

ISSI Workshop on “Cosmic Dust from the Lab to the Stars” October 31-November 4, 2016

PRELIMINARY PROGRAM

Monday, 31 October 2016

Introduction

09:00-09:30 Registration in ISSI, Hallerstrasse 6, 1st floor

09:30-10:00 Welcome and Introduction: What we hope to accomplish

R. Rodrigo and J. Zarnecki

I: Interstellar Dust

Convenors: Jesús Martín-Pintado, Veerle Sterken and Andrew Westphal

I.1. Modelling & Observations

10:00-10:30 Interstellar dust: Current status

Aigen Li

10:30-11:00 Coffee break

I.2. Observations and Lab

11:00-11:30 Interstellar Dust: Observations and Laboratory simulations

Emmanuel Dartois

11:30-12:00 PAH Spectroscopy: Past, Present and Future

Andrew Mattioda

I.3. Observations and modelling of Dust in Stellar Atmospheres / Supernovae

12:00-12:30 Dust from Supernovae and evolved stars

Mike Barlow

12:30-13:30 Lunch

I.4. In-situ measurements

13:30-14:00 In-situ measurements of interstellar dust

Veerle Sterken

I.5. Sample return missions

14:00-14:30 Title to be confirmed

Deferred to Wednesday

Andrew Westphal

II: Circumstellar Disks

Convenors: Jesús Martín-Pintado and Jürgen Blum

II.1. Modelling

14:00-14:30 Debris disks: dust, comets, and asteroids around other stars

Alexander Krivov

14:30-15:00 Various effects from dust and gas coupling in protoplanetary disks

Inga Kamp

15:00-15:30 Coffee Break

II.2. Observations

15:30-16:00 Overview of observational results – TBC

Leonardo Testi

16:00-16:30 Title to be confirmed

Jeroen Bouwman

II.3. Laboratory measurements

16:30-17:00 What can we learn about dust evolution in protoplanetary disks from laboratory measurements?

Jürgen Blum

17:00-18:00 General Discussion on Sections I and II

18:00 Welcome reception at ISSI

Tuesday, 1 November 2016

III: Dust in the Solar System

III.1. Interplanetary and Circumplanetary Dust

Convenors: Hsiang-Wen Hsu and Veerle Sterken

- | | | |
|---------------------------------|---|--------------------------|
| 09:00-09:30 | Properties of the interplanetary dust particles from remote observations of their scattered light | Jérémie Lasue |
| 09:30-10:00 | From Pioneer to New Horizons: Dust measurements and modelling in the outer solar system | Andrew Poppe |
| 10:00-10:30 | Dust occultations: A new method in Dust Astronomy | Ralf Srama |
| 10:30-11:00 Coffee break | | |
| 11:00-11:30 | In-situ dust detector/analyzer instruments and laboratory measurements | Zoltan Sternovsky |
| 11:30-12:00 | Title to be confirmed | Sascha Kempf |

12:00-13:30 Lunch

III.2. Interactions with planetary atmospheres

Convenors: Detlef Koschny and John Zarnecki

- | | | |
|--------------------|---|-----------------------|
| 13:30-14:00 | Siding-Spring cometary coma interactions with the Martian atmosphere | John Moores |
| 14:00-14:30 | IDP and cosmic dust accretion to planetary surfaces | George Flynn |
| 14:30-15:00 | What is the size of the cosmic dust flux into the Earth's atmosphere, and why does it matter? | John Plane |
| 15:00-15:30 | High-altitude clouds on Mars and meteor dust particles as precursors to their formation | Anni Määttänen |

15:30-16:00 Coffee break

III.3. Surfaces of Planets, moons, asteroids and TNOs

Convenors: Anny-Chantal Levasseur-Regourd and Hsiang-Wen Hsu

Regolith

- | | | |
|--------------------|--|--------------------|
| 16:00-16:30 | Impact modelling
(to be given on behalf by Manuel Sachse) | Frank Spahn |
| 16:30-17:00 | What do we know about asteroidal regoliths from observations, meteorites, and modeling | Dan Britt |

17:00-18:00 General Discussion

Wednesday, 2 November 2016

Asteroids and TNOs

09:00-09:30 Light scattering by asteroid and TNO surfaces: observational data and their meaning for dust properties

Irina Belskaya

09:30-10:00 Mineralogical and compositional analysis of Itokawa dust particles returned by the Hayabusa mission

Tomoki Nakamura

10:00-10:30 Title to be confirmed

From Section I.5. Sample return missions

Andrew Westphal

10:30-11:00 Coffee break

III.4. Comets

Convenors: Anny-Chantal Levasseur-Regourd, Rafael Rodrigo and Andrew Westphal

11:00-11:30 Pristine and processed dust in cometary comae

Marco Fulle

11:30-12:00 About the sources of cometary dust

Nick Thomas

Deferred to Thursday

11:30-12:00 Cometary particles composition as measured by Rosetta and Philae

Hervé Cottin

12:00-12:30 Cometary dust typology after the Rosetta mission

Yves Langevin

12:30-13:30 Lunch

13:30-14:00 Light scattering by cometary dust, Lab measurements and modelling

AC Levasseur-Regourd

14:00-14:30 Title to be confirmed

Andrew Westphal

14:30-15:00 Dust from active asteroids

Jessica Agarwal

15:00 Free time for networking at ISSI (all ISSI facilities are available for small group discussions)

Also: Time to visit the attractions of Bern

19:30 Workshop dinner: Restaurant Kornhauskeller, Bern

Thursday, 3 November 2016

09:00-09:30 About the sources of cometary dust
From Section III.4. Comets **Nick Thomas**

III.5. Meteorites, meteoroids, IDP

Convenors: Detlef Koschny and John Zarnecki

09:30-10:00 Meteors – what can we learn from ground-based observations of meteoroids? **Detlef Koschny**

10:00-10:30 Collisional fragmentation of asteroids, comets and planetary bodies as source of meteorites and dust **J.M. Trigo-Rodríguez**

10:30-11:00 Coffee break

11:00-11:30 Micrometeorites as witnesses of the early solar system **Cécile Engrand**

IV: Astrobiology

IV.1. Astrobiological implications of transported dust

Convenor: Jesús Martín-Pintado

11:30-12:00 Is cosmic dust too small for Astrobiology? **Mark Burchell**

IV.2. Habitable moons in the solar system

Convenors: Jesús Martín-Pintado and Rafael Rodrigo

12:00 -12:30 Insights into the ocean worlds Enceladus and Europa by in situ dust spectrometry **Frank Postberg**

12:30-13:30 Lunch

13:30-14:00 Photochemical aerosol production and growth in planetary atmospheres: Lessons from Titan **Panayotis Lavvas**

14:00-14:30 The chemistry of irradiated icy dust grains: experimental simulations and implications for Astrobiology **Guillermo Muñoz-Caro**

14:30-15:00 Coffee break

Young scientist' presentations

15:00-15:30 The dust environment of the Moon **Jamey Szalay**

15:30-16:00 Cometary dust at the micrometer scale: Scientific results of MIDAS aboard Rosetta **Thurid Mannel**

16:00-16:30 Modelling of cometary dust streams and their applications **Rachel Soja**

16:30-17:00 Properties of cometary dust particles measured in-situ – 2 years around comet 67P/Churyumov Gerasimeko with Rosetta/COSIMA **Sihane Merouane**

17:00-18:00 General outline of ISSI book, organization, followed by splinter groups for book chapters
ISSI facilities, rooms available **John Zarnecki**

Friday, 4 November 2016

IV: Astrobiology

IV.3. Prebiotic molecules

Convenor: Jesús Martín-Pintado

09:00-09:30 Prebiotic organic chemistry in cosmic dust: synthesis,
preservation and degradation

Inge Loes ten Kate

09:30-10:00 Synthesis of complex organics during the late stages of stellar
evolution

Sun Kwok

10:00-10:30 Coffee break

10:30-12:00 Reports from splinter groups, authors
Book plans, action, schedule

Led by Convenors

12:00-12:30 Final Discussion. Book leaders and schedule

12:30 Close of Workshop