



The Abdus Salam
**International Centre
for Theoretical Physics**



Joint ICTP-IAEA College on Plasma Physics

Organizer(s): Directors: S. Mahajan, Z. Yoshida, R. Kamendje (IAEA), D. Gomez. Local Organiser: J. Niemela
Trieste - Italy, 01 - 12 October 2012

Programme

Monday (Room:Leonardo da Vinci Building Main Lecture Hall)

1 October 2012

- 08:30 - 09:30** (Room: Leonardo da Vinci Building, Lobby)
--- Registration ---
All attendees of the College are required to complete registration formalities
- 09:30 - 10:30** **Michael Bell / Princeton University, USA**
Magnetic confinement fusion: history and fundamentals
- 10:30 - 11:30** **Mitsuru Kikuchi / Japan Atomic Energy Agency**
Overview of nuclear fusion via magnetic confinement
- 11:30 - 12:30** **Gattamraju Ravindra Kumar / Tata Institute of Fundamental Research, India**
Intense laser-matter interactions: some basics
- 12:30 - 14:00** --- Lunch ---
- 14:00 - 15:00** **Informal Discussions**
Led by Michael Bell and Mitsuru Kikuchi
- 15:00 - 15:20** --- Coffee Break ---
- 15:20 - 16:30** **Informal Discussions**
Led by Michael Bell and Mitsuru Kikuchi

19:00 - 21:00 (Room: Adriatico Guest House Cafeteria)
--- Welcome Reception ---

Tuesday (Room:Leonardo da Vinci Building Main Lecture Hall)

2 October 2012

09:00 - 10:00 **Michael Bell / Princeton University, USA**
Progress and outstanding challenges in tokamak research

10:00 - 10:20 --- Coffee Break ---

10:20 - 11:20 **Mitsuru Kikuchi / Japan Atomic Energy Agency**
Topology and Lagrange-Hamilton mechanics of magnetic confinement fusion

11:20 - 12:20 **Jan Stockel / Institute of Plasma Physics, Prague, Czech Republic**
Introduction to remote experiments on the GOLEM tokamak

12:20 - 14:00 --- Lunch ---

14:00 - 15:00 (Room: Computer Lab. (LB))
Richard Kamendje and Jan Stockel
Remote experiments on the GOLEM tokamak

15:00 - 15:20 --- Coffee Break ---

15:20 - 16:30 (Room: Computer Lab. (LB))
Richard Kamendje and Jan Stockel
Remote experiments on the GOLEM tokamak

Wednesday (Room:Leonardo da Vinci Building Main Lecture Hall)

3 October 2012

09:00 - 10:00 **Gattamraju Ravindra Kumar / Tata Institute of Fundamental Research**
High energy density science (HEDS) experiments with table top terawatt lasers: the why and how

10:00 - 10:20 --- Coffee Break ---

10:20 - 11:20 **Vladimir A. Gribov / Institute of Theoretical & Experimental Physics, Russian Federation**
Dense plasma focus

11:20 - 12:20 **Michael Bell / Princeton University, USA**
Spherical tokamaks: achievements and prospects

12:20 - 14:00 --- Lunch ---

14:00 - 15:00 **Informal Discussions**
Led by Zensho Yoshida and G. Ravindra Kumar

15:00 - 15:20 --- Coffee Break ---

15:20 - 16:30 **Informal Discussions**
Led by Zensho Yoshida and G. Ravindra Kumar

Thursday (Room:Leonardo da Vinci Building Main Lecture Hall)

4 October 2012

- 09:00 - 10:00** **Mitsuru Kikuchi** / *Japan Atomic Energy Agency*
Plasma confinement and turbulent transport in tokamak
- 10:00 - 10:20** --- Coffee Break ---
- 10:20 - 11:20** **Gattamraju Ravindra Kumar** / *Tata Institute of Fundamental Research, India*
Physics issues and challenges in HEDS with table top lasers: some examples
- 11:20 - 12:20** **Nana Shatashvili** / *Ivane Javakhshvili Tbilisi State University, Georgia*
Acceleration of plasma flows: Theory and simulation
- 12:20 - 14:00** --- Lunch ---
- 14:00 - 16:30** (Room: Leonardo da Vinci Building, Lobby)
Poster Session
Prizes will be awarded to the participants judged to have presented the best two posters.
- 15:00 - 15:20** --- Coffee Break ---

Friday (Room:Leonardo da Vinci Building Main Lecture Hall)

5 October 2012

- 09:00 - 10:00** **Zensho Yoshida** / *University of Tokyo, Japan*
Space-time problems in plasma physics I
- 10:00 - 10:20** --- Coffee Break ---
- 10:20 - 12:20** **Swadesh M. Mahajan** / *University of Austin at Texas, USA*
Fusion fission hybrids
- 12:20 - 14:00** --- Lunch ---
- 14:00 - 15:00** **Participant led discussion**
- 15:00 - 15:20** --- Coffee Break ---
- 15:20 - 16:30** **Participant led discussion**
- 19:00 - 22:00** (Room: Adriatico Guest House Cafeteria)
--- ENSF Banquet and prize-giving ceremony ---

Monday (Room:Leonardo da Vinci Building Main Lecture Hall)

8 October 2012

- 09:00 - 10:00** **Daniel O. Gomez** / *IAFE, Buenos Aires, Argentina*
Hall magnetohydrodynamics and applications I
- 10:00 - 10:20** --- Coffee Break ---

- 10:20 - 11:20** **Pablo D. Mininni** / *University of Buenos Aires, Argentina*
Energy transfer and multiscale interactions in MHD turbulence I
- 11:20 - 12:20** **Zensho Yoshida** / *University of Tokyo, Japan*
Space-time problems in plasma physics II
- 12:20 - 14:00** --- Lunch ---
- 14:00 - 15:00** **Informal Discussions**
Led by Daniel Gomez and Zensho Yoshida
- 15:00 - 15:20** --- Coffee Break ---
- 15:20 - 16:30** **Informal Discussions**
Led by Daniel Gomez and Zensho Yoshida

Tuesday (Room:Leonardo da Vinci Building Main Lecture Hall)

9 October 2012

- 09:00 - 10:00** **William H. Matthaeus** / *University of Delaware, USA*
Dynamics of solar wind I
- 10:00 - 10:20** --- Coffee Break ---
- 10:20 - 11:20** **Pablo D. Mininni** / *University of Buenos Aires, Argentina*
Energy transfer and multiscale interactions in MHD turbulence II
- 11:20 - 12:20** **Hitoki Yoneda** / *Institute for Laser Science, Tokyo, Japan*
Introduction of warm dense matter
- 12:20 - 14:00** --- Lunch ---
- 14:00 - 15:00** **Informal Discussions**
Led by William Matthaeus and Pablo Mininni
- 15:00 - 15:20** --- Coffee Break ---
- 15:20 - 16:30** **Informal Discussions**
Led by William Matthaeus and Pablo Mininni

Wednesday 10 October 2012 - Symposium on Quantum Plasmas (Room:Leonardo da Vinci Building Main Lecture Hall)

Chairperson: Swadesh M. Mahajan

10 October 2012

- 09:00 - 12:00** **P. Andreev, F. Asenjo, I. Kourakis, M. Marklund**
Symposium on Quantum Plasmas
- 10:00 - 10:20** --- Coffee Break ---
- 12:00 - 14:00** --- Lunch ---

14:00 - 15:00 **P. Andreev, F. Asenjo, I. Kourakis, M. Marklund**
Symposium on Quantum Plasmas

15:00 - 15:20 --- Coffee break ---

15:20 - 16:30 **P. Andreev, F. Asenjo, I. Kourakis, M. Marklund**
Symposium on Quantum Plasmas

Thursday (Room:Leonardo da Vinci Building Main Lecture Hall)

11 October 2012

09:00 - 10:00 **William H. Matthaeus** / *University of Delaware, USA*
Dynamics of the solar wind II

10:00 - 10:20 --- Coffee Break ---

10:20 - 11:20 **Hitoki Yoneda** / *Institute for Laser Science, Tokyo, Japan*
Detailed physical model for warm dense matter

11:20 - 12:20 **Daniel O. Gomez** / *IAFE, Buenos Aires, Argentina*
Hall magnetohydrodynamics and applications II

12:20 - 14:00 --- Lunch ---

14:00 - 15:00 **Informal Discussions**
Led by Daniel Gomez & Hitoki Yoneda

15:00 - 15:20 --- Coffee Break ---

15:20 - 16:30 **Informal Discussions**
Led by Daniel Gomez & Hitoki Yoneda

Friday (Room:Leonardo da Vinci Building Main Lecture Hall)

12 October 2012

09:00 - 10:00 **Hamid Saleem** / *National Centre for Physics, Islamabad, Pakistan*
Self heating of solar corona by sheared flow-driven electrostatic instabilities

10:00 - 10:20 --- Coffee Break ---

10:20 - 11:20 **Hitoki Yoneda** / *Institute for Laser Science, Tokyo, Japan*
New trends for warm dense matter research works and their applications

11:20 - 13:00 **Closing remarks**