

2010 Joint Conference on Satellite Communications(JC-SAT 2010)

October 28-29, 2010
Gyeongju TEMF Hotel, Gyeongju-city, Korea

Organized by

Korea Society of Space Technology, Korea (KOSST)
Technical Committee on Satellite Communications, IEICE, Japan

Co-Sponsored by

ETRI KARI KT SKT KORPA
IEEE VTS Japan Chapter, AIAA Japan Forum on Satellite Communications

Invitation to JC-SAT 2010

As a wireless communication with wide area signal coverage, satellite is still the most expected infrastructure candidate for global ubiquitous services.

For this reason, needs for the technical progress in the satellite communication and information gathering by satellite is growing and challenging.

The intention of JC-SAT 2010 is to provide a forum for satellite technical society and their members in Asia region in order to exchange technology information, to encourage the research and development efforts of all participants through presentation and discussions.

We sincerely hope that the JC-SAT 2010 will be opportunity to maintain a close cooperative relation in satellite and its application fields.

October, 2010

Jae MOUNG Kim, Ph.D., President of KOSST, Korea
Nei Kato, Ph.D., Chairman of SC Committee, IEICE, Japan

Session Theme At a Glance

| Date | Time | Session Theme |
|---------------------------|------------------|--|
| Thursday 28 October | 09:30-11:40(130) | Opening Session <i>Chair : Won Chan Jung(ETRI)</i> |
| | 11:40-13:00(80) | Lunch Break |
| | 13:00-14:00(60) | Satellite Communication Systems and Applications <i>Chair : Nei Kato (Tohoku Univ.)</i> |
| | 14:00-14:30(30) | Break |
| | 14:30-15:50(80) | Satellite Transponder and Communication Equipment-1 <i>Chair : Naoto Kadowaki(NICT)</i> |
| | 15:50-16:00(10) | Break |
| | 16:00-17:20(80) | Satellite Transponder and Communication Equipment -2 <i>Chair :Jae-hyun Lee(Chungnam Univ.)</i> |
| | 17:40-18:30(50) | Reception <i>Hosted by AP Systems INC.</i> |
| Friday 29 October | 09:00-10:20(80) | Satellite Communications Network and Equipment-1 <i>Chair : Takadoshi Sugiyama(NTT.)</i> |
| | 10:20-10:30(10) | Break |
| | 10:30-11:50(80) | Satellite Communications Network and Equipment-2 <i>Chair : Yong Min Lee(ETRI)</i> |
| | 11:50-13:00(70) | Lunch Break |
| | 13:00-14:30(90) | Standardization and Frequency Assignment Technology-1 <i>Chair : Hiromitsu Wakana(NICT)</i> |
| | 14:30-14:40(10) | Break |
| | 14:40-15:40(60) | Standardization and Frequency Assignment Technology-2 <i>Chair : Woo Kyung Lee(KAU Univ.)</i> |
| | 15:40-15:50(10) | Break |
| | 15:50-17:30(100) | Satellite Operation <i>Chair : Sanguk Lee (ETRI)</i> |
| | 17:30-17:40(10) | Closing Session <i>Chair : Sanguk Lee (ETRI)</i> |

JC-SAT 2010 Program

| Date | Time | Topic | Authors / Company |
|------------------------------------|--|---|--|
| Day 1 Thursday 28 October | Morning Opening Session | | |
| | Satellite Programs: Current Status and Future Plans | | Chair : Won Chan Jung /ETRI |
| | 09:30-09:40 | Opening Remarks | Jae MOUNG Kim (Inha Univ.) |
| | 09:40-09:50 | Opening Remarks | Nei Kato (Tohoku Univ) |
| | 09:50-10:20 | Keynote-1 Satellite Technology Development Status and Plan in KOREA | Ho-Jin Lee (ETRI) |
| | 10:20-10:50 | Keynote-2 BROADBAND SATELLITE COMMUNICATIONS - PAST AND FUTURE - | Takashi Iida (Tokyo Metropolitan Univ.) |
| | 10:50-11:00 | Break | |
| | 11:00-11:20 | Present Status of NICT's Satellite Communications Experiments | Hiromitsu Wakana, Ryutaro Suzuki Naoto Kadowaki (NICT) |
| | 11:20-11:40 | Ka band Communication Payload System Technology of COMS | Seong Pal LEE, Jin Ho Jo, Moon Hee You, Jang Sup Choi, Ki Bum Ahan (ETRI) |
| | 11:40-13:00 | Lunch | |
| | Afternoon Session-1 Satellite Communication systems and applications | | Chair : Nei Kato /Tohoku Univ. |
| | 13:00-13:20 | Pilot Project to Bring Telecommunication Infrastructure using VSAT in Rural and Remote Area | Naoki Fuke, Yuki Umezawa (*KDDI,+KDDI Foundation) |
| | 13:20-13:40 | Candidates for Space Environment Monitoring Instrument for A Geosynchronous Satellite | Kwangsun Ryu, Jae Woo Park, Cheol-Oh Jeong, Jin-Wook Han, Seok-Hee Bae(KAIST/ETRI/RRA) |
| | 13:40-14:00 | Satellite Communications System for Next Generation Marine Observation | Naoto Kadowaki*, Ryutaro Suzuki*, Hiromitsu Wakana*, Takashi Takahashi*, Hiroshi Yoshida+, Kenichi Asakawa+, Takafumi Kasaya+, Yasuhisa Ishihara (*NICT+JAMSTEC) |
| | 14:00-14:30 | Break | |
| | Afternoon Session-2 Satellite Transponder and Communication Equipment | | Chair : Naoto Kadowaki /NICT |
| | 14:30-14:50 | Optical Sensor Support Structure for Geo-stationary Satellite | Chang-Ho Kim, Kyung-Won Kim, Sun-Won Kim, Jae-Hyuk Lim, Do-Soon Hwang (KARI) |
| | 14:50-15:10 | Optimum Amplifier Selection Method of Array Feed Element for Minimizing Power Consumption | Takayuki Nakanishi, Kazunari Kihira, Tamotsu Nishino, Yoshihiko Konishi (Mitsubishi Electric) |

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| Day 1 Thursday 28 October | 15:10-15:30 | Multi-Band Satellite Antenna | Chi-Hyun Cheong, Hye-Mi Jeong, Kun-Woo Kim, Ki-Hyoung Bae, Hyun-Sik Tae, Evt'yushkin Gennadiy (SAMSUNG THALES Co.) |
| | 15:30-15:50 | Layered Turbo Codes Combined with Space Time Codes for Satellite Systems | Youngmin Kim, Sooyoung Kim (Chonbuk Univ.) |
| | 15:50-16:00 | Break | |
| | Afternoon Session-3 Satellite Transponder and Communication Equipment | | Chair: Jae-hyun Lee/Chungnam Univ. |
| | 16:00-16:20 | Hardware Efficient Hybrid Logarithmic Approach For RRC filter Design in DVB-S2 Receiver | Vikas Agarwal, Pansoo Kim, Deock-Gil Oh (ETRI) |
| | 16:20-16:40 | Performance of DVB-S2 System in a Nonlinearly Amplified Land Mobile Satellite Channel | Soonki Jo, Seunghwan Choi, Hyun Sik Kim, Jong-Soo Seo (Yonsei Univ.) |
| | 16:40-17:00 | Synchronizing Schemes for Layered Streams of MPEG-4 SVC Signal Over Satellite Broadcasting Network Using Two Independent RF Channels | TanBao Huynh, Won Sohn (Kyung Hee Univ.) |
| | 17:00-17:20 | Development of High performance ERC32 Processor Emulator based on Dynamic Translation Emulation Method | Jong-Wook Choi, Jae-Seung Lee, Seung-Eun Yang, Yee-Jin Cheon (KARI) |
| Day 2 Friday 29 October | 17:40-18:30 | Reception | Hosted by AP Systems Inc. |
| | Morning Session-1 Satellite Communications Network and Equipment | | Chair : Takatoshi Sugiyama /NTT |
| | 09:00-09:20 | Analysis of faceted-reflector Antenna | Changsoo Kwak, Mansoek Uhm, Inbok Yom (ETRI) |
| | 09:20-09:40 | Design of S-band Multi-beam Large Reflector Antenna for Satellite Payload | Sohyeun Yun, Mansuk Uhm, Inbok Yom (ETRI) |
| | 09:40-10:00 | Characterization of Packet Losses and Delays in Multi-Layered Satellite Networks Over an Efficient Routing Scheme | Yuta Tada*, Hiroki Nishiyama*, Naoko Yoshimura+, Nei Kato* (*Tohoku Univ. +NICT) |
| | 10:00-10:20 | The Random Access Procedure for a LTE based satellite Radio Interface | Seunghyun Nam, Heewook Kim, Tae Chul Hong, Kunseok Kang, Bon Jun Ku (ETRI) |
| | 10:20-10:30 | Break | |
| | Morning Session-2 Satellite Communications Network and Equipment | | Chair : Yong Min Lee/ETRI |
| | 10:30-10:50 | Low power implementation of signal acquisition for Galileo E5a Signals | Myung Soon Kim, Seung Hyun Choi, Sang Uk Lee (ETRI) |
| | 10:50-11:10 | Carrier Recovery Algorithms for High Efficient Satellite Return Link Transmission | Jae Hee Han, Pansoo Kim, Deock Gil Oh (ETRI) |
| | 11:10-11:30 | A satellite control system and results of tracking operations for a very-low-earth-orbit satellite HAYATO | Yuji Harada*, Masanori Nishio*Kagoshima Univ. Yuji Sakamoto+ (*Kagoshima Univ. Tohoku Univ.) |
| | 11:30-11:50 | Development of a pico-satellite with a compact Ku-bund transmitter | Shinichi Teshima*, Masanori Nishi* Tsutomu Tokifuji+ (*Kagoshima Univ. +Microlab) |
| | 11:50-13:00 | Lunch | |

| Date | Time | Topic | Authors / Company |
|----------------------------------|--|--|--|
| Day 2 Friday 29 October | Afternoon Session-1 Standardization and Frequency Assignment Technology | | Chair : Hiromitsu Wakana /NICT |
| | 13:00-13:30 | Standardization Activities on Satellite Communication Systems within ITU-R | Hiroyo Ogawa (ARIB) |
| | 13:30-13:50 | Application of Dynamic Channel Assignment to Satellite/Terrestrial Integrated Mobile Communication Systems | Masahiro Umehira, Teruyuki Miyajima (Ibaraki Univ.) |
| | 13:50-14:10 | The Effective Frequency Sharing using Cognitive Radio in GSO Satellite Network | Wonsik Jung, Sungjeon Jang, Bongmin Jeong, Jae Mounng Kim (Inha Univ.) |
| | 14:10-14:30 | Frequency Utilization Enhancement using Spectrum Editing Type Bandwidth Decomposition Applicable to Existing Satellite Modem | Jun-ichi Abe, Fumihiro Yamashita Katsuya Nakahira, Kiyoshi Kobayashi (NTT) |
| | 14:30-14:40 | Break | |
| | Afternoon Session-2 Standardization and Frequency Assignment Technology | | Chair : Woo Kyung Lee/KAU Univ. |
| | 14:40-15:00 | Combined Gain of L-band Transmit Antenna in COMS | Joong Pyo Kim, Koon Ho Yang (KARI) |
| | 15:00-15:20 | A Effective New SLM method in DFT spreading OFDM system using Comb type pilot in jamming environment | Jangsu Kim, Heung-Gyoon Ryu, Seung-Jun Lee Dong-Kuk Ko (Chungbuk Univ./LIG) |
| | 15:20-15:40 | Dual-Band Bandpass Filter Based On Stepped Impedance Resonators | Ji-eun Lim, Min-hee Nam, Han-ol Choi, Jae-hyun Lee (Chungnam Univ.) |
| | 15:40-15:50 | Break | |
| | Afternoon Session-3 Satellite Operation | | Chair : Sanguk Lee/ETRI |
| | 15:50-16:10 | Mission Trajectory Design using Three-body Dynamics | Tae-Jin Chung (KAIST), Na-Young Lee (KARI) |
| | 16:10-16:30 | Operational Verification of the COMS Satellite Ground Control System for the First Three Month of In-Orbit Test Operations | Byoung-Sun Lee, In Jun Kim, Soojeon Lee, Yoola Hwang, Won Chan Jung, Jaehoon Kim, Hae-Yeon Kim, Hoon-Hee Lee, Sang-Cherl Lee, Young-Min Cho, Bang-Yeop Kim (ETRI/KARI) |
| | 16:30-16:50 | A Stabilization Design of Post regulation Power Systems for LEO Satellite | Seok Teak Yun, Young Jin Won, JinHoLee, Jin Hee Kim(KARI) |
| | 16:50-17:10 | Statistical analysis for the solar eruption effect on wireless communication | Jeong Hoon Kim, Moonhee You, Seok Hee Bae, Jin Wook Han (ETRI/RRA) |
| | 17:10-17:30 | Satellite Anomalies due to Space Environment Events | Jae Woo Park, Cheol-Oh Jeong (ETRI) |
| | Closing Session | | Chair : Sanguk Lee/ETRI |
| | 17:30-17:35 | Closing Remarks -1 from Japan (Incl. JC-SAT 2011 intro.) | Nei Kato(Tohoku Univ.) |
| | 17:35-17:40 | Closing Remarks -2 from Korea | Jong Won Eun(Namseoul Univ.) |

Registration Form

Yes, I want to participate in **JC-SAT 2010** Conference as below

| | | |
|--|--|---------|
| Name | English | Mr./Ms. |
| | Korean | |
| Company | | |
| Description | Speaker () Member () Non-Member () | |
| Telephone | | |
| E-mail | | |
| Reception Participation (28 Oct. 17:40-18:30) | Yes () No () | |
| Date : _____ | | |
| Applicant Name : _____ | | |
| Signature : _____ | | |

Please complete above form and return accompanied by your payment receipt to the secretariat office of the JC-SAT 2010.(FAX to 02-597-7399 or E-mail : kosst2@kornet.net.)

Registration fee should be paid to bank account No. 169-275129-13-001 of WOORI Bank under name of KOSST(통신위성우주산업연구회)

<Registration Rate>

| Participant | Pre-Registration | Onsite Registration | Remarks |
|-------------|------------------|---------------------|---|
| Speaker | Free | Free | Unit : Korean Won Pre-Registration limited by 25th October, 2010 |
| Member | 100,000 | 120,000 | |
| Non-Member | 150,000 | 200,000 | |
| Student | 50,000 | 60,000 | |

Information for Venue

- ◆ Name : Gyeongju TEMF Hotel(경주교육문화회관)
- ◆ Location : Addressed in 150-2 Shinpyong-dong, Gyeongju-city, Gyeongbuk, Korea
- ◆ Hotel Information and Reservation : www.temf.co.kr
<Tel> 054-745-8100 <FAX> 054-748-8394
- ◆ Hotel Room Rate : All of JC-SAT 2010 participants will be charged in special membership rate.(83,000Won per night included breakfast for 1)
- ◆ Transportation : From Busan(Gimhae) airport to TEMF Hotel, it takes approximately 1.5 hours. There are regular limousine services to the Gyeongju express bus terminal. From the bus terminal to the TEMF Hotel, it is recommended to take a taxi. It will cost approximately 13,000Won.

Reference

In the October season so many tourist visit Gyeongju city. Therefore all of participants will be required early reservation for air/train ticket and hotel rooms.

☎ Contact us, JC-SAT2010 Secretariat tel : +82-2-597-7396~8, E-mail ; kosst2@kornet.net, <http://www.kosst.or.kr>