



# IPELS 2007 PROGRAM

- (K) Keynote Lecture 45 min**  
**(P) Plenary Lecture 30 min**  
**(I) Invited Presentation 20 min**  
**(O) Contributed Presentation 15 min**
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## SUNDAY

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- 15:00 – 17:00** Registration  
**18:00 – 20:00** Welcome Reception
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## MONDAY

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**Session 1:** Magnetic self-organization (Reconnection/dynamos)  
**Chair:** M. Yamada - Princeton University, USA

- 08:30 – 08:45** **R. Boswell** Welcome and opening remarks  
Conference Chair
- 08:45 – 09:30** **(K) K. Shibata** Initial results of Hinode (solar B) Mission  
Kyoto University, Japan
- 09:30 – 10:00** **(P) R. Lin** Interrelationship between Space and Laboratory  
University of California Plasma Research  
Berkeley, USA
- 10:00 – 10:30** **(P) J. Sarff** Reconnection and dynamo in the reversed field pinch:  
University of Wisconsin, MHD and beyond  
USA
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**10:30 – 11:00 Morning Tea**

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**Session 2:** Diagnostics  
**Chair:** A. Fredriksen - University of Tromso, Norway

- 11:00 – 11:30** (P) **F. Skiff**  
University of Iowa, USA Plasma diagnostics based on wave absorption
- 11:30 – 11:50** (I) **P. Pribyl**  
University of California  
Los Angeles, USA Plasma diagnostics with microprobes
- 11:50 – 12:10** (I) **C. Ionita**  
University of Innsbruck,  
Austria Probes for direct determination of the plasma potential
- 12:10 – 12:30** (I) **J. A. Johnson III**  
Florida A&M University,  
USA Turbulence in Laser-Induced Plasmas with evidence of new fluctuation physics

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**12:30 – 13:30 Lunch**

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**Session 3:** Complex and dusty plasmas  
**Chair:** S. Vladimirov - University of Sydney, Australia

- 13:30 – 13:50** (I) **M. Kretschmer**  
Max Planck Institute for  
Extraterrestrial Physics,  
Germany Complex plasmas – a new state of matter with unusual properties
- 13:50 – 14:10** (I) **O. Ishihara**  
Yokohama National  
University, Japan Configuration of Coulomb clusters in complex plasma
- 14:10 – 14:30** (I) **L. I**  
National Central University,  
Taiwan Large amplitude density fluctuations in dusty plasmas: self-organized dust acoustic waves, laser induced bubble, and associated particle motion
- 14:30 – 14:45** (O) **B. Klumov**  
Max Planck Institute for  
Extraterrestrial Physics,  
Germany On the role of dust in the cometary plasma properties

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**15:00 – 15:30 Afternoon Tea**

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**Session 4:** Poster Session A

**15:30 – 17:00** See separate sheet for posters in session A.

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## **TUESDAY**

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**Session 5:** Electric fields

**Chair:** C. Charles – Australian National University, Australia

**09:00 – 09:20** (I) **E. Scime** Observations of ion-beam formation in a current-free double-layer  
West Virginia University,  
USA

**09:20 – 09:40** (I) **R. Schrittwieser** Anode double layers  
University of Innsbruck,  
Austria

**09:40 – 10:00** (I) **A. Fruchtman** Plasma thrusters and double layers  
Holon Institute of  
Technology, Israel

**10:00 – 10:20** (I) **R. Ergun** Double layers in the Aurora  
University of Colorado, USA

**10:20 – 10:40** (I) **D. Knudsen** Electric fields from ion distribution images on Swarm  
University of Calgary,  
Canada

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**10:40 – 11:00 Morning Tea**

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**Session 6:** High frequency waves

**Chair:** I. Cairns – University of Sydney, Australia

**11:00 – 11:30** (P) **B. Thide** EM radiation angular momentum diagnostic of plasma turbulence  
Swedish Institute of Space  
Physics, Sweden

**11:30 – 11:50** (I) **C. Kletzing** Electron distribution measurements and upper hybrid wave growth: an in-situ encounter with the source of auroral roar  
University of Iowa, USA

**11:50 – 12:10** (I) **B. Li** Stochastic wave growth: space applications, simulations, and laboratory test  
University of Sydney,  
Australia

**12:10 – 12:25** (O) **D. Speirs**  
University of Strathclyde,  
Scotland

A scaled laboratory experiment to investigate the Auroral Kilometric Radiation cyclotron maser instability

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**12:30 – 13:30 Lunch**

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**Session 7:** Science and Policy of Space  
**Chair:** R. Boswell – Australian National University, Australia

**13:30 – 13:50** (I) **B. Biddington**  
CISCO, Australia

Space policy challenges for Australia towards 2025

**13:50 – 14:10** (I) **W. Tang**  
Princeton University, USA

Application of advanced scientific computing to IPELS physics issues

**14:10 – 14:30** (I) **M. Rietveld**  
EISCAT Scientific  
Association, Norway

EISCAT\_3D: a new instrument for plasma physics in the auroral ionosphere

**14:30 – 14:45** (O) **G. Tallents**  
University of York, UK

Experimental benchmarking of solar opacities

**14:45 – 15:00** (O) **W. Coles**  
University of California  
San Diego, USA

Possible Observation of Ion-Neutral Damping in the Interstellar Medium

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**15:00 – 15:30 Afternoon Tea**

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**Session 8:** Poster Session B

**15:30 – 17:00** See separate sheet for posters in session B.

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**WEDNESDAY**

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**Leisure Day – Free excursion to Green Island, Great Barrier Reef**

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## THURSDAY

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**Session 9:** Structure in plasma, flows, colliding and interpenetrating plasma and plasma waves therein (Part A)

**Chair:** M. Koepke - West Virginia University, USA

**09:00 – 09:15 (O) M. Koepke** IPELS connections within Morning Presentations

**09:15 – 10:00 (K) C. Chaston** Alfvenic Interactions in the Earth's Magnetosphere  
University of California  
Berkeley, USA

**10:00 – 10:20 (I) R. Lysak** Kinetic Alfven Waves in the dynamic auroral plasma  
University of Minnesota,  
USA

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### 10:30 – 11:00 Morning Tea

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**Session 10:** Structure in plasma, flows, colliding and interpenetrating plasma and plasma waves therein (Part B)

**Chair:** M. Koepke – West Virginia University, USA

**11:00 – 11:20 (I) S. Vincena** Fast dynamics of colliding and interpenetrating  
University of California plasmas  
Los Angeles, USA

**11:20 – 11:40 (I) W. Gekelman** Three-Dimensional current systems and magnetic UC  
University of California reconnection generated by colliding plasmas in a  
Los Angeles, USA background magnetoplasma

**11:40 – 12:00 (I) W. Horton & P. Brady** Laboratory Dipole-Target Experiments to Simulate  
University of Texas, USA Solar Wind-Magnetosphere Interactions

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### 12:30 – 13:30 Lunch

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**Session 11:** Structure in plasma, flows, colliding and interpenetrating plasma and plasma waves therein (Part C)

**Chair:** W. Gekelman – UC Los Angeles, USA

**13:30 – 13:45 (O) W. Gekelman** IPELS connections within Afternoon Presentations  
University of California  
Los Angeles, USA

- 13:45 – 14:05** (I) **M. Koepke** Flows in Space and Laboratory Magnetized Plasmas  
West Virginia University,  
USA
- 14:05 – 14:25** (I) **G. Ganguli** Induced ion-cyclotron turbulence in the magnetosphere  
Naval Research Laboratory, by injection of neutral gas  
USA
- 14:25 – 14:40** (O) **H. Stein & L. Arnold** Experimental/theoretical studies of magnetic flux  
Ruhr University, Germany ropes
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**15:00 – 15:30 Afternoon Tea**

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**Session 12:** Structure in plasma, flows, colliding and interpenetrating plasma and plasma waves therein (Part D)

**Chair:** M. Koepke – West Virginia University, USA

- 15:30 – 15:50** (I) **N. Brenning** Excitation of electrostatic, whistler, and  
KTH, Sweden electromagnetic waves at double layers and double  
layer-like structures
- 15:50 – 16:10** (I) **R. Stenzel** Nonlinear and unstable Whistler modes  
University of California  
Los Angeles, USA
- 16:10 – 16:30** (I) **R. Rankin** Wave-particle interactions in dispersive Alfvén waves  
University of Alberta,  
Canada
- 16:30 – 16:50** (I) **A. Stark** Nonlinear excitation of Alfvénic waves by helicon  
Max-Planck Institute for modulation  
Plasma Physics, Germany
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**19:00 until late** **Conference Banquet – Gala Buffet**

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**FRIDAY**

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**Session 13:** Dynamo and Magnetic Self-organization

**Chair:** A. Bhattacharjee – University of New Hampshire, USA

- 09:00 – 09:30** (P) **F. Cattaneo** Large-scale dynamos  
University of Chicago, USA

- 09:30 – 09:50** (I) **R. Kulsrud**  
Princeton University, USA      The origin of cosmic magnetic fields
- 09:50 – 10:10** (I) **C. Forest**  
University of Wisconsin,  
USA      Studies of the turbulent electromotive force on the  
Madison dynamo experiment
- 10:10 – 10:30** (I) **H. Ji**  
Princeton University, USA      Laboratory studies of angular momentum transport in  
astrophysically relevant flows
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**10:30 – 11:00 Morning Tea**

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**Session 14:** Structure of Magnetic Reconnection Layer in Laboratory and Space Plasmas  
**Chair:** Y. Ono – University of Tokyo, Japan

- 11:00 – 11:20** (I) **M. Yamada**  
Princeton University, USA      Identification of the Electron Diffusion Region during  
Magnetic Reconnection in a Laboratory Plasma
- 11:20 – 11:40** (I) **J. Scudder**  
University of Iowa, USA      Identifying properties of the electron diffusion region
- 11:40 – 12:00** (I) **F. Mozer**  
University of California  
Berkeley, USA      Quantitative estimates of magnetic field reconnection  
from electric and magnetic field measurements
- 12:00 – 12:15** (O) **E. Schartman**  
Princeton University, USA      Design and Operation of the Princeton  
MagnetoRotational Instability
- 12:15 – 12:30** (O) **I. Cairns**  
University of Sydney,  
Australia      Simulation Study of EM Radiation Produced by Linear  
Mode Conversion of Langmuir/Z-mode Waves in  
Warm Magnetized Plasmas
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**12:30 – 13:30 Lunch**

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**Session 15:** Magnetic Reconnection in Space and Laboratory Plasmas  
**Chair:** M. Brown – Swarthmore College, USA

- 13:30 – 13:50** (I) **A. Bhattacharjee**  
University of New  
Hampshire, USA      Fast reconnection and its nonlinear stabilization in  
laboratory and space plasmas
- 13:50 – 14:10** (I) **H. Park**  
Princeton University, USA      Magnetic reconnection process during the sawtooth  
crash ( $m=1$  mode) in Tokamak plasma

- 14:10 – 14:30** (I) **T. Amano**  
University of Tokyo, Japan      Nonthermal electron acceleration in high Mach number collisionless shocks
- 14:30 – 14:45** (O) **M. Den**  
National Institute for Fusion Science, Japan      Toward multi-scale simulation of magnetic reconnection in space plasma
- 14:45 – 15:00** (O) **Y. Song**  
University of Minnesota, USA      Magnetic reconnection or reactive interaction in collisionless plasmas?
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**15:00 – 15:30 Afternoon Tea**

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**Session 16:** Reconnection with Ion heating and momentum transport  
**Chair:** H. Ji – Princeton University, USA

- 15:30 – 15:50** (I) **Y. Ono**  
University of Tokyo, Japan      Current sheet dynamics in TS-3 and TS-4 tokamak reconnection experiments
- 15:50 – 16:10** (I) **M. Brown**  
Swarthmore College, USA      Plasma heating and flow dynamics during 3D reconnection events in the SSX experiment
- 16:10 – 16:30** (I) **W. Ding**  
University of California Los Angeles, USA      Magnetic fluctuation-induced particle transport during magnetic reconnection in MST reversed field Pinch plasma
- 16:30 – 16:45** (O) **K Kondoh**  
Ehime University, Japan      Computer study of three-dimensional earthward fast flows in the near-Earth plasma sheet
- 16:45 – 17:00** **R. Boswell**  
Conference Chair      Closing Remarks
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