Sample Return Missions

11:25 – 11:50	Analysis of Genesis solar wind samples	Donald Burnett (Invited)
11:50 – 12:15	Science and lessons learned from the Stardust sample return mission	Michael Zolensky (Invited)

12:15 – 13:30 *Lunch*

Oct 16, Wed, Afternoon Chairs: Shogo Tachibana, Bernard Marty

13:30 – 13:55	Scientific importance of return samples from Near-Earth C-type asteroid 1999 JU3: sampling method/strategy and sample analyses	Shogo Tachibana (Invited)
13:55 – 14:20	OSIRIS-REX: the return of up to 2 kg of pristine carbonaceous asteroid regolith for sample analysis	Harold C. Connolly Jr. (Invited)
14:20 – 14:45	The MARCOPOLO-R sample return mission: tracing the origins	Bernard Marty (Invited)
14:45 – 15:10	Remote sensing of asteroids from Earth and space	Lucy A. McFadden (Invited)

15:10 – 15:30 *Coffee Break*

15:30 – 15:55	Space weathering of lunar rocks and regolith grains	Lindsey P. Keller (Invited)
15:55 – 16:20	The isotopic composition of interstellar helium measured by in-vacuo etching of a metal foil exposed on the MIR space station	Rainer Wieler (Invited)

Curation and Technique for Sample Return

16:20 – 16:45	Curation of the Hayabusa-returned samples in the JAXA Extraterrestrial Sample Curation Center	Toru Yada (Invited)
16:45 – 17:10	The Hayabusa Curation Facility at Johnson Space Center	Michael Zolensky (Invited)
17:10 – 17:25	Development on non-destructive elemental analysis of planetary materials by using negative muon capture	Kentaro Terada

17:25 – 18:00 **Discussions for Day-1** Masanao Abe, Masaki Fujimoto

18:00 – 20:00 **Reception Party (at ISAS Cafeteria)** Chair: Yuzuru Karouji

20:00 *End of Day-1*

DAY-2

Oct 17, Thu, Morning Chairs: Hiroshi Naraoka, Evelyn Füri

	Category3 Analysis	
09:00 – 09:15	Preliminary examination of carbonaceous materials of the Hayabusa-returned samples	Masayuki Uesugi
09:15 – 09:30	A micro-spectroscopic research for several stony and Category 3 (organic) particles	Fumio Kitajima
09:30 – 09:45	H, C and N isotopic compositions of Hayabusa Category 3 organic samples	Motoo Ito
	Composition	
09:45 – 10:10	Bulk chemical compositions of tiny grains recovered by the Hayabusa spacecraft – a NAA study	Mitsuru Ebihara (Invited)
	Consortium Study	
10:10 – 10:35	Detailed mineralogical and geochemical investigation of the surface and interior of Hayabusa particles	Monica Mary Grady (Invited)
10:35 – 10:55	*Coffee Break*	
10:55 – 11:20	Raman, IR and optical micro-spectroscopic investigation of Hayabusa particle RA-QD02-0163	Lydie Bonal (Invited for PIs: C. Engrand, E. Füri)
11:20 – 11:45	Asteroid Itokawa studied by raman and infrared spectroscopy, X-ray tomography and high-sensitivity noble gas analysis	Henner Busemann (Invited)
11:45 – 12:00	Determining a precise He, Ne cosmic-ray exposure age for grains from Itokawa	Matthias M. M. Meier
12:00 – 12:15	Raman micro-spectroscopy of Hayabusa particles	Ute Boettger
	Lunch	
13:30 – 14:30	**Poster Viewing (Core Time 1) at ISAS Room A1134**	

Oct 17, Thu, Afternoon Chairs: H. C. Connolly Jr., Seiichiro Watanabe

	Micro-structure Analysis by TEM	
14:30 – 14:55	Transmission electron microscopy of Itokawa regolith grains	Lindsay P. Keller (Invited)
14:55 – 15:20	Microchemical and structural evidence for space weathering in soils from asteroid Itokawa	Michelle Susan Thompso (Invited for PI: J.T. Zega)
15:20 – 15:45	Mineralogy, defect microstructure and shock metamorphism of Hayabusa particle RB-QD04-0042	Falko Langenhorst (Invited)
	Thermal History of Itokawa Parent Body	
15:45 – 16:10	Numerical simulation for cooling of the Itokawa parent asteroid	Tomoki Nakamura (Invited)
16:10 – 16:30	*Coffee Break*	
	Observations and Simulations for Asteroid Study	
16:30 – 16:55	Studying the population of asteroids with remote sensing	Michael C. Nolan (Invited)
16:55 – 17:20	Disk winds and the formation of chondrite parent bodies	Trevor R. Ireland (Invited)
17:20 – 17:35	Photoelectric dust levitation above the surface of Itokawa	Hiroki Senshu
17:35 – 17:50	Human exploration of Near-Earth asteroids and sample collection considerations	Paul A. Abell
17:50 – 18:30	**Discussions for Day-2**	Masanao Abe, Masaki Fujimoto
18:30 – 20:00	Poster Viewing (the room is closing at 20:00)	
20:00	*End of DAY-2*	

DAY-3

Oct 18, Fri, Morning Chairs: Rainer Wieler, Keisuke Nagao

Isotopes and Noble Gasses

09:00 – 09:25	A strong link between Itokawa particles and equilibrated LL chondrites inferred from Oxygen isotope ratios	Daisuke Nakashima (Invited for PI: N. Kita)
09:25 – 09:50	Report of O isotopic compositions of two Itokawa particles from room B and measurement plan for in-situ 3D-distribution analysis of solar wind noble gases on surface of Itokawa particles	Hisayoshi Yurimoto (Invited)
09:50 – 10:15	Lithium, Boron and light noble gas analyses on the surface of the Itokawa asteroidal regolith returned by the Hayabusa mission	Wataru Fujiya (Invited)
10:15 – 10:40	Impact history of Itokawa: 40Ar/39Ar thermo-chronology and EBSD characterization	Fred Jourdan (Invited)
10:40 – 11:00	*Coffee Break*	
11:00 – 11:25	Solar noble gases in eight Hayabusa samples from Itokawa's surface with short duration of cosmic ray exposure	Keisuke Nagao (Invited)

Topics on Salts

11:25 – 11:50	Sylvite and halite crystals on Itokawa particles: salts on Itokawa?	Takaaki Noguchi (Invited)
	Lunch	
13:30–14:30	**Poster viewing (Core Time 2) at ISAS Room A1134**	

Oct 18, Fri, Afternoon Chairs: Tomoki Nakamura, Michael Zolensky

Mineralogy

14:30 – 14:55	Recent progress in Hayabusa sample analysis on 3D microstructure and surface morphology: comparison with LL chondrite and processes on the asteroid surface	Akira Tsuchiyama (Invited)
14:55 – 15:20	Surface morphology of Itokawa regolith particles related to space weathering on Itokawa	Toru Matsumoto (Invited for PI: A. Tsuchiyama)
15:20 – 15:45	Mineralogy and crystallography of Itokawa particles by electron beam and synchrotron radiation X-ray analyses	Takashi Mikouchi (Invited)
	Coffee Break	

Meteorites and Asteroids

16:05 – 16:20	Perspectives of solar system evolution by comparisons of asteroidal materials and mineralogy of some evolved meteorites	Hiroshi Takeda
16:20– 16:35	Effect of shock on asteroid spectra - are dark asteroids shocked, or space-weathered?	Tomas Kohout
16:35 – 16:50	Nitrogen isotope analysis of amino acids in carbonaceous chondrites Yamato 980115 and Allan Hills A77003	Queenie H.-S. Chan
16:50 – 17:05	The Almahata Sitta story - review and state of the art	Viktor H. Hoffmann
17:05 – 17:20	Osumilite-group minerals in the NiO meteorite: Application to Itokawa samples	Yasunori Miura
17:20– 18:00	**Summary and Wrap-Up of this symposium**	Masanao Abe, Masaki Fujimoto
	Adjourn	
18:00–19:00	*Tour of Curation Center and Sagamihara Campus*	Guided by Toru Yada, Tatsuaki Okada

POSTERS

Core Time 1

P-101	Analytical developments for ion microprobe analysis of tiny particles	Daisuke Nakashima
P-102	Hayabusa' grain composition shows deficiency of Troilite – how to explain this?	Gennady Gregory Kochemasov
P-103	Analytical optimization of achiral and chiral amino acids for compound-specific and enantiomer-specific isotope studies	Yoshinori Takano
P-104	Micro-nano impact features on the surface of an Itokawa particle, RA-QD02-0265	Masayuki Uesugi
P-105	Construction of a method of a sequential petrologic and crystallographic analysis at JAXA for the study of the difference of two sampling points of Hayabusa	Masayuki Uesugi
P-106	Current status and future plans of the preliminary examination of category 3 particles of Hayabusa-returned samples	Masayuki Uesugi
P-107	Noble gas (He, He, Ar) and nitrogen study of asteroidal dust grains returned by the Hayabusa mission	Evelyn Füri (Invited)
P-108	Evaluation of modal abundances of Itokawa particles	Toru Yada
P-109	A research plan for Aggrigate type Itokawa particles	Toru Yada

Core Time 2

P-201	A consortium study of a Halite-bearing Itokawa particle	Toru Yada
P-202	A consortium study for Hayabusa returned samples: phosphate-bearing particles	Yuzuru Karouji
P-203	A consortium study for Hayabusa returned samples: Fe-Ni metal and FeS particles	Yuzuru Karouji
P-204	A consortium study for the largest particle of the Hayabusa-returned samples	Masayuki Uesugi
P-205	Plans of preliminary examination and subsequent analyses of captured dust samples by silica aerogel in the tanpopo mission	Kyoko Okudaira
P-206	Formation of voids textures in meteorites	Yasunori Miura
P-207	Organic Molecules Of Localize Asteroids	Yasunori Miura
P-208	The minimum number, and mass, of samples for mineral exploration of asteroids.	Peter K. Ness
P-209	Robotic systems for the determination of the composition of solar system materials by means of fireball spectroscopy	Jose M. Madiedo