

ISSI WORKSHOP ON MICROPHYSICS OF COSMIC PLASMAS PROGRAM

MONDAY 16.04.2012		
08:30-09:00	Registration in ISSI, Hallerstrasse 6, 1 st floor	
09:00	Welcome	
PART 1: INTRODUCTION		
	Chairman	
09:15 - 09:30	Introduction to the Workshop: ISSI workshop series on the physics of cosmic plasmas	André Balogh
09:30 - 10:15	Microscale processes in collisionless plasmas	Steve Schwartz
10:15 - 11:00	Cosmic rays in cosmic plasmas	Ellen Zweibel
11:00-11:30 Coffee break		
PART 2: TURBULENCE		
11:30 -12:00	Driving and dissipation of the turbulent cascade in the solar wind	Luca Sorriso-Valvo
12:00 - 12:30	Turbulence in solar system plasmas: inertial range	Tim Horbury
12:30 - 13:00	Turbulence in solar system plasmas: dissipation range	Olga Alexandrova
12:30-14:00 Lunch		
	Chairman	
14:00-14:30	Solar surface and solar atmospheric turbulence: The Photosphere	Valentin Martinez Pillet
14:30-15:00	Solar atmospheric turbulence	Peter Cargill
15:00-15:30	Plasma turbulence and kinetic processes in the solar corona and wind	Eckart Marsch
15:30-16:00 Coffee break		
16:00 - 16:30	Basic properties of astrophysical turbulence	Alex Lazarian
16:30 - 17:00	Cosmic ray current-driven turbulence and mean-field dynamo effect	Axel Brandenburg
17:00 Welcome reception		

PART 3: MICROPROCESSES IN PLASMAS

	Chairman	
09:00 - 10:00	Hierarchies of plasma instabilities	Mark Dieckmann
10:00 - 10:30	Superdiffusive transport in space plasmas and superdiffusive particle acceleration at shocks	Gaetano Zimbardo
10:30 - 11:00	Non-diffusive transport in magnetically confined fusion plasmas	Raul Sanchez

11:00-11:30 Coffee break

11:30 - 12:00	Breaks in cosmic ray spectra, Lévy flights and particle trapping in astrophysical shock precursors	Mikhail Malkov
12:00 - 12:30	Radiation Processes and Diagnostics of Astrophysical Plasmas	John Raymond
12:30 - 13:00	The role of non-equilibrium ionization in spectral line formation during impulsive heating in the solar atmosphere	Steve Bradshaw

12:30-14:00 Lunch

PART 4: RECONNECTION

	Chairman	
14:00 - 14:45	Review of collisionless reconnection	Homa Karimbadi
14:45 - 15:30	Review of MHD reconnection	Philippa Browning

15:30 - 16:00 Coffee break

16:00 - 16:30	Experimental studies of magnetic reconnection and turbulence in laboratory plasmas	Ivo Furno
16:30 - 17:00	Magnetic reconnection and turbulence in an MHD wind tunnel"	Michael Brown
17:00 - 18:00	Presentations by Young Scientists	

WEDNESDAY 18.04.2012

	Chairman	
09:00 – 09:30	In-situ observations of reconnection in space: global properties	Goetz Paschmann
09:30 – 10:00	In-situ observations of reconnection in space: microphysics	Marit Oieroset
10:00 - 10:30	Mechanisms of spontaneous reconnection: from magnetospheric to fusion plasma	Lev Zelenyi

10:30-11:00 Coffee break

11:00 - 11:30	Crab nebula flares and relativistic reconnection: a paradigm change?	Maxim Lyutikov
11:30 - 12:00	Laser plasmas and astrophysics	Brian Reville
12:00 - 12:30	Plasma diagnostics from radio polarimetric observations	Marijke Haverkorn

12:30 Lunch

14:00 - 19:00 Visit to the Plasma Physics Research Center (CRPP), École Polytechnique Fédérale de Lausanne

A coach will leave from outside ISSI, Hallerstrasse, and will return to ISSI, Hallerstrasse at about 19:00. The visit is coordinated with CRPP by Thierry Dudok de Wit. The tentative programme consists of

- a short introduction to the CRPP in the conference room
- visit of TCV (Tokamak à Configuration Variable) and TORPEX (TORoidal Plasma EXperiment, dedicated to plasma turbulence studies) in two different groups

The home page of CRPP is: <https://crppwww.epfl.ch/crppabout/>

Please visit the Tokamak website: <https://crppwww.epfl.ch/tcv/>

And also the TORPEX website: <https://crppwww.epfl.ch/torpex/>

All very informative with links to the research and the publications.

WS participants who will take part in the visit (it's free of charge) will be invited to REGISTER their intention on arrival at ISSI on Monday 16 April.

Alternative:

14:00 Free time to visit the attractions of Bern
Also: All ISSI facilities are available for small group discussions

NB. Please note that the Workshop Dinner will take place on Thursday, 19 April, at 19:00 in the Kornhauskeller Restaurant, Bern

THURSDAY 19.04.2012

PART 5: SHOCKS

	Chairman	
09:30 – 10:00	Plasma kinetics of shocks	Volodya Krasnoselskikh
10:00 – 10:30	3D structure and reformation shocks	David Burgess

10:30-11:00 *Coffee break*

11:00 - 11:30	Interaction of turbulence with non-linear structures, shocks	Andrei Bykov
11:30 - 12:00	Electron and ion heating in collisionless shocks: observational signatures from supernova remnants	Parviz Ghavamian
12:00 - 12:30	Relativistic shocks	John Kirk

12:30-14:00 *Lunch*

PART 6: TECHNIQUES

	Chairman	
14:00 - 14:30	What in-situ plasma distribution functions tell us?	Steve Schwartz
14:30 – 15:00	What Can We Know About Microscales in Interstellar Turbulence?	Steve Spangler
15:00 - 15:30	Lessons from laboratory plasmas	George Tynan (maybe Bob Bingham or ?)

15:30-16:00 *Coffee break*

15:00 - 15:30	Presentation by Young scientists	TBC
16:30 - 18:00	General outline of ISSI book, organisation, followed by splinter groups for book chapters ISSI facilities, rooms available	André Balogh

19:00 *Workshop dinner: Kornhauskeller restaurant, Bern*

FRIDAY 20.04.2012

	Chairman	
09:30 - 10:00	Turbulence and turbulent heating: the next steps	Stuart Bale
10:00 - 10:30	Enriching the research theme of reconnection via synergy among astro-, solar system, and lab-plasma studies	Masaki Fujimoto
10:30-11:00	<i>Coffee break</i>	
11:00 - 11:30	Selected topics at the laboratory and space plasma interface	Bob Bingham
11:30 – 12:00	What counts as “microphysics” and where does it matter?	Richard Dendy
12:00 – 13:00	Reports from splinter groups, authors Book plans, actions, schedule	Led by Convenors
13:00	<i>Close of Workshop</i>	