

**2015 ISEE workshop**  
**"International GEMSIS and ASINACTR-G2602 Workshop:**  
**Future Perspectives of Researches in Space Physics"**

Date: March 22 (Tue) - 25 (Fri), 2016

Venue: Noyori Conference Hall in Higashiyama campus of the Nagoya University.

MAP: <http://en.nagoya-u.ac.jp/map/>

ACCESS: <http://en.nagoya-u.ac.jp/access/>

Local Organizing Committee:

S. Machida, K. Kusano, A. Mizuno, K. Seki, S. Masuda, Y. Miyoshi, S. Nozawa, A. Ieda, S. Imada, D. Shiota, K. Keika, and Y. Miyashita

**Program**

**March 22 (Tue)**

(Chair: Kusano)

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|-------------|--|
| 10:30-10:35 | welcome address<br>S. Machida (ISEE, Nagoya University)                                      |
| 10:35-10:55 | GEMSIS project and CIDAS<br>Y. Miyoshi (ISEE, Nagoya University) and the GEMSIS project team |
| 10:55-11:15 | ASINACTR-G2602<br>A. Mizuno (ISEE, Nagoya University) and ASINACTR-G2602 members             |
| 11:15-11:35 | PSTEP<br>K. Kusano (ISEE, Nagoya University) and the PSTEP members                           |
| 11:35-13:10 | lunch  |

**Session 1-1 Geoeffective Solar Activities**

(chair: Masuda)

- |             |   |
|-------------|---|
| 13:10-14:10 | Keynote speech 1: Solar Activities in the Solar Cycle 24<br>N. Gopalswamy (GSFC/NASA)   |
| 14:10-14:35 | Geomagnetic storms driven by similar CMEs<br>K. S. Cho (KASI)   |
| 14:35-14:50 | MHD Simulation of Interplanetary Propagation of Multiple Coronal Mass Ejections with Internal Magnetic Flux Rope (SUSANOO-CME)<br>D. Shiota (Nagoya U.) and R. Kataoka                                    |
| 14:50-15:05 | Long-term variation of solar UV radiation estimated from solar images<br>A. Asai (Kyoto U.)   |
| 15:05-15:30 | Observation and Development of the Solar Magnetic Activity Research Telescope (SMART) at Hida Observatory<br>K. Ichimoto, T. T. Ishii, T. Kawatei, S. Nagata, A. Asa, K. Hirose and SMART Team (Kyoto U.) |

#### **Session 4: Space Plasma Physics and Magnetospheric Dynamics: from Geotail to MMS**

15:30-15:55 Unsolved questions in magnetotail physics: From GEOTAIL to MMS  
M. Hoshino (U. Tokyo)

15:55-16:15 break

#### **Panel Discussion**

(Chair: Miyoshi)

16:15-17:25 International Collaborative Research:  
What is expected to be an international leading institute for ISEE

#### **Macrh 23 (Wed)**

#### **Session 2 Integrated Geospace Researches: ERG, EISCAT3D, and ground-based network observations**

(Chair: Keika)

09:00-10:00 Keynote speech 2: New Results Concerning Earth's Van Allen Radiation Belts  
D. N. Baker (LASP/U. Colorado)

10:00-10:25 Recent Advances in Understanding Radiation Belt Dynamics in the Earth's Inner Zone  
and Slot Region  
X. Li (LASP/U. Colorado) H. Zhao, R. Selesnick, D. N. Baker, A. Jaynes, S. Kanekal,  
S. Claudepierre, J. F. Fennell, and J. B. Blake

10:25-10:40 Flux enhancement of relativistic electrons with coherent/incoherent whistler chorus waves:  
GEMSIS-RBW simulations  
S. Saito (Nagoya U.), Y. Miyoshi, and K. Seki

10:40-11:00 break

(Chair: Saito)

11:00-11:25 Nonlinear wave-particle interaction in the radiation belts  
Y. Omura (Kyoto U.)

11:25-11:40 Study on characteristics of drift resonance between outer radiation belt electrons and a  
monochromatic Pc5 wave based on GEMSIS-RC and RB simulations  
K. Kamiya,(Nagoya U.), K. Seki, and S. Saito

11:40-11:55 Radiation belt electron precipitation induced by large amplitude EMIC rising-tone emissions  
Y. Kubota and Y. Omura (Kyoto University)

11:55-12:10 Three-step development of the 17 March 2015 magnetic storm observed by Van Allen Probes  
K. Keika (Nagoya U.), Y. Miyoshi, S. Machida, M. Nosé, K. Seki, L. J. Lanzerotti, A. Gerrard,  
D. G. Mitchell, and M. Gkioulidou

12:10-13:20 lunch

(Chair: Oyama)

- 13:20-13:45 EISCAT\_3D Project Status  
C. J. Heinselman (EISCAT Scientific Association)
- 13:45-14:10 The EISCAT\_3D Project in Norway  
C. La Hoz (Arctic U. Norway)
- 14:10-14:25 MMS and EISCAT observations of dayside ionospheric flow bursts  
A. Ieda (Nagoya U.), Y. Ogawa, S. Oyama, N. Kitamura, Y. Saito, H. Hasegawa, S. Taguchi,  
T. Hori, and the MMS team
- 14:25-16:00 poster session

(Chair: Ieda)

- 16:00-16:25 Ground-satellite measurements of geospace phenomena at subauroral latitudes  
K. Shiokawa (ISEE, Nagoya U.)
- 16:25-16:40 Near-Earth magnetotail and auroral arc development associated with substorm onset:  
A new interpretation of substorm triggering  
Y. Miyashita (Nagoya U.), Y. Hiraki, V. Angelopoulos, A. Ieda, and S. Machida
- 16:40-17:05 Recent Advances in Integrated Geospace Research with the SuperDARN Ground-Based HF Radar  
Network  
J. H. Ruohoniemi (Virginia Tech)
- 17:05-17:20 SuperDARN Hokkaido radar observations of geospace dynamics  
N. Nishitani (Nagoya U.) and T. Hori
- 17:20-17:35 Large-scale evolution of SI-induced ionospheric flow transient as seen by SuperDARN  
T. Hori (Nagoya U.), A. Shinbori, S. Fujita, and N. Nishitani
- 18:00-20:00 banquet @Universal Club in Nagoya University

## **Macrh 24 (Thu)**

### **Session 3 Space Environment around Mars**

(Chair: Seki)

- 9:00-10:00 Keynote speech 3: MAVEN initial results  
B. Jakosky (LASP/U. Colorado)
- 10:00-10:25 A review of recent ground-based observations of Martian atmosphere  
H. Sagawa (Kyoto Sangyo U.) H. Maezawa, S. Aoki, and H. Nakagawa
- 10:25-10:40 Statistical analysis of O<sup>+</sup> ion beams reflected below the Martian bow shock  
Masunaga (U. YTokyo), K. Seki, D. Brain, X. Fang, Y. Dong, B. Jakosky, J. McFadden,  
J. Halekas, and J. Connerney
- 10:40-11:05 Martian atmospheric ion loss rates  
D. A. Brain (LASP/U. Colorado) Y. Dong, F. Eparvier, X. Fang, K. Fortier, B. Jakosky,  
E. Thiemann, J. McFadden, S. Curry, C. Dong, T. Hara, Y. Harada, R. Lillis, R. Livi, J. Luhmann,  
J. Halekas, J. Connerney, S. Bougher, Y. Ma, R. Modolo, and K. Seki

- 11:05-11:20 An MHD simulation study of the Kelvin-Helmholtz instability at the Martian ionopause with a day-to-night density gradient  
S. Aizawa (Tohoku U.), N. Terada, Y. Kasaba, and M. Yagi
- 11:20-13:00 poster session and lunch
- (Chair: Masunaga)
- 13:00-13:25 Regional coupling between lower and upper atmosphere revealed by MAVEN/IUVS and complementary study by Earth-based observations  
Nakagawa (Tohoku U.) A. Medvedev, C. Mockel, S. Jain, S. Evans, N. Schneider, T. Kuroda, N. Terada, K. Terada, K. Seki, S. Aoki, H. Sagawa, Y. Kasaba, K. Takami, I. Murata, G. Sonnabend, M. Sornig, M. Kagitani, T. Sakanoi, S. Okano, M. Taguchi, J. Kuhn, J. Ritter
- 13:25-13:40 Generation and propagation of gravity wave activities in Martian lower atmosphere simulated by a high-resolution GCM  
T. Kuroda (Tohoku U.), A.S. Medvedev, E. Yiğit, and P. Hartogh
- 13:40-13:55 Comparison of Martian Magnetic Pileup Boundary with Ion Composition Boundary Observed by MAVEN  
K. Matsunaga (Nagoya U.), K. Seki, D. A. Brain, T. Hara, K. Masunaga, J. P. McFadden, J. S. Halekas, D. L. Mitchell, C. Mazelle, and J. E. P. Connerney
- 13:55-14:20 First Results from MAVEN's Imaging UltraViolet Spectrograph  
N. Schneider (LASP/U. Colorado) and the MAVEN/IUVS Team
- 14:20-14:35 MAVEN observations of magnetic flux ropes around Mars  
T. Hara (SSL/UCB)
- 14:35-14:50 Outline of the Japanese Martian Space Weather and Climate Mission  
K. Seki (U. Tokyo), A. Matsuoka, A. Yamazaki, S. Yokota, T. Abe, T. Imamura, N. Terada, and Nozomi-2 working group
- 14:50-15:10 break

### **Session 1-2 Geoeffective Solar Activities**

(Chair: Shiota)

- 15:10-15:35 Recent progress in understanding solar flares and activities with Hinode observations  
T. Shimizu (ISAS/JAXA)
- 15:35-15:50 Study on Solar Flare Trigger Process Based on Satellite Observations  
Y. Bamba (Nagoya U. and ISAS/JAXA)
- 15:50-16:05 Hinode Flare Catalogue and statistical analysis of solar flare activities  
K. Watanabe (National Defense Academy of Japan) and S. Masuda
- 16:05-16:20 Research on Particle Acceleration in Solar Flares with Multi-Wavelength Data Analysis  
S. Masuda (Nagoya U.), V. F. Melnikov, and the GEMSIS-Sun members
- 16:20-16:35 Solar radio telescope AMATERAS: 6 years operation and science results  
K. Iwai (NICT), H. Misawa, F. Tsuchiya, Y. Katoh, K. Kaneda, S. Masuda, Y. Miyoshi, and T. Obara

16:35-17:00 The SOLAR-C Mission  
H. Hara (NAOJ)

## Macrh 25 (Fri)

### Session 4 Space Plasma Physics and Magnetospheric Dynamics: from Geotail to MMS

(Chair: Machida)

- 9:00-10:00 Keynote speech 4: Space plasma physics and magnetospheric dynamics: from Geotail to MMS  
T. E. Moore (GSFC/NASA), J. L. Burch, and The MMS Science Working Group
- 10:00-10:15 Effects of the plasma boundary structure with a density gradient on the Kelvin-Helmholtz instability  
K. Seki (U. Tokyo), Y. Matsumoto, N. Terada, T. Hara, N. Kitamura, Y. Saito, M. Fujimoto, et al.
- 10:15-10:30 Global MHD simulation study of the vortex at the magnetopause boundary for the southward IMF  
K. S. Park (ChungBuk National U.), D-Y. Lee, T. Ogino, D-H. Lee, and K-H. Kim
- 10:30-10:55 Structure of Earth's magnetopause during quasi-continuous extended magnetic reconnection: Geotail and MMS conjunction  
H. Hasegawa (ISAS/JAXA), N. Kitamura, Y. Saito, I. Shinohara, S. Yokota, T. Nagai, S. Zenitani, and the MMS team
- 10:55-11:15 break

(Chair: Hori)

- 11:15-11:40 Particle dynamics and nongyrotropic distribution functions in collisionless magnetic reconnection  
S. Zenitani (NAOJ), I. Shinohara, T. Nagai, and T. Wada
- 11:40-11:55 Response of the incompressible ionosphere to the compression of the magnetosphere during the geomagnetic sudden commencements  
T. Kikuchi (Nagoya U. and Kyoto U.), K. K. Hashimoto, I. Tomizawa, Y. Ebihara, Y. Nishimura, T. Araki, A. Shinbori, B. Veenadhari, T. Tanaka, and T. Nagatsuma
- 11:55-12:10 Long-term variation of ionospheric electric field estimated from the amplitude of geomagnetic solar quiet daily variation  
A. Shinbori (Kyoto U.), Y. Koyama, M. Nose, T. Hori, and Y. Otsuka
- 12:10-12:40 Summary

### Poster presentations

- P01 An empirical modeling of the trapped energetic protons from solar cell output variation of the Akebono satellite  
W. Miyake (Tokai U.), Y. Miyoshi, and A. Matsuoka
- P02 Preflight tests of Medium-Energy Particle analysers onboard ERG  
S. Kasahara (ISAS/JAXA), S. Yokota, T. Mitani, K. Asamura, T. Takashima (ISAS), M. Hirahara, and K. Yamamoto

- P03 Loading Relativistic Maxwell Distributions in Particle Simulations  
S. Zenitani (NAOJ)
- P04 Statistical analysis of magnetosonic mode waves from Van Allen Probes observations  
K. Nomura (Nagoya U.), Y. Miyoshi, K. Keika, M. Shoji, S. Kurita, S. Machida, N. Kitamura,  
O. Santolik, C. Kletzing, S. A. Boardsen, and Y. Kasahara
- P05 Relativistic electron microbursts and local acceleration of MeV electrons by chorus during the 8-9 October  
2012 storm: SAMPEX and Van Allen Probes observations  
S. Kurita (Nagoya U.), Y. Miyoshi, J. B. Blake, and G. D. Reeves
- P06 Development of Data Analysis Software SPEDAS  
N. Umemura (Nagoya U.), Y. Miyoshi, Y. Tanaka, T. Hori, Y. Miyashita, K. Keika, M. Shoji, K. Seki,  
T. Segawa, A. Shinbori, S. Abe, M. Yagi, S. UeNo, Y. Koyama, Y. Sato, and SPEDAS Development Team
- P07 Relativistic electron precipitation induced by EMIC triggered emissions based on hybrid code simulation  
M. Shoji (Nagoya U.) and Y. Omura
- P08 Ionospheric variations measured with the EISCAT radar in the vicinity of nightside poleward expanding  
aurora after substorm onset  
S. Oyama (Nagoya U.), Y. Miyoshi, K. Shiokawa, J. Kurihara, T. T. Tsuda, and B. J. Watkins
- P09 Global evolution and propagation of electric fields during sudden impulses based on multi-point  
observations  
N. Takahashi (Tohoku U.), Y. Kasaba, Y. Nishimura, A. Shinbori, T. Kikuchi, T. Hori, and N. Nishitani
- P10 Rapid acceleration of outer radiation belt electrons with interplanetary pressure pulse :Code coupling of  
GEMSIS-RB and GEMSIS-GM  
M. Hayashi (Nagoya U.), Y. Miyoshi, S. Saito, Y. Matsumoto, K. Keika, T. Hori, T. Amano, K. Seki,  
and S. Machida
- P11 Kinetic Simulation Approach to Magnetospheric Ring Current Dynamics  
T. Amano (U. Tokyo), K. Seki, and Y. Miyoshi
- P12 Study of whistler-mode wave-particle interactions at oblique angles by utilizing gyro-averaging method  
Y. Hsieh (Kyoto U.) and Y. Omura
- P13 Wave-Particle Interaction Analyzer for Detection of Nonlinear Pitch Angle Scattering  
M. Kitahara (Tohoku U.) and Y. Katoh
- P14 Study of the magnetic storm phase dependence of the inner boundary of the plasma sheet electrons based on  
THEMIS satellites observations  
K. Ohki (Tohoku U.), A. Kumamoto, Y. Katoh
- P15 Energetic electron precipitation into the atmosphere at auroral and sub-auroral latitudes during storm and  
substorm periods: Low frequency radio transmitter observation in north Europe and America  
F. Tsuchiya (Tohoku U.), T. Obara, H. Misawa, T. Sakanoi, Y. Miyoshi, K. Shiokawa, Y. Ogawa,  
M. Connors, and D. Hampton
- P16 Three-dimensional MHD simulation of the interaction between the solar wind and CMEs in coronal region  
M. Shiota (Nagoya U.), D. Shiota, and K. Kusano
- P17 Solar wind response of Jupiter's magnetosphere uncovered by continuous monitoring of auroral emission  
with Hisaki satellite  
T. Kimura (RIKEN), H. Kita, C. Tao, K. Yoshioka, G. Murakami, A. Yamazaki, F. Tsuchia,  
and Hisaki science team

- P18 Effects of ion-ion and electron-neutral collisions on vertical distribution of CO<sub>2</sub><sup>+</sup> in Martian ionosphere based on multi-fluid MHD simulations  
K. Koyama (Nagoya U.), K. Seki, N. Terada, and K. Terada
- P19 Planetary Environment Studies executed by a Small Telescopes Dedicated to Planets and Exoplanets at Haleakala, Hawaii  
Y. Kasaba (Tohoku U.), T. Sakanoi, M. Kagitani, H. Nakagawa, H. Kita, I. Murata, T. Obara, S. Okano, M. Yoneda, J. Kuhn, and S. Berdyugina
- P20 The improvement of solar wind velocity model in SUSANOO-SW  
T. Ishida (Nagoya U.), D. Shiota, and K. Kusano
- P21 Development of a global ionospheric potential solver: GEMISIS-POT  
A. Nakamizo (NICT), A. Ieda, Y. Hiraki, T. Hori, Y. Miyoshi, K. Seki, T. Kikuchi, Y. Ebihara, and A. Shinbori
- P22 Forecast of AU/AL index with real time data assimilation  
R. Yamamoto (Nagoya U.), Y. Miyoshi, S. Machida, G. Ueno, Y. Miyashita, M. Nose, and D. Shiota
- P23 Nearly simultaneous observations of southward reconnection jet at the magnetopause by Geotail and MMS under southward IMF conditions  
N. Kitamura (ISAS/JAXA), H. Hasegawa, Y. Saito, I. Shinohara, S. Yokota, T. Nagai, and the MMS team
- P24 Solar zenith angle dependence of composition, velocity and temperature of ion outflows  
N. Kitamura (ISAS/JAXA), K. Seki, K. Keika, Y. Nishimura, T. Hori, and E. J. Lun
- P25 Direct measurement of wave-particle interactions by WPIA onboard ERG satellite  
M. Hikishima (ISAS/JAXA), H. Kojima, Y. Katoh, T. Takashima, K. Asamura, Y. Kasahara, S. Kasahara, T. Mitani, N. Higashio, Y. Miyoshi, and I. Shinohara
- P26 Dependencies of the generation process of whistler-mode chorus on the kinetic energy of anisotropic electrons in the Earth's inner magnetosphere  
Y. Katoh (Tohoku U.), Y. Omura, Y. Miyake, H. Usui, and H. Nakashima
- P27 Comparative study of proton and oxygen ion supply into the inner magnetosphere during a geomagnetic storm  
K. Mitani (Nagoya U.), K. Seki, K. Keika, L. J. Lanzerotti, M. Gkioulidou, D. G. Mitchell, and C. A. Kletzing
- P28 Investigation of solar energetic particle events based on development of a new HF-VHF radio observation system  
H. Misawa (Tohoku U.), F. Tsuchiya, T. Obara, K. Kaneda, H. Kashiwagi, S. Masuda, Y. Miyoshi, D. Shiota, and K. Iwai
- P29 Investigations on spatio-temporal characteristics of pulsation aurora based on ground-based observations  
T. Nishiyama (NIPR), Y. Miyoshi, T. Sakanoi, Y. Katoh, and R. Kataoka
- P30 Sodium LIDAR observations above Tromso  
S. Nozawa (Nagoya U.), S. Takita, T. Hibino, T. Kawabata, A. Mizuno, N. Saito, S. Wada, T. T. Tasuda, T. Takahashi, T. Kawahara, H. Fujiwara, and Y. Ogawa

## **Wireless LAN Network Setting**

Follow the procedure below to set up wireless LAN network.

Please connect to SSID "nuwnet"

and complete the connection the browser login.

Make encryption inactive.

Please enter Guest User ID and passwd which you can get in the reception.