Wednesday, November 20

09:30 – 10:00  **Opening Session**

10:00 – 10:50  **Plenary Talk**

**Current Status and Future Vision of Hodoyoshi Microsatellites – Systems for Quick and Affordable Space Utilizations:**
Dr. Shinichi Nakasuka, University of Tokyo, Japan

10:50 – 11:10  **Break**

11:10 – 12:30  **Hodoyoshi Project Current Status**
Dr. Shinichi Nakasuka, University of Tokyo, Japan

1. **Micro/Nano-satellites On-board Software Framework Design and Its Implementation in Hodoyoshi Satellites:** J. Takisawa, S. Nakasuka, The Tokyo University, Japan; S. Kobayashi, T.N.L. Huong, S. Kimura, Tokyo University of Science, Japan;

2. **300 Mbps X band Communications from 50kg Class Small Satellites:** H. Saito, A. Tomiki, T. Mizuno, T. Fukami, ISAS/JAXA, Japan; N. Iwakiri, H. Watanabe, University of Tokyo, Japan; O. Shigeta, H. Nunomura, Al Electronics Co. Ltd., Japan; Y. Kanda, Antenna Giken Co. Ltd., Japan; K. Kojima, T. Shinke, Addnics Corporation, Japan; T. Kumazawa, TOYO Corporation, Japan

3. **New Ground Receiving System using Active Phased Array Antenna for Nano-Satellites:** N. Kaya, M. Iwashita, S. Ooe, S. Nakata, Kobe University, Japan

4. **Environment Monitoring of Fukushima and Chernobyl Areas using a Constellation of Micro Observation Satellites:** S. Yoshimoto, S. Nakasuka, A. Iwasaki, Y. Aoyanagi, University of Tokyo, Japan; A. Sakhatsky, S. Stankevich, Scientific Centre for Aerospace Research of the Earth, Ukraine; D. Bobro, State Agency of Ukraine on Exclusion Zone Management, Ukraine

12:30 – 14:00  **Lunch**
14:00 – 15:00  **Standardization and Regulatory Issues 1**  
Dr. Jordi Puig-Suari, California Polytechnic State University, USA  
Dr. Mengu Cho, Kyushu Institute of Technology, Japan

1. **Low-cost and Fast-delivery Verification Strategy for the Aalto-1 Nano-satellite Attitude Determination and Control System**: T. Tikka, Aalto University, Finland; F. Wedekind, B. Danziger, Berlin Space Technologies GmbH, Germany; M. Cho, Kyushu Institute of Technology, Japan

2. **Basic Research on Vibration Test Standardization for Small-scale Satellites**: A. Batsuren, T. Hatamura, H. Masui, M. Cho, Kyushu Institute of Technology, Japan

3. **Reliability Growth of Small-scale Satellites through Testing**: M. Cho, M. Ibrahim, Kyushu Institute of Technology, Japan

15:00 – 15:20  **Break**

15:20 – 16:40  **Standardization and Regulatory Issues 2**  
Dr. Joseph C. Casas, NASA/MSFC, USA  
Dr. Mengu Cho, Kyushu Institute of Technology, Japan

1. **Reliability Analysis and Risk Management of SwampSat**: B. Shiotani, K. Patankar, N. Fitz-Coy, University of Florida, USA

2. **Adapting Traditional Design Processes to the Student CubeSat Environment**: J. Puig-Suari, California Polytechnic State University, USA


16:40 – 17:00  **Break**

17:00 – 18:00  **Novel Missions and Applications 1**  
Dr. Mohammed Khalil Ibrahim, Cairo University, Egypt  
Dr. Hironori Sahara, Tokyo Metropolitan University, Japan

1. **Development of Binary Black Hole Observation Satellite "ORBIS"**: M. Masuda, K.
Nishi, H. Sahara, Tokyo Metropolitan University, Japan


3. **A Double CubeSat with an X Ray Detector for In Situ Environmental Measurements of QB50**: A.R. Aslan, M.E. Umit, Istanbul Technical University, Turkey; E. Kalemci, Sabanci University, Turkey; M. Ilarslan, Air Force Academy, Turkey

18:20 – **Symposium Reception**
Sanjo Conference Hall, University of Tokyo

### Thursday, November 21

09:00 – 10:00 **Education and Capacity Building**
Dr. Alim Rustem Aslan, Istanbul Technical University, Turkey
Ms. Rei Kawashima, UNISEC, Japan

1. **Activities of the United Nations Programme on Space Applications in Support of Space Education and Space Technology Development**: W. Balogh, United Nations Office at Vienna, Austria

2. **Educate Utilizing CubeSat Experience: Systematic Approach to Deliver STEAM Content**: D. Buckley, B. Shiotani, K. Patankar, N. Fitz-Coy, Y. Thakker, University of Florida, USA

3. **The first student nano-satellite of Kazakhstan**: G. Mutanov, A. Kaltaev, Z. Rakisheva, K. Alipbayev, A. Sukhenko, al-Farabi Kazakh National University, Republic of Kazakhstan

10:00 – 10:20 **Break**

10:20 – 11:40 **Novel Missions and Applications 2**
Dr. Werner Balogh, United Nations, Vienna, Austria
Dr. Ayumu Tokaji, University of Tokyo, Japan

1. **Horyu-V: The Space Environment Explorer**: M.M. Ibrahim, A. Batsuren, M. Alkali, M. Nori, P. Ammarin, P.e Faure, M. Cho, Kyuhsu Institute of Technology, Japan
2. **The Arctic Regional Communications SAtellites (ARCSAT):** J. Casas, W. Sims, D. Sanders, NASA Marshall Space Flight Center, USA; M. Kress, The Von Braun Center for Science & Innovation, USA; S. Spehn, HQ USEUCOM, USA, T. Jaeger, Novawurks Inc., USA

3. **Global Water Level Monitoring for Disaster Mitigation Using Data Collection Function of Micro-satellites:** A. Tokaji, S. Nakasuka, Y. Miyazaki, H. Sahara, R. Kawashima, K. Okuyama, T. Kondo, M. Matsui, T. Matsumoto, N. Kurahara, University of Tokyo, Japan

4. **CubeSat on an Earth-Mars Free-Return Trajectory to study radiation hazards in the future manned mission:** J. Vannitsen, J.J. Miau, J-C. Juang, National Cheng Kung University, Taiwan; B. Segret, CNRS, France

11:40 – 13:10 **Lunch**

13:10 – 14:10 **Data Processing and Infrastructure**  
Dr. Rainer Sandau, DLR, Germany  
Dr. Norihide Miyamura, Meisei University, Japan

1. **North Star – The Flexible, Green And Safe Sounding Rocket And Satellite Launch Service:** K. BLIX Dahle, T. Abrahamsen, Andoya Rocket Range AS, Norway; O. Verberne, Nammo Raufoss AS, Norway; J. Grande, NAROM AS, Norway

2. **Development of an automatic near-real-time image processing chain for small satellites:** K. Ostri, A. Marsetic, P. Pehani, T. Veljanovski, Research Centre of the Slovenian Academy of Sciences and Arts, Slovenia; M. Perse, Sinergise d.o.o., Slovenia; K. Zaksek, University of Hamburg, Germany; J. Zaletelj, T. Rodic, University of Ljubljana, Slovenia

3. **Development of University Ground Station for Nano Satellite Operation:** S. Aso, K. Fujisaki, H. Hirayama, K. Morishita, Kyushu University, Japan; T. Tokifuji, Micro Lab Co. Ltd., Japan; N. Kurahara, Y. Tsuruda, University of Tokyo, Japan

14:10 – 14:30 **Break**

14:30 – 15:50 **Earth and Space Science Missions**  
Sir Martin Sweeting, University of Surrey, UK  
Dr. Ryu Funase, University of Tokyo, Japan
1. **Compact Plasma Instrument (TeNeP) for Nano/Pico satellites:** K. Oyama, Y.W. Hsu, G.S. Jiang, W.H. Chen, C.Z. Cheng, National Cheng Kung University, Taiwan

2. **JUXTA : A New Probe of X-ray Emission from Jupiter and the Solar System:** Y. Ezoe, T. Ohashi, Tokyo Metropolitan University, Japan; T. Kimura, S. Kasahara, A. Yamazaki, K. Mitsuda, M. Fujimoto, JAXA, Japan; Y. Miyoshi, Nagoya University, Japan; G. Branduardi-Raymont, University College London, UK

3. **Cosmic Infrared Background and Zodiacal Light Measurements with Nano-Satellite:** S. Matsuura, M. Shirahata, K. Tsumura, Y. Sarugaku, F. Usui, N. Isobe, M. Kawada, JAXA, Japan; T. Arai, University of Tokyo, Japan; Y. Onishi, Tokyo Institute of Technology, Japan; M. Ishiguro, Seoul National University, Korea; T. Ootsubo, Tohoku University, Japan

4. **Establish of Gravitational Wave Astronomy with Gamma-Ray Burst and X-ray Transient Monitor:** D. Yonetoku, T. Murakami, Y. Wakashima, H. Yonemochi, S. Takata, H. Seta, K. Yoshida, A. Toyanago, Kanazawa University, Japan

15:50 – 16:10 **Break**

16:10 – 17:50 **Panel Discussion**

**Novel and Promising Space Utilizations Triggered by Micro/Nano-Satellites:**
Introductory presentation by Dr. Shinichi Nakasuka, University of Tokyo, Japan
Panel discussion with world leading researchers in the field of micro/nano-satellites (to be announced)

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**Friday, November 22**

09:00 – 10:00 **Satellite Architecture and Technologies 1**
Dr. Shinichi Kimura, Tokyo University of Science, Japan

1. **Small/nano satellites and SpaceWire, the high-speed onboard data link interface:** T. Yuasa, T. Takahashi, JAXA, Japan

2. **IITMSAT, An efficient nanosatellite bus design for a large payload:** A. Gulati, N. Sivadas, D. Kannapan, D. Koilpillai, H. Ramachandran, A. Gaurav, J. Mohanbai, A. Karat, Indian Institute of Technology Madras, India; S. Ansari, ISRO Satellite Centre
3. **Utilizing Low-Cost Linux Micro-Computer & Android Phone Solutions on Cube-Satellites**: A. Farid, October University for Modern Sciences & Arts, Egypt; A. Samy, A. Shalaby, A. Tarek, M. Ayyad, M. Assem, S. Amin, Cairo University, Egypt

10:00 – 10:20 **Break**

10:20 – 11:40 **Satellite Architecture and Technologies 2**

Dr. Herman Steyn, University of Stellenbosch, South Africa

Dr. Yasuyuki Miyazaki, Nihon University, Japan

1. **The QB50 CubeSat mission deployment system**: C. Bernal, ISIS, The Netherlands
2. **Use of piezo-motor technology in NovaDock, a separation mechanism for nano and micro satellites**: S. Ostoj-Starzewski, S. Balinov, NovaNano SAS, France
4. **NEMO-HD: HIGH-DEFINITION VIDEO AND MULTISPECTRAL IMAGING IN A SMALL PACKAGE**: L. Stras, J. Lifshits, S. Grocott, F. Pranajaya, R. Zee, University of Toronto, Canada

11:40 – 14:10 **Lunch & Laboratory Tour**

14:10 – 15:10 **Satellite Architecture and Technologies 3**

Dr. Saburo Matsunaga, JAXA/ISAS, Japan

2. **A Study on an Accurate yet Simple Attitude Estimation Scheme for Nanosatellites**: H.E. Soken, The Graduate University for Advanced Studies, Japan; S. Sakai, JAXA, Japan
15:10 – 15:30  Break

15:30 – 16:30  Satellite Architecture and Technologies 4


2. Magnetic plasma de-orbit (MPD) system using MTQs for nano-satellites: T. Inamori, R. Kawashima, H. Ohsaki, University of Tokyo, Japan; N. Sako, Canon Electronics Inc., Japan; P. Saisutjarit, King Mongkut’s University of Technology, Thailand

3. A Study and Analysis of MEMS based Attitude Determination for Nano-satellites using In-line Magnetic Sensing and Orbit Propagation for Sensor Fusion: M.I. Rashed, H. Bang, KAIST, Korea

16:30 – 18:00  Poster Session

18:00 – 18:15  Closing Session

895. Disaster Observation Concept by NSAT Formation Flying: A. Pimnoo, Kyushu Institute of Technology, Japan

904. The Advanced Instrumentation and Technology Centre: A Multi-sector Facility for Developing Australia’s Space Capability: N. Mathers, Australian National University, Australia

914. Supercapacitor: Testing it’s practicability as power storage unit of a nano-satellite: M. Alkali, Kyushu Institute of Technology, Japan

916. VNSC's participation in the STAR and UNIFORM program: Q. Trinh, Vietnam National Satellite Center, Vietnam
920. Ghana Space Science and Technology Institutes’ Cubesat Development Program: F. Agyemang, Ghana Space Science and Technology Institute, Ghana

934. Thermal distribution of typical structure specialized in 50cm class satellite: Y. Seri, Kyushu Institute of Technology, Japan

940. Thermal analyses of micro and nano satellites with deployable solar panel on Sun-synchronous and circular orbit by simple nodal method: T. Das, HOKKAIDO UNIVERSITY, Japan

941. Kenya One Space Association (KOSA): W. Abe, University of Nairobi, Kenya

942. Solar EUV Sensor for the Augmentation of the QB50 Mission: J-C. Juang, National Cheng Kung University, Taiwan

943. Design and Experiment of Three DoFs Small Satellite Ground Simulator: H. Yao, Tsinghua University, China

945. Intelligent satellite orbit and telemetry data monitoring for a nanosatellite: D. KUMARI, R.N.S.INSTITUTE OF TECHNOLOGY, INDIA

954. CubeSat Project for Space Technology Demonstration in Thailand: P. Saisutjarit, King Mongkut’s University of Technology North Bangkok, Thailand


955. Flexible appendage vibration attenuation by semi-active piezoelectric devices: S. Ma, Tsinghua University, China

957. A ground star sensor monocular system for small satellite simulator: Y. Wang, Tsinghua University, China

958. Distribution measurement of Nano-satellite components for shock level estimation: S. Kimoto, Kyushu Institute of Technology, Japan

959. Concept of a “marketing mission” using cubesat: M. Valdatta, University of Bologna, Italy

966. A Modified Steering Logic using Control Moment Gyros for Nano-Satellite TSUBAME: T. HAO, Tokyo Institute of Technology, JAPAN

972. New Approach for Nano Satellites Utilization: R. Ismail, Cairo University, Egypt

973. Overview of Nano/Micro Satellite for Environmental Testing in CeNT: H. Masui, Kyushu Institute of Technology, Japan

979. Electrical Design of Advanced Ionospheric Probe for the FORMOSAT-5 Satellite: Z-W. Lin, National Central University, Taiwan

980. Radiation test for Horyu3’s bus-system using Californium252: Y. Okumura, Kyushu Institute of Technology, Japan
984. Development of heat storage panel using a phase-change material encapsulated in a high-thermal-conductive CFRP for small satellites: K. Yamada, Nagoya University, Japan

985. Measurements and In-Orbit Demonstration on CubeSat VZLUSAT-1: V. Daniel, Vyzkumny a Zkusebni Letecky Ustav, Czech Republic

987. Performance Evaluation of Ground Station in Kyushu University: H. Hirayama, Kyushu University, Japan

988. Jitter reduction of a reaction wheel by using magnetic torquers in nano- and micro-satellites: K. Yoosin, King Mongkut's University of Technology North Bangkok, Thailand

997. Miniaturization of plasma wave receiver system for future space missions: H. Kojima, Kyoto University, Japan

998. Development of a shock test method suitable for Nano-Satellites; Performance evaluation: T. Hatamura, Kyushu Institute of Technology, Japan


1004. A Nanosatellite Mission to Study Charged Particle Precipitation from the Van Allen Radiation Belts caused due to Seismo-Electromagnetic Emissions: N. Sivadas, Indian Institute of Technology Madras, India

1013. Heat Storage Material without Phase Change for Nano Satellite: T. Totani, Hokkaido University, Japan


1022. Design and verification of BUAA-SAT UHF/VHF ground station: W. Zhang, Beihang University, China

1033. 2nd Iteration Cairo University Cube-Satellite: S. Amin, Cairo University, Egypt

1038. Attitude Dynamics of Nano-Satellite due to Full Orbit Perturbations: M. Ibrahim, King Fahd University of Petroleum and Minerals, Kingdom of Saudi Arabia

1045. International Standard on Design Qualification and Acceptance Tests of Small-scale Satellite and Units Seeking Low-cost and Fast-Delivery; Introduction of Working Draft: M. Cho, Kyushu Institute of Technology, Japan

1051. Hands-on Practice for CanSat Leader Training Program: N. Kohtake, Keio University, Japan