

# International Workshop "Explosive Phenomena in Magnetized Plasmas - New Development in Reconnection Research"

March 17-19, 2004, Yukawa Institute Kyoto University

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## Scientific Program

<b>March 17</b>
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**9:00-9:50 : Registration**

**9:50-12:10 : chairperson: Machida, S. [Kyoto Univ.]**

Shibata, K. [Kyoto Univ.]: opening address (10)

(introductory talks)

Parker, E. N. [Univ. of Chicago] (40+10) invited :  
Universal Reconnection in Magnetic Fields

Yamada, M. [Princeton Plasma Physics Lab.] (30+10) invited :  
Recent Results from Magnetic Reconnection Experiment [MRX]

Kulsrud, R. [Princeton Plasma Physics Lab.] (30+10) invited :  
Fast Astrophysical Reconnection with Anomalous Resistivity and Petschek Shocks

\*\*\* lunch \*\*\*

**13:30-15:20 : chairperson: Mima, K. [Osaka Univ.]**

(laboratory)

Ono, Y. [Univ. of Tokyo] (25+5) key :  
Transient and Intermittent Magnetic Reconnections  
in TS-3/ 4 Tokamak Merging Experiments

Yoneda, H. [Univ. of Electro-Communications] (25+5) key :  
New Possibility of Plasma-Magnetic Experiments with Laser

Taguchi, T. [Setsunan Univ.] (15+5) contributed:  
Simulation Study on an Intense Current Flow in a High Density Plasma

poster presentation (2min x 12 = 24 min + discussion)

\*\*\* 15:20 coffee break / poster (40) \*\*\*

**16:00-18:00 : chairperson: Mineshige, S. [Kyoto Univ.]**

(nonlinear physics / astrophysics)

Takabe, H. [Osaka Univ.] (25+5) invited :  
Laboratory Astrophysics

Yoshida, Z. [Univ. of Tokyo] (25+5) invited :  
Scale-hierarchy and singular perturbation in astronomical plasmas

Matsumoto, R. [Chiba Univ.] (25+5) invited:  
Magnetic Reconnection in Accretion Disks

Makishima, K. [Univ. of Tokyo] (25+5) invited:  
Are the Largest-Scale Cosmic Hot Plasmas Heated by Reconnection?

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**March 18**

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**9:30-12:10 : chairperson: Matsumoto, H. [Kyoto Univ.]**

(kinetic / magnetosphere)

Drake, J. [Univ. of Maryland] (30+10) invited :  
Kinetic structure and dynamics of guide-field magnetic reconnection

Scholer, M. [Max-Planck-Institut] (30+10) invited :  
Collisionless Magnetic Reconnection in Thin Current Sheets:  
Results of Full Particle Simulations

\*\*\* 10:50 coffee break / poster (20) \*\*\*

Fuselier, S. [LMSAL] (30+10) invited :  
Continuous Magnetic Reconnection at the Earth's Magnetopause

Nishikawa, K.-I. [NASA] (15+5) contributed:  
Magnetospheric Magnetic Reconnection with Southward  
IMF by a 3D EMPM Simulation

\*\*\* photograph taking \*\*\*

\*\*\* lunch \*\*\*

**13:30-15:00 : chairperson: Mukai, T. [JAXA]**

(magnetosphere)

Fujimoto, M. [Tokyo Inst. of Tech.] (25+5) key :  
Quick Spontaneous Triggering of Reconnection in Ion-Scale Current Sheets

Omura, Y. [Kyoto Univ.] (25+5) key :  
Electrostatic Solitary Waves Associated with Magnetic Reconnection

poster presentation (2min x 12 = 24min + discussion)

\*\*\* 15:00 coffee break / poster (60) \*\*\*

**16:00-17:30 : chairperson: Maezawa, K. [JAXA]**

(theory and simulation)

Hoshino, M. [Univ. of Tokyo] (25+5) key :  
Particle Acceleration under Shock-Reconnection Interaction

Deng, X. H. [Kyoto Univ.] (15+5) contributed :  
Collisionless Reconnection at Dayside Magnetopause and in the  
Magnetotail: GEOTAIL and CLUSTER Observations

Sano, T. [Osaka Univ.] (15+5) contributed:  
On the Saturation Mechanism of MHD Turbulence in Accretion Disks:  
MRI vs. Magnetic Reconnection

banquet (18:30-20:30)

<b>March 19</b>
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**9:30-12:10 : chairperson: Kosugi, T. [JAXA]**

(special lecture)

Sato, T. [Earth Simulator Center] (30+10) invited :  
The Earth Simulator: Designing the Future

\*\*\* 10:10 coffee break / poster (20) \*\*\*

(solar / MHD)

Tsuneta, S. [NAOJ] (30+10) invited:  
Solar-B Mission

Craig, I. J. D. [Univ. of Waikato] (30+10) invited:  
Analytic Magnetic Reconnection Solutions in Two and Three Dimensions

Katsukawa, Y. [Univ. Tokyo / NAOJ] (15+5) contributed:  
What Determines the Coronal Heating Rate in the Photosphere?

\*\*\* lunch \*\*\*

**13:30-15:10 : chairperson: Sakurai, T. [NAOJ]**

(solar)

Kusano, K. [Hiroshima Univ.] (25+5) key:  
Trigger Mechanism of Solar Flares in Magnetic Arcade of Reversed Magnetic Shear

Shibata, K. [Kyoto Univ.] (25+5) key:  
Energy Release Mechanism of Solar Flares: Nonsteady Fast Reconnection Induced by

## Plasmoid Ejections and Associated Particle Acceleration

Sterling, A. C. [JAXA] (15+5) contributed:  
Delayed Soft X-ray Signatures of Reconnection in a Prominence Eruption

Miyagoshi, T. [Kyoto Univ.] (15+5) contributed:  
Jet Phenomena associated with Emerging Flux and  
Magnetic Reconnection in the Solar Atmosphere

\*\*\* 15:10 coffee break / poster removal (30) \*\*\*

### **15:40-17:40 : chairperson: Yokoyama, T. [Univ. of Tokyo]**

(theory and simulation)

Ugai, M. [Ehime Univ.] (25+5) key :  
Basic Physics of the Spontaneous Fast Reconnection Model

Ogino, T. [Nagoya Univ.] (25+5) key :  
Magnetic Reconnection in the Earth's Magnetosphere

Horiuchi, R. [NIFS] (25+5) key :  
Anomalous Resistivity and Particle Kinetic Effects in Collisionless  
Driven Reconnection in Open Systems

Terasawa, T. [Univ. of Tokyo] (25+5) Summary

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<b>Poster Papers</b>
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**P1:** Asai, A. [Kyoto Univ.] Movie ;  
Flare Ribbon Expansion and Energy Release

**P2:** Asano, K. [Osaka Univ.]  
Proton Counterflow in the Pulsar Polar Cap

**P3:** Hanaoka, Y. [NAOJ]  
Linear Polarization as Diagnostics of Accelerated Particles in Solar Flares

**P4:** Ishii, T. T. [Kyoto Univ.]  
Twisted Magnetic Flux Bundle Models for Strong Solar Flares

**P5:** Ishii, Y. [JAERI]  
Current Point Formation and Magnetic Reconnection Process in Tokamak Plasmas

**P6:** Isobe, H. [Kyoto Univ.]  
Three Dimensional MHD Simulation of Solar Emerging Flux  
and its Reconnection with Pre-Existing Coronal Field

- P7:** Jain, R. [PRL, India]  
Results of Recent Observations Made by "Solar X-ray Spectrometer (SOXS)" Mission
- P8:** Kondoh, K. [Ehime Univ.]  
Computer Simulation of 3-dimensional Magnetic Reconnection;  
Some Three-Dimensional Interesting Phenomena.
- P9:** Masuda, S. [Nagoya U., STE Lab.]  
Hard X-ray Source Related with a Plasma Ejection in Solar Flares
- P10:** Narukage, N. [Kyoto Univ.]  
Statistical Analysis of Reconnection Inflows in Solar Flares
- P11:** Nitta, S. [Souken-dai]  
Self-Similar Evolution of Fast Magnetic Reconnection in Free Space:  
a New Model for Astrophysical Reconnection
- P12:** Nozawa, S. [Ibaraki Univ.]  
Magnetohydrodynamics Simulation of the Solar Emerging Flux  
with Cooling and Heating
- P13:** Numazawa, S. [Chiba Univ.]  
Magnetohydrodynamic Simulations of Magnetic Reconnection in Accretion Disks
- P14:** Park, K. [Nagoya Univ., STE Lab.]  
Global MHD Simulation of Magnetic Reconnection at the Earth's Magnetopause
- P15:** Park, S.-Y. [Chungnam National University, Korea]  
Cancelling Magnetic Features Associated with EUV Bright Points
- P16:** Shimizu, T. [Ehime Univ.]  
Fast Shock Formation in the Subsonic Magnetic Reconnection
- P17:** Shiota, D. [Kyoto Univ.]  
A Slow Shock Structure Associated with Magnetic Reconnection  
in Coronal Mass Ejection
- P18:** Takada, T. K. [Nagoya Univ., STE Lab.]  
Generation Mechanism of Low-Frequency Waves in the Plasma Sheet  
Boundary Layer:  
A Consequence of the Reconnection Jet Observed by Geotail
- P19:** Takasaki, H. [Kyoto Univ.]  
Multiple Plasmoid Ejections and Hard X-ray Emission
- P20:** Takeuchi, A. [Yonago Kosen]  
Effects of the Radiative Relaxation and of the Temperature Dependence  
of Resistivity upon the Solar Photospheric Magnetic Reconnection
- P21:** Tanuma, S. [Kyoto Univ.]  
2D MHD Simulations of Multiple Shocks and Turbulence in the Reconnection Jet

- P22:** Watanabe, K. [Nagoya Univ., STE Lab.]  
Solar Neutron Events in Association with Large Solar Flares in November 2003
- P23:** Yokoyama, M. [Nagoya Univ., STE Lab.]  
Formation of a Transequatorial Loop System(TLS): A Case Study of  
the TLS Connecting NOAA8210 and NOAA8214
- P24:** Yokoyama, T. [Univ. of Tokyo]  
MHD Simulations of Reconnection with Finite-Amplitude Fluctuations
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