



# THE 1<sup>ST</sup> INTERNATIONAL WORKSHOP ON SPACE SITUATIONAL AWARENESS

*in Republic of Korea*

Date : December 6-8, 2018

Venue : Yang Seung-Taek Auditorium (2F),  
Academic Cultural Complex (Library) (E9), KAIST, Daejeon

Hosted by : Department of Aerospace Engineering,  
Korea Advanced Institute of Science and Technology



## WELCOME MESSAGE

We would like to welcome you to the international workshop on space situational awareness, which will be held on December 6-8, 2018 in Daejeon at KAIST, Republic of Korea. The workshop is planned to cover various aspects of issues related to the space situational awareness. We have organized the workshop program with three main areas: "space object surveillance", "re-entry", and "space environment". Along with international as well as domestic speakers who have great experience and expertise in their respective fields of space situational awareness related research, we sincerely would like to produce activation of exchange for academic development and international human network.

We look forward to welcoming you at the workshop which will surely be of exciting and fruitful meeting with a full of joy and passion. Thank you very much for your great concern and support for this exciting event in December 2018.

Best regards,

Gisu Park, Jaemyung Ahn (organizing co-chairs)

Committee members :

Han-Lim Choi (program organizer), Jiyun Lee (program organizer), Hansohl Cho (program organizer)  
In Chul Moon (administration), Jae-Hung Han (advisory, department head)

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## PROGRAM SCHEDULE (DEC. 6-8)

### Day - 1 (Dec. 6, Thursday)

#### **Session : Space Object Surveillance** (Chair: Jiyun Lee)

09:00-09:30 (Jung Hyun Jo, Korea Astronomy and Space Science Institute (KASI), Korea)  
The Mission of the National Space Situational Awareness Organization

09:30-10:10 (Emmanuel Delande, The University of Texas at Austin, USA)  
Object Detection, Tracking and Classification for Improved Space Domain Awareness

10:10-10:50 (Daniel Kucharski, Space Environment Research Centre (SERC), Australia)  
The Contribution of Space Environment Research Centre to the Australian SSA Activity

10:50-11:10 (Break/Coffee)

11:10-11:50 (Stijn Lemmens, European Space Agency (ESA), Germany)  
Challenges of Space Surveillance Near the End of an Object's Orbital Lifetime

11:50-12:20 (Opening Remarks, Introduction to AE by Department Head)

12:20-14:00 (Lunch : KAIST Faculty Club (E5))

#### **Session : Re-entry** (Chair: Jaemyung Ahn)

14:00-14:30 (Eun-Jung Choi, Korea Astronomy and Space Science Institute (KASI), Korea)  
New Method for Re-entry Prediction of Uncontrolled Space Objects

14:30-15:10 (Stefan Löhle, University of Stuttgart, Germany)  
Experiments in Ground Testing Facilities for the Analysis of Re-entry Break-up Phenomena

15:10-15:50 (James Beck, Belstead Research Ltd., UK)  
Progress in the Understanding and Modelling of Destructive Re-entry

15:50-16:10 (Break/Coffee)

16:10-16:50 (Christophe O. Laux, CentraleSupélec, France)  
Reentry Studies at CentraleSupélec

16:50-17:30 (Pénélope Leyland, Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland)  
Reentry of Space Debris: Material by-product Emission Analyses and Design for Demise Issues

17:30-18:00 (Gisu Park, KAIST, Korea)  
Ground-tests and Re-entry Survivability Estimation of Blunt Body Objects



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## PROGRAM SCHEDULE (DEC. 6-8)

### Day - 2 (Dec. 7, Friday)

#### **Session : Space Environment** (Chair: Han-Lim Choi)

09:00-09:40 (Shigeru Aso, Kyushu University, Japan)

Research and Development of 50kg-class Micro Satellite QSAT-EOS (Tsukushi) in Kyushu University

09:40-10:20 (Alona Khaustova, Kharikiv Aviation Institute (KHAI), Ukraine)

Deorbitation of Small Space Objects Equipped with Stationary Plasma Thruster and Direct Power from Photovoltaic Batteries

10:20-11:00 (Mengu Cho, Kyushu Institute of Technology, Japan)

Effect of Space Weather on Satellite Mission

11:00-11:20 (Break/Coffee)

#### **Session : Re-entry** (Chair: Gisu Park)

11:20-12:00 (Thorn Schleutker, German Aerospace Center (DLR), Germany)

Re-entry Simulation and Demise Testing at DLR

12:00-12:40 (Ali Gülhan, German Aerospace Center (DLR), Germany)

Multibody Aerothermodynamics of Space Debris Fragments

12:40-14:00 (Lunch : KAIST Faculty Club (E5))

#### **Technical Discussion** (Chair: Jaemyung Ahn, Gisu Park)

14:00-16:00 (International Collaboration & Future Activities, Venue: Mechanical Eng. Bldg. (N7), Rm. 2503)

#### **Visit to KAIST Satellite Technology Research Center (SaTReC)**

16:00-18:00 (Host: Tae Seong Jang)

Introduction to SaTReC & Facility Tour

### Day - 3 (Dec. 8, Saturday)

09:30-16:30 (Cultural Tour, Traditional Korean Houses, Jeonju Hanok Village)

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## ORGANIZING COMMITTEE



**Prof. Gisu Park** (organizing co-chair)

Assistant Professor, Department of Aerospace Engineering (AE), KAIST  
 Research Area: Hypersonic Aerothermodynamics



**Prof. Jaemyung Ahn** (organizing co-chair)

Associate Professor, AE, KAIST  
 Research Area: Aerospace Systems, Science/Technology Policy



**Prof. Han-Lim Choi** (committee, program organizer)

Associate Professor, AE, KAIST  
 Research Area: Multi Agent Estimation and Control, Robotic Sensor Networks



**Prof. Jiyun Lee** (committee, program organizer)

Associate Professor, AE, KAIST  
 Research Area: Global Navigation Satellite System, Aircraft/Spacecraft Navigation



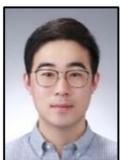
**Prof. Hansohi Cho** (committee, program organizer)

Assistant Professor, AE, KAIST  
 Research Area: Multiscale Mechanics of Solids, Materials and Structures



**Prof. Jae-Hung Han** (advisory, department head)

Professor, AE, KAIST  
 Research Area: Smart/Space Structures, Vibration Control, Flapping MAV



**Mr. In Chul Moon** (administration)

International Cooperation Officer, AE, KAIST  
 Area: Student Affairs, International Cooperation, Public Relations



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## ENQUIRY

Mr. In Chul Moon (Administration), Department of Aerospace Engineering, KAIST

☐ Contact : (+82) 042-350-3705

☐ Email : icmmic@kaist.ac.kr

## REGISTRATION

Registration fee : free entrance (program booklet provided)

## SYMPOSIUM VENUE

Yang Seung-Taek Auditorium (2F), Academic Cultural Complex (Library) (E9), KAIST,  
291 Daehak-ro, Yuseong-gu, Daejeon, Republic of Korea



Homepage : <http://www.kaist.ac.kr>