

The First UNISEC-Global Meeting

23 to 24 November 2013, Tokyo, Japan

Organized by University Space Engineering Consortium (UNISEC)
in cooperation with the University of Tokyo

Programme

Background

Our planet has no national boundaries as seen from outer space. Recent globalization has been demonstrated in many areas, such as financial markets, air pollution, and global warming. The University Space Engineering Consortium (UNISEC¹) believes that providing good educational opportunities to future generations worldwide will lead to a better future, as the resolution of global problems requires a cooperative effort. UNISEC has provided practical space engineering education since 2002 in Japan, and its activities have been spread to the rest of the world through international programs, such as the Mission Idea Contest (MIC²), CanSat Leader Training Program (CLTP³), and Nano-satellite Symposium, with warm support from many individuals and institutions in various regions around the globe. Under circumstances where university associations have been formed in several countries, UNISEC believes that it is now time to establish UNISEC-Global, where collaborative efforts will be facilitated beyond national boundaries, and to contribute to the development of solutions to global issues.

1. Objective of the 1st Meeting

Armed with more than ten years of experience in outreach activities in the field of space science and technology, UNISEC is pleased to announce its first UNISEC-Global Meeting. The meeting will include the MIC³ pre-proposal presentation sessions on Saturday, November 23, 2013. MIC is one of the main international activities and an indispensable element for the future UNISEC-Global organization. It is planned to declare the establishment of UNISEC-Global at the end of this meeting.

2. Venue: Takeda Hall, 5th Floor, the Takeda Bldg., Asano Campus, the University of Tokyo

3. Participants

The target audience includes international space technology experts and students, including from developing countries, involved with capacity building.

4. Language

The language used at the Meeting is English.

5. Organization for the 1st UNISEC-Global Meeting

✧ General Chairperson

Shinichi Nakasuka, the University of Tokyo, Japan

✧ Honorary advisors

Sir Martin Sweeting, Surrey Satellite Technology Ltd (SSTL); and Surrey Space Centre (SSC), UK

Rainer Sandau, International Academy of Astronautics (IAA)

✧ Programme Committee

A. Rüstem Aslan, Istanbul Technical University, Turkey

Werner Balogh, United Nations

Mengu Cho, Kyushu Institute of Technology, Japan

Rei Kawashima, UNISEC, Japan

Mohammed Khalil Ibrahim, Cairo University, Egypt

Shinichi Kimura, Tokyo University of Science, Japan

Masashi Miura, Tottori University, Japan

Yasuyuki Miyazaki, Nihon University, Japan

Harunori Nagata, Hokkaido University, Japan; and President of UNISEC Japan

Yohsuke Nambu, Osaka Prefecture University, Japan

Hironori Sahara, Tokyo Metropolitan University, Japan

Klaus Schilling, University Wuerzburg, Germany

Seiko Shirasaka, Keio University, Japan

Herman Steyn, Stellenbosch University, South Africa

Jordi Puig-Suari, Cal Poly, USA

Masahiko Yamazaki, Nihon University, Japan

Kazuya Yoshida, Tohoku University, Japan

✧ Members to Promote the Establishment of UNISON-Global

Yasuo Arai, Tokyo Metropolitan University, Japan

Misuzu Haruki, JAXA; former UNISON Student Representative (2011)

Takahiro Ito, Osaka Prefecture University, Japan; and former UNISON Student Representative (2011)

Ryuichiro Kanai, Hokkaido University, Japan; and former UNISON Student Representative (2012)

Keisuke Kondo, Tokai University, Japan

Ryusuke Konishi, Keio University, Japan; and UNISON Student Representative

Yuta Kusano, Tokai University, Japan

Mitsuhiro Masuda, Tokyo Metropolitan University, Japan

Azusa Muta, NEC Corporation, Japan; and former UNISON Student Representative (2011)

Kenji Nakajima, Tokyo Metropolitan University, Japan

Kentaro Nishi, Tokyo Metropolitan University, Japan

Shutaro Nishikizawa, Tokyo Metropolitan University, Japan

Jumpei Oguro, Tokai University, Japan

Takehiro Ohira, Tokyo Metropolitan University, Japan

Masaru Ohsaki, Tokai University, Japan; and UNISON Student Representative

Takeshi Sakuma, Tokyo Metropolitan University, Japan

Shingo Shimazaki, Nihon University, Japan; and UNISON Student Representative

Jun'ichi Takisawa, the University of Tokyo, Japan; and former UNISON Student Representative (2012)

Shizuku Tsukishima, Tokai University, Japan

Herbert Akihito Uchida, Tokai University, Japan

Masaki Watanabe, Tokyo Metropolitan University, Japan

✧ **Local Organizing Committee**

Etsuko Adachi, UNISEC Japan

Emiko Ando, UNISEC Japan

Michio Ozawa, UNISEC Japan

Takeo Tokiwa, UNISEC Japan

Note: The committees are listed in alphabetical order.

6. Sponsors and Partners

This meeting is financially supported by



Mitsubishi UFJ Foundation

Cooperated by

Office of National
Space Policy, Cabinet
Office, Government
of Japan



Supported by

United Nations Programme on Space Applications Basic Space Technology Initiative



International Academy of Astronautics

7. Tentative Programme

Master of Ceremony: Seiko Shirasaka, Keio University, Japan

Day1 - Saturday, 23 November 2013		
8:30 -9:00	Registration of participants	
9:00-9:50 Opening Session		
9:00-9:10	Opening and Introductory Remarks -- Background and objectives of the 1 st UNISEC-Global Meeting and Introduction of Sponsors and Cooperating Organizations	-Shinichi Nakasuka, General Chairperson of the 1 st UNISEC-Global Meeting; and University of Tokyo (Japan)
9:10 -9:15	Opening Remarks I	-Jordi Puig-Suari, Calpoly, (USA)
9:15-9:20	Special Remarks I	- Sir Martin Sweeting, Surrey Satellite Technology Ltd (SSTL); and Surrey Space Centre (SSC) (UK)
9:20-9:25	Special Remarks II	-Yoshinari Akeno, Cabinet Office, Government of Japan
9:25-9:30	Special Remarks III	-Werner Balogh, UN/OOSA
9:30-9:35	Special Remarks IV	-Hiroshi Nagano, Program Officer, Japan Science and Technology Agency
9:35-9:40	Special Remarks V	-Rainer Sandau, International Academy of Astronautics
9:40-10:20 Best Practice Reports on Space Engineering Consortium/Education		
9:40-10:00	UNISEC activities – Past, Present and Future	-Harunori Nagata, President, UNISEC Japan; and Hokkaido University (Japan)
10:00-10:10	UNISEC-Turkey	-A. Rüstem Aslan, Istanbul Technical University (Turkey)
10:10-10:20	UNISEC-Egypt	-Ayman H. Kassem, Cairo University (Egypt)
10:20 -10:40 Group-photo Chance		
10:40-12:00 Country Reports/Student Presentations – Part I (each 8min.x10 reports/presentations)		
10:40-10:50	Bangladesh	-Tilok Kumar Das, Hokkaido University And Tarekul Islam, Bangladesh University of Engineering and Technology (BUET) (Bangladesh)
10:50-10:58	Brazil	-Fernando Stancato, EMBRAER (Brazil)
10:58-11:06	Canada	-Terry Brennan, University Of Victoria (Canada)
11:06-11:14	Germany	- Klaus Schilling, University of Wuerzburg (Germany)
11:14-11:24	Ghana	-Aaron Yankey Antwi and Manfred Quarshie, All Nations University College, Koforidua (Ghana)
11:24-11:32	Italy	-Davide Rastelli, University of Bologna / NPC Spacemind (Italy)
11:32-11:40	Japan	- Ryusuke Konishi, Keio University; and UNISON Student Representative (Japan)

11:40-11:50	Korea	-Ji Hyun Park and In-Seuck Jeung, Seoul National university (Korea)
11:50-12:00	Mexico	-Rigoberto Reyes Morales, The National Autonomous University of Mexico and Blanca Rebollar Trejor, Mexican Space Agency (Mexico)
12:00-13:10 Welcome Lunch (at Foyer)		
13:10-18:00 Pre-Mission Idea Contest 3		
Moderator: Seiko Shirasaka, Keio University		
13:10-13:25	Pre- Mission Idea Contest 3(Pre-MIC3) Opening remarks- from the Chair of Review Team and Introductory Remarks --Overview of MIC and Pre-MIC3 -- Background and objectives	- Herman Steyn, Chair, the Review team of PreMIC3; and Stellenbosch University, South Africa
13:25-13:50	MIC Presentation #1 Microgravity Experiment Recovery Satellite (MERS)	-Terryll Brennan, Cass Hussmann Simon Moffatt and Devin Pelletier, University of Victoria, Canada -Sean Tuttle, The University of New South Wales at Canberra, Australia
13:50-14:15	MIC Presentation #2 6S Initiative (Satellites - Schools - Science - Simple - Space – Students)	-Joao Dallamuta, Dallamuta Consultoria, Brazil -Marcello Valdatta, Niccolo' Bellini, and Davide Rastelli, University of Bologna / NPC Spacemind, Italy
14:15-14:40	MIC Presentation #3 Utilizing Nano Satellites for water monitoring for Nile River	-Ahraf Nabil Rashwan, Cairo University, Egypt -Ayumu Tokaji, University of Tokyo, Japan
14:40-15:05	MIC Presentation #4 Monitoring Natural Disasters with Small Satellites	-Kristof Ostir, Space-SI, Slovenia, -Lori Solberg, DRD Ltd., Israel
15:05-15:20	MIC Presentation #5 PHASES: ultra-precise absolute flux spectroscopy of stars from space	-Carlos del Burgo, Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE), Mexico
15:20-15:50	Coffee/Tea break (at Foyer)	
15:50 -17:30	MIC Review at Room # 309 on the 3rd Fl. of Takeda Bldg. (Closed Session)	MIC Reviewer
15:50-17:30 Country Reports/Student Presentations – Part II (each 8min.x10reports/presentations)		
15:50-16:00	Mongolia	- Enkhjargal Natsagdorj and Tsolmon RENCHIN, National University of Mongolia-ITC-UNESCO (Mongolia)
16:00-16:08	Nigeria	-Obasi, Casmir Oluabuchukwu, Centre For Satellite Technology Development (CSTD) FCT Abuja Nigeria
16:08-16:16	Peru	-Manasses Antoni Mauricio, National University of Engineering (Peru)
16:16-16:24	The Philippines	-Stephanie Tumamos, Regulus Spacotech Inc. (The Philippines)
16:24-16:32	Russia	-Igor Belokonov, Samara Space Aerospace University (Russia)
16:32-16:40	Saudi Arabia	-Sultan Hasan AlSultan, Qassim University (Saudi Arabia)
16:40-16:48	Southern African Region	-Tadadjeu Sokeng Ifriky, Cape Peninsula

		University of Technology (Came loon/Southern African Region)
16:48-16:56	Taiwan R.O.C.	-Jordan Vannisten, National Cheng Kung University (Taiwan R.O.C.)
16:56-17:04	Tunisia	-Kamel Besbes, University of Monastir (Tunisia)
17:04-17:12	Bulgaria	-Plamen Dankov, Sofia University (Bulgaria)
17:12-17:30	QA Session	
17:30 - 18:00	Pre-MIC3 Announcement of the reviewer's final decision and Awarding Ceremony	MIC Reviewer
18:30 – 20:30 Standing Buffet Style Dinner Reception at “Dai-ni Shokudo (Second Student Cafeteria), Hongo Campus, the University of Tokyo <i>*Note: The place is usually used by UNISEC for reception.</i>		

Master of Ceremony: Shinichi Kimura, Tokyo University of Science, Japan

Day2 - Sunday, 24 November 2013

8:30-9:00	Registration of participants	
9:00-10:30	CanSat Education Session <i>Moderator: Mohammed Khalil Ibrahim, Cairo University, Egypt</i>	
9:00–10:00	CanSat Lecture <i>Note: including Q&A session</i>	-Shinichi Nakasuka, University of Tokyo (Japan)
10:00-10:10	Announcement of The 5 th CanSat Leader Training Program (CLTP5)	-Harunori Nagata, President, UNISEC-Japan; and Hokkaido University as CLTP5 Host Univ. (Japan)
10:10-10:20	Launch Announcement and Demonstration of CanSat Information Center Website	-Yasuyuki Miyazaki, Nihon University (Japan)
10:20-16:30	Small Group Discussion Session <i>Moderator: Shinichi Kimura, Tokyo University of Science, Japan</i>	
10:20-10:30	Introductory Remarks -Briefing (Overview, Background and objectives, Role of Moderator, Procedure, Schedule, Expectations, etc.)	-Rei Kawashima, UNISEC, Japan
10:30-11:15	Short Briefing on each Group Discussion	Moderators of each Group
10:30-10:35	Applications for “Store and Forward” communication	Ayumu Tokaji, University of Tokyo, Japan
10:35-10:40	Opportunities and challenges of a university satellite project.	Ertan Umit, Istanbul Technical University, Turkey
10:40-10:45	Micro-Satellite Constellation for Earthquake Precursor Study	Masashi Kamogawa, Tokyo Gakugei University, Japan
10:45-10:50	Successfully launching university satellites: From design to orbit	Roland Coelho, Cal Poly, USA
10:50-10:55	Open-Source Space Exploration	Ahmed Saieed - Mentor, Space Tech Program, BA Planetarium Science Center, Egypt
10:55-11:00	CanSat Activities in UNISEC	Ryusuke Konishi, Keio University, Japan
11:00-11:05	How to manage UNISON in each region/country and future possibility on UNISON-Global. (target participants:	Azusa Muta, NEC, Japan (UNISEC Student representative in 2011) and Takahiro Ito, Osaka Prefecture

	students)	University, Japan (UNISEC Student representative in 2011)
11:05-11:10	Ground Station Network (GSN) through UNISEC-Global network	Naomi Kurahara, Integral Systems Japan
11:10-11:15	CanSat and Rocket Collaboration	Ryuichiro Kanai, Hokkaido University, Japan
11:15-15:20	<i>Discussions by each small group (including lunch time)</i>	
15:00-15:45	<i>Coffee/Tea Break</i>	
15:45-16:30	<i>Presentations by each group</i> (each 5min x 9 Selected Speakers)	
16:30-17:00 <i>Concluding Session</i>		
<i>Moderator: Yasuyuki Miyazaki, Nihon University, Japan</i>		
16:30-16:45	Adoption of General Declaration	-Shinichi Nakasuka, General Chairperson of the 1st UNISEC-Global Meeting; and University of Tokyo (Japan)
16:45-16:55	Comments from participants	TBD
16:55-17:00	Closing Remarks	-Harunori Nagata, President, UNISEC-Japan; and Hokkaido University (Japan)

Note

- Congress Kit, Lunch, Coffee/Tea break during the Meeting and Reception Dinner on the 1st night (Nov.23) at Second Student Cafeteria will be provided by UNISEC.
- The Symposium Exhibition will be held at the same venue from November 20-24.
- Information in this document is subject to change without notice.
- This meeting is broadcasted through Ustream. <<http://www.ustream.tv/channel/unisec-global>>

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UNISEC Global Meeting mobile (Nov.18-25): 090-1114-9120
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**Abstracts of Country Report
for
The 1st UNISEC-Global Meeting**

November 23-24, 2013

Tokyo, Japan

A. Rüstem Aslan, Istanbul Technical University, Turkey

Presentation title:**LOCAL and GLOBAL UNISEC PROSPECTS IN TURKEY****Abstract:**

Based on collaboration meetings with Japan, held during late 2010, the first UNISEC activity in Turkey was the initialization of Union of Space Technology and Education (USTE) (UTEB in Turkish), in 2011. Formed with an initial agreement of 3 Istanbul Universities, USTE is aimed to create a strong collaboration of different universities to improve space technology and education activities, in Turkey. First meeting of USTE was held in November 2, 2011 in Istanbul Technical University, Turkey. Over 20 universities had attended to the meeting. A positive outcome of the meeting was the BeEagleSat project which is a QB50 double CubeSat (www.qb50.eu). Istanbul Technical University, Turkish Airforce Academy and Sabanci University joined together for its accomplishment. Various students are working on the project and gaining hands-on experience. The project continues on schedule and is expected to be launched by mid April 2015. Second USTE meeting was held in June 2013 at RAST conference in Istanbul and the third meeting is held on September 12, 2013, in Ankara. One of USTE's main goals is to seek government support in order to start new nano and/or micro sized student satellite projects, and/or join an international project, e.g. the Uniform of Japan. During the last meeting it is decided that, a several week course on CanSat development, as similar to CLTP, shall be held in Istanbul with the support of government bodies. The participants will be encouraged to take place in the Turkish CanSat competition to be organized following the CanSat schools. Another course on CubeSat development is foreseen to follow.

Academic Biography:

Prof. Dr. A. Rüstem Aslan has been the head of the Department of Astronautical Engineering at Istanbul Technical University (ITU) since 2004. He has also served as the Deputy Director of Rotorcraft Center of Excellence of ITU since 2003. Dr. Aslan received his BS and MSc from Aeronautical Engineering, at ITU. He completed the Diploma Course of the von Karman Institute(VKI) with a scholarship in 1986. He received his Ph.D. from VKI and Universite Libre de Bruxelles in 1991. The same year, he started working as an Assistant Professor in the Department of Astronautical Engineering of ITU. He became a full Professor in 1999. He worked as an adjunct professor at Old Dominion University, USA, between 2001 and 2002. Dr. Aslan is also IAF correspondent, National Panel Member for NATO CSO AVT and MIC Coordinator. Dr. Aslan's research interests include the design, analysis and development of pico- and nanosatellites, manned and unmanned rotorcraft systems, computational fluid dynamics, fluid mechanics and aerodynamics, and defense and education technologies. Dr. Aslan has authored or co-authored over hundred technical publications (full-length). He has directed about forty research projects that have been sponsored by various government funding agencies and industries. As a result of those projects there are currently 2 CubeSats in LEO.

Ayman H. Kassem, Cairo University, Egypt

Presentation title:

Toward Establishing UNISEC-Egypt: Space Engineering Education in Egypt

Abstract :

Space Engineering education in Egypt started around 1994 with high momentum. After the launch of the first Egyptian remote-sensing satellite (EgyptSat 1) in 2007, space education and research have been slowed down due to cancelation of satellite development program. In 2011, a faculty member in aerospace department, Cairo university, has joined the first Can-Sat Leader Training Program (CLTP1). After the completion of first CLTP, he established Can-Sat Training Program (CTP) in Cairo University. The first CTP was held in July, 2011 with seventeen participants. This was followed by the establishment of Space Systems Technology Laboratory (SSTLab) in August 2011 to provide hands-on training in space engineering. CTP program is now conducted bi-annually by SSTLab with participants from all Egyptian universities. Two more faculty member had taken (CLTP3) and start to include Can-Sat ideas in their curricula and capstone projects. The outcome of these projects was used to publicize space activities through internet, students' competitions and public events. A seminar and panel discussion about establishing UNISEC-Egypt were held in July, 2012 followed by short meetings with interested organizations. This paper will shed some light on what have been done to establish UNISEC-Egypt and what are our plans for the future.

Academic Biography :

I am a professor in Aerospace Department, Cairo University. I got my B.Sc. and M.Sc. in Aerospace Engineering from Cairo University in 1990 and 1993 respectively. I got my Ph.D. in 1998 from Old Dominion University, USA. I have joined Aerospace Department at Cairo University in 1998 as an assistant professor and he joined the research and training team for EgyptSat1 satellite project (1999-2002). From 2004 to 2011, I had joined Aerospace department at King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia. During my stay at KFUPM, I had developed the syllabi for the flight and space dynamics and control courses in the newly establishing Aerospace department.

My teaching and research interests include: Flight and Space Dynamics and Control, Modeling, Simulation, and Optimization. I have developed and taught 17 different courses. I have also published more than 40 scientific papers, one book, two book chapters and three patents.

Tilok Kumar Das, Hokkaido University, Bangladesh

Presentation title**Future Mission on Introduction of Space Engineering in Bangladesh****Abstract:**

A space system is a sophisticated field in Engineering, Science and Technology recently in the world. It is rapidly growing its dimension in all over the world because of its excellent, fast, and innovative services for human such as weather forecasting, mapping, earth observation, global change, communication etc. With the growth of space engineering in developed country, developing countries also can contribute in this field. Bangladesh, being a Developing and Resourceful Country, is still in its infancy in Space Science and Engineering. In this respect, UNISEC can help a lot in Bangladesh capacity building and promoting application of space technology especially nano-sat and micro-sat in managing natural resources and disaster risk reduction and mitigation. As the development of low-cost nano / micro-sat technology is progressing rapidly, Bangladeshi students and researchers can make good use of it. In this respect, local coordinator of Mission Idea Contest can make awareness program of huge potential of this technology so that university students and researchers get training in building CanSat, Micro-Satellite and apply in different fields of interests. Cansat Leader Training Program can be a good tool in this case and we could help to teach those curious students and researchers from experience of CLTP4. Expecting as a teaching assistance of CLTP5, more experience in Cansat fabrication and design can be achieved and that can be utilized in teaching of CanSat in Bangladesh.

Academic Biography:

I completed my Bachelor of Science in Mechanical Engineering from Chittagong University of Engineering and Technology, Chittagong, Bangladesh on July in 2010. After that I started working as a lecturer in the same university from September 2010. I had been working for 2 years in this university. Later I have got chance to pursue my Master Degree in Hokkaido University. I started studying my master degree in Hokkaido University from October 2012. By this time I completed Cansat Leader Training Program4 from Japan on August 2013. Now I am a graduate student in Hokkaido University.

Fernando Stancato, EMBRAER, Brazil

Presentation title:**Development of a Small Satellite Mission Idea Contest in Brazil****Abstract :**

It is presented the initiative to do in Brazil a Mission Idea Contest with the same format as have been done by UNISEC. In 2011 as done some lectures in different Institutes to divulgate the MIC 1 - First Mission Idea Content organized by the UNISEC in Japan.

Lectures was done at University of São Paulo and INPE and contacts with other universities that had or would like to have microsatellites activities been done inside their courses or withing the students. By the end of the year a group of professionals that belong of AAB - Brazilian Aerospace Association came to the idea to develop a competition with the same rules of UNISEC MIC contest to Brazilian applicants. The best three papers would present their results to a board of experts. The AAB would then select the best proposal and seek for funding and sponsors to implement the mission.

It was received five proposals and the winner was announced in November 2012.

Also all the participants was encouraged to send their proposals to UNISEC second MIC and four applied to it.

This initiative showed a good opportunity to motivate students and professionals to formulate and develop missions with small platforms.

Academic Biography:

Graduated, master and Phd in Mechanical Engineering in the University of São Paulo.

More than 20 years dedicated to develop space educational and outreach activities with students and professionals in Brazil.

Participated as a Brazilian delegate in the United Nations UNISPACE 3 and became a Brazilian representative on the Space Generation Advisory Council from 2000 to 2005.

Vice-Chair of SEOC - Space Education and Outreach Committee of the International Astronautical Federation from 2001 to 2007.

Nowadays working at Research and Development Department in EMBRAER and acting as a consultant to Brazilian universities wishing to develop space activities.

Plamen I. Dankov, Sofia University, Faculty of Physics, Bulgaria

Presentation title:

New opportunities for Bulgaria in the area of aerospace engineering and communications

Abstract:

Bulgaria has a serious experience in the space research area since 1972. After the increasing of the interest to the micro- and nanosatellites new opportunities appeared here in the area of the modern aerospace engineering. First of all, a new project has been financed from the government for building and launching of small Bulgarian LEO satellite. This allows to a small project team (an Aerospace cluster unifying the efforts of several Bulgarian universities and companies) to develop new practical experience in the area of small satellite design realization and independent planning of LEO satellite missions for Earth exploration from the near space. A special accent of this project will be the improving of the communication functions of similar type of satellites and an attempt for standardization. The second opportunity is the starting of education activity in this area. A new master program “Aerospace Engineering and Communications” has been established to “fill up the vacuum” in the modern aerospace engineering in Bulgaria. Finally, UNISEC-like activities started in the beginning of 2013 in order to activate the young people to join this area. The initial topics are: identifying the common problems in the unmanned vehicles, balloons and small satellites; satellite communications through movable Earth platforms, small plasma thrusters for satellite orbit maneuvers and safe discontinuance of the satellite missions, etc.

Academic Background:

P. Dankov is Assoc. Prof. in Microwave and Wireless Technique in the Faculty of Physics of Sofia University “St. Kliment Ohridski”, Bulgaria. He has established teaching of many courses in the area of RF electronics, Wireless Communications, Microwave & Wireless Technique and Measurements, Antennas, EMC in IC's, Mission Design of Small Aerospace Vehicles, etc. Currently he is the chair of two successful Master programs: “Wireless Networks and Devices” and “Aerospace Engineering and Communications”. He is also a scientific consultant in RaySat BG and Gilat Ltd. The research efforts of Dr. Dankov are focused on characterization of dielectric material properties and anisotropy; microwave measurements; RF planar devices, antennas and antenna arrays, electromagnetic 3D simulators, near-field measurements; EMC measurements, safety standards for microwaves; satellite communications, aerospace engineering and small satellites, etc. He has more than 130 papers in different journals and conference proceedings. Dr. Dankov is member of IEEE in 4 societies: MTT, A&P, I&M, Aerospace and Electronic Systems.

Terryl Brennan, University of Victoria, Canada

Presentation Title:**How to Grow Space Program in Canada****Abstract:**

In Canada, an engineer decided to act and create a program whereby students could gain experience and exposure to the world of Astronautic Engineering. Since its inception, the CSDC has brought hundreds of students into the world of satellite design. What was not anticipated by the creator is how much of an impact it would have on the community. Through partnerships between University and Colleges and through collaboration between businesses and Universities amazing innovation is possible. Learn about the grass roots innovation possible when a simple idea is enacted.

Academic Biography:

I have a diploma in Mechanical Engineering Technology from Camosun Collge. I am currently finishing requirements for a Bachelor of Engineering Degree from the University of Victoria. I am a member of UVic ECOSat, which is a team that builds and designs satellites for the Canadian Satellite Design Challenge.

Aaron Yankey Antwi

All Nations University College, Koforidua, Ghana

Presentation title:

Educational Launch of CanSat as Ghana's first step to space

Abstract :

The All Nations University College Intelligent Space Systems Laboratory Koforidua Ghana, is working like other universities around the world to make a difference in space engineering. By launching the first ever miniature CanSat in Ghana, our university has been able to ignite the passion of various individuals, organizations and institutions to appreciate and indulge in space engineering.

The ripples of the success of this momentous launch spread throughout the entire country, the sub-regions of West- Africa and beyond. On the 15th of May 2013 when CanSat was launched, various private and government institutions expressed their pleasant desire to join the match to space in diverse forms such as; emails, phone calls and even proposals for support. Thus, its effects have set the wheels in motion to bring the various components of space engineering together for a bigger and better space exploration in Ghana.

Finally, ANU-ISSL has taken the bold step to put appropriate mechanisms in place to setup an amateur ground station by end of the year and launch a cubesat in orbit by 2016. Currently, the lab is being equipped with various technical and other logistical support to make this vision in Ghana a reality.

Academic biography:

Aaron Yankey Antwi is a research fellow in the operations department of the All Nations University Intelligent Space System Laboratory (ANUC-ISSL) with a specialization in computer programming and applied electronics at All Nations University College Koforidua, Ghana. He is interested in Artificial Intelligence, Digital Signal Processing and general electronics (Digital and Analog). More specifically, his work examines the optimization and performance assessment of both soft and hardware installations. He holds a BSc in Telecommunications Engineering.

Quarshie Manfred, All Nations University, Ghana

Presentation title:

GHANA ON THE VERGE OF BEING NAMED IN THE LEAGUE OF SPACE SCIENCE

Abstract

15th May, 2013 marked a historic event in the area of space science with the launching of a miniature satellite called CanSat by the All Nations University College Space Science Laboratory which is a private institution in Ghana

the event which brought together policy makers in government, researchers, professionals from the industry and representations from the various media both locally and internationally. the occasion which was used to educate the general public on some of the benefits as a Country.

The laboratory which was established with an initial three projects within five years which will also be a step-step study of learning the various processes behind the technology and by so doing will have the needed human capacity in the field of satellite engineering.

The first project was to build and launch a miniature satellite called CanSat which has been build and launched served two purposes:

1. to use it as a first step in training engineers in space and satellite engineering
2. to also use it as national space and satellite awareness creation tool

the second project which is an Amateur Satellite Ground Station which is currently under construction and is expected to be commissioned in December 2013. once again it purpose will also train student and also to start monitoring satellites in orbit and the various challenges associate with them.

the final project is the development and building of Ghana's first 3 kg orbital Satellite (CubeSat) by the year 2016 which we intend to have it primary mission of observing the earth.

Academic biography

A graduate from Cape Peninsula University of Technology in Electrical and Electronics Engineering.

Have Successfully organized four workshops on Space and Satellite Technology in Ghana with the recent one being held in March 2013.

Currently the Director of ALL NATIONS UNIVERSITY COLLEGE Space and Satellite Programme with a Mandate to establish a laboratory for space activities.

Klaus Schilling, University Wuerzburg, Germany

Presentation title:

Towards Formations of Pico-Satellites - Technologies and Application Potential

Abstract:

A paradigm shift is emerging in spacecraft engineering from single, large, and multifunctional satellites towards cooperating groups of small satellites. Using modern miniaturization techniques, the UWE-Program (University Wuerzburg's Experimental satellites) implements complete satellites at a mass of just 1 kg to develop step by step the relevant technologies for pico-satellite formation flying.

In preparation of distributed multi-satellite systems, the team of Uni Wuerzburg has already operated two satellites in orbit, emphasizing core components for formation flying, like communication via Internet Protocols (UWE-1, launched 2005) and attitude determination (UWE-2, launched 2009). In 2013 attitude control (UWE-3) based on integrated magnetic torquers and one reaction wheel, as well as orbit control (UWE-4) by an electric propulsion system on basis of vacuum arc thrusters are prepared for demonstration in orbit. In parallel a network of cooperating international ground stations is promoted.

Distributed networked pico-satellite formations promise significant application potential for future satellite services in Earth and Space Weather observations based on multipoint measurements, as well as low cost telecommunication systems. This offers international cooperation opportunities to establish the multi-satellite space segment, as well as a related ground segment where worldwide partners contribute with low cost ground stations.

Academic Biography:

Prof. Dr. Schilling worked in space industry on design of interplanetary satellites (including HUYGENS to the Saturnian Moon Titan and ROSETTA for cometary exploration) before he became Ordinarius Informatics VII: Robotics and Telematics at University Würzburg. In parallel he is president of the company „Zentrum für Telematik e.V.“. At Stanford University he was Consulting Professor 2002-2006. His team realized and successfully operated the first German pico-satellite UWE-1 (University Wuerzburg's Experimental satellite) in 2005. He received 2012 an Advanced Grant from the European Research Council for networked satellites system control and was recipient of the Walter-Reis-Award for Innovations in Robotics 2008 and 2012. He is corresponding member of the International Academy of Astronautics.

Davide Rastelli, University of Bologna, Italy

Presentation title:
UNISEC advise in Italy

Abstract :

Currently, in Italy, the UNISEC activities is not enough publicized. Inside the University it is difficult to find information and even to know about its existence. The student had to find themselves information about UNISEC Activities. An example is that the Italian group that was in final for the MIC2 came to know about the MIC at SEMWO conference in Lithuania. Moreover, in Italy, there is not a strong cooperation network between universities, and for this, sometimes, interesting initiatives like UNISEC don't get the necessary attention. In addition, in Italy the lack of economic resources from the University means that they do not devote proper attention to educational hands-on programs, which are often the first expense that is cut. Professors and researchers undertake to promote the activities of the students going to look for these opportunities from European programs such as those favored by ESA. Proposing concrete international programs with the possibilities of real experimentation, UNISEC will find good receptivity from Italian community.

Academic Biography :

I'm an Aerospace Engineering MSc of the university of Bologna. I've worked for three years in the Space Robotics Laboratory of the university with the possibility to work on several hands-on projects in the field of nanosatellites: for example the use of innovative materials and technologies for cubesat structures and solutions for deorbiting systems. My thesis was about the qualification campaign of a plastic cubesat structure. Thanks to the past works I managed to win the European SPINNER2013 call for business creation with the project *Spacemind* with a team composed by other students of the space robotics laboratory. I was selected as one of the finalists of the MIC2 at the 4th nanosatellite symposium held in Nagoya on October 2012. I'm also part of the Italian team which is responsible for the primary payload of the satellite "polyorbite", part of the CSDC program. I'm currently structure engineer of the mission "UrsaMaior" part of the QB50 mission. Parallel to the activity of student I'm working in the space division of the Italian company NPCitaly. Starting from September 2013 I will work on the structure of ESA educational program "ESEO" which will be the subject of my master thesis.

Ryusuke Konishi, Keio University, Japan

Presentation title:

Activities of UNISEC-Japan student organization, UNISON

-What is UNISON?-

Abstract:

This presentation describes the importance and merits of the UNISEC student organization, UNISON, where students in UNISEC-Japan can smoothly communicate with each other and work several activities together.

Firstly, students in UNISON can learn several skills through several events. UNISON holds many kinds of events; for example, information share meetings for developing satellites, competitions and experiments in Noshiro space event, an international CanSat competition called as “ARLISS”, and so on. Students in UNISON are participating in such events, and planning and operation of these events are carried out by interested students from UNISON. The participants can acquire practical skills for project management and space engineering, and the volunteers can learn a skill to run events besides. They have opportunities to communicate with each other through events, too. These are based on “competition” and “cooperation” inside UNISON.

Secondly, students in UNISON can learn many things from UNISEC Alumni Association, UNISAS. UNISON and UNISAS hold an assembly to make a good relationship, and this is a chance that UNISAS members give various pieces of advice to students in UNISON. It is based on their experiences and knowledge, so it can broaden students’ horizons.

Finally, the future plans of UNISON will be discussed.

Academic biography:

Ryusuke Konishi is a master student in the department of Science and Engineering at Keio Graduate School. He is also a Research Assistant (RA) in Keio Leading Graduate School Program –Science for Development of Super Mature Society-. His research is about electricity power grid, especially with renewable energy such as photovoltaic generation system. He is working as the student representative of UNISEC in 2013 and the representative of administration office for ARLISS 2013.

Ji Hyun Park, Seoul National university, Korea

Presentation title:**UNISEC-like activities in Korea: A proposal****Abstract:**

Currently, university participation in CANSAT or CUBESAT is becoming a big issue and is starting to grow in Korea. However, it is not very easy for university students to participate in such activities due to funding issues or since there are no activities that one can participate in the local area. Although there are no UNISEC-like activities in Korea yet, an activity that will promote CANSAT and CUBESAT activities by sharing knowledge and encouraging a university joint project is proposed. The activity does not only involve students to develop a system, however also includes workshops that will enhance student education and increase the interest of aerospace industry by hands on experience or invitation lecture of experts.

Academic Biography:

Ji Hyun Park is currently an Aerospace Engineering Ph.D. course student in Seoul National University. He received his Mechanical and Aerospace Engineering M.S. and B.S. degree in SNU. He had been participating in CanSat activities since 2009, and he is currently a researcher of Aerospace Propulsion and Combustion Laboratory and SNU CubeSat Research Center, working on development of SNUSAT-1, a 2-Unit CubeSat for the QB50 project. He had participated in ARLISS competitions in the year 2009 where his team won the third place for the come-back competition and after that, he had been leading the ARLISS team. In Korea, he is a very active member lecturing on CanSat and CubeSat activities to elementary, middle and high school students.

In the academic fields, he has presented many papers on various conferences, including the IAC, Nano-Satellite Symposium, European CubeSat Symposium, APISAT, and conferences held by KSAS. In 2009, he was the student representative of KARI student in the IAC 2009. He also has been involved in the Young Professionals workshop as a delegate in IAC 2012 and is attending the Young Professionals workshop as a delegate and as the ISEB in IAC 2013.

Rigoberto Reyes Morales,
The National Autonomous University of Mexico, Mexico

Presentation title:**Is space not for Mexicans?****Abstract:**

Mexico is an emerging space country; because of it its population has not culture related to space activities. To create space culture in Mexico, there are specific activities that we are going to do:

- 1) Contact national space university groups to organize seminars about space systems in their universities or other national universities aim to involve students in space activities.
- 2) Develop a national space platform as well as cansat or cubesat using commercial components available in our home country to teach space systems in a practical way and also to use the knowledge which has been acquired in the seminars.
- 3) Call for scientific experiments that would be conducted in atmospheric balloons taking advantage of the recently agreement signed by AEM and NASA in this way.
- 4) Involve students in world space activities as well as Yuri's Night and the World Space Week.
- 5) Organize a space national young symposium with the objective to share experiences and also invite national young space professional to encourage students to involve in space activities.
- 6) Create a space network using the social networks available.

Academic Biography:

I'm graduate student in Master in Mechatronics Engineering at the National Autonomous University of Mexico and member of Quetzal UNAM-MIT Satellite Project. I got my Bachelor of Science in Mechatronics Engineering in 2012 at UNAM after a successful defense of my thesis titled "Orientation and stabilization system for a remote sensing small satellite" which consisted in a numerical simulation of an active magnetic algorithm based on magnetic coils. I was the only organizer student of the space event "A 50 años del vuelo de Yuri Gagarin" which took place at UNAM aim to celebrate the 50 years of the Gagarin's flight which had the participation of the Russian cosmonaut Nikolai Budarin. I have attended national and international conferences, such as: Youth Forum of the Space Conference of the Americas in 2010, Somecyta conference in 2011 and 2012, and 2nd IAA conference on university satellite missions and Cubesat Workshop in 2013.

Blanca Rebollar Trejor, Mexican Space Agency, Mexico

Presentation title:
Strategies for Space Education in Mexico
Abstract:

In mid 2010 the Law that Creates the Mexican Space Agency (AEM) was decreed for the purpose of running the Mexican Space Policy through the development and implementation of what was called the “Space Activities National Program”, known as PNAE in Spanish. This program sets the objectives, strategies and action lines required to develop space science, technology and industry in Mexico. The plan is divided into 5 strategic areas, one of which is “Human Capital Formation in the Space Field”

To get an overview of the country’s aerospace education state of affairs and be in position to formulate concrete proposals for its development, AEM decided to perform an initial assessment of supply and demand of human resources in the aerospace field. This assessment involved three sectors: government, industry and academia. Based on this initial diagnosis, a national program was generated. This program, called ”Multi Institutional Project for Specialized Human Capital Formation in the Space Field”, covers the actions to develop space human resources in Mexico in the long term.

Diagnosis

1. Governmental Sector: Although Mexico has geostationary communication satellites, Mexico do not yet owns a fleet of Earth observation and location satellites, so their design, construction and launch by Mexican specialists represents a niche opportunity to analyze.

2. Private Sector: Aerospace industry in Mexico started about ten years ago. Although still predominantly aeronautics, it is experiencing a growth rate of 20 percent annually. Presently, the Mexican aerospace industry has more than 260 companies, spread across 17 states in Mexico, and employs more than 31,000 highly skilled persons.

3. Academic Sector: Space specialists training in Mexico is very new and it is still limited to three undergraduate institutions: the “Universidad Autonoma de Baja California (UABC)”, the “Universidad Autonoma de Chihuahua (UACH)” and the “Universidad Nacional Autonoma de Mexico (UNAM)”. There are 4 institutions offering graduate courses in space science and technology: the “Centro de Enseñanza Tecnica y Superior en Baja California (CETYS)”, the “Universidad Autonoma de Mexico (UNAM)” in Distrito Federal, the “Universidad Autonoma de Nuevo Leon (UANL)” and the “Universidad Autonoma de Queretaro (UNAQ)”.

The paper shows the results of the initial diagnosis of space education in Mexico considering the interaction among three sectors: academic, government and industry. The strategies proposed for the development of specialized human capital in the space field are analyzed and the progress achieved to date is also presented.

Academic Biography:

Blanca Rebollar was born in Mexico City and graduated as Electronic Engineer (1990). She studied Business’s Direction and Development (2007) and Project Management (2012) . She is currently serving as Director for Specialized Human Capital Development in the Space Field at the Mexican Space Agency. Before this, she worked as external advisor on the Coordination of Information and Knowledge’s Society (CSIC) of the Ministry of Communications and Transportation (SCT) where she was responsible for the connection between the Telecommunication Network for Education, Health and Government of the 32 mexican states and the National Broadband optical fiber backbone.

Enkhjargal Natsagdorj, National University of Mongolia

Presentation title:**DEVELOPMENT OF A TELEMETRY CANSAT IN MONGOLIA****Abstract:**

This paper presents Cansat design, electronic system and data processing of an advanced level Telemetry CanSat. The purpose is to collect and transmit data from the flight and therefore weather conditions are processed by a ground station in a real time. We used microcontroller, pressure and temperature sensors, humidity sensor, 3-axis accelerometer, 2-axis gyro, camera, GPS, air quality control sensor, and RF communication module to communicate with Yagi-Uda antenna and ground station PC. Also four application programs are developed in this work for data processing and flight control. These are software processed GPS data analysis, 3D motion tracking with accelerometer and gyroscope, sensor data analysis using LabView.

In the first CanSat competition in Mongolia, G-Satellite team of NUM participated to introduce a new design of nano satellite and build up Cansat of a wide range communicating ground station, which mixed telemetry one with scientific. Our CanSat showed high performances in all requirements, such as; battery life, telecommunicating in a wide range, transmitting data of sensors and scientific experiments in one second, memorizing data in one SD card and recording video during the flight. On the ground station, we made four main interface programs to show our results of the experiment in real time for juries, amateurs and some other audiences. The purpose of software is to be easy to illustrate experiments of our sensors during the flight. Furthermore, one program is written for displaying real position of CanSat in 3D image, using received data from accelerometer. Others are mainly made for separately displaying GPS position, pressure, temperature, compass, humidity rate, and gas sensor in computer interface.

Academic Biography:

I was born in 11 November, 1987. I graduated School of Agro-biology, Mongolian State University of Agriculture that bachelor degree with Land management-engineer in 2008.

After that I graduated master course which as Remote sensing and Geographic Information system in School of Physics and Electronics, National University of Mongolia in 2010. Now, I'm studying PhD course in NUM-ITC-UNESCO laboratory for Space Science and Remote Sensing, School of Physics and Electronics, National University of Mongolia. I have organized 1st Nano/Microsatellite workshop in Mongolia. In the future, I would like to develop Nano/microsatellite technology in Mongolia and I will improve my knowledge about space technology.

Renchin Tsolmon, National University of Mongolia, Mongolia

Presentation title:
Cansat activity and space engineering education in Mongolia
Abstract:

Mongolia approved a long term national satellite program in November 2012. The main objective of this program is to develop the space science and space engineering technology and to launch national communication and remote sensing satellites in the near future.

Mongolia has been using international space communication systems for 30 years and has never launched its own satellite. The program aims to launch the National satellite and use its data sets for national commercial, social, economic and environmental sustainable development.

This program made importance on human resources development and education on space science and space engineering at the different levels of university students.

In order to develop space education program we started cansat activities with help UNISEC and sent Mongolian participants to attend in the Can Sat Leader Training Program (CLTP) in Japan. This opportunity contributed to capacity building for space technology and education.

Mission Idea Contest for Micro/Nano satellites Utilization in Mongolia encouraged innovative exploitation of micro/nano-satellites. Still we need and improve teaching methods and professional researchers for space engineering education.

To implement the national program we are organizing several activities such as short term Cansat training at national level, National Cansat competition, international symposium and local meetings.

We need to develop organizational capacity building, testing infrastructure and launch opportunities for small satellites. Since there is no proper Education Curriculum on Space Engineering in Mongolia. It is necessary to learn and experience how other countries and universities developed Education Curriculum on Space Engineering. For future Cansat activity and space engineering education program it is necessary to develop more international and regional cooperation and learn lessons from Global UNISEC.

Academic Biography:

Dr. Tsolmon Renchin holds a Ph.D. degree in Environmental Science and Remote Sensing from Chiba University in Japan. Prior degrees were earned at the National University of Mongolia (M.S.) and the University of Irkutsk (B.S.) in Russia. She has done her postdoctoral research at Pennsylvania State University and NASA, Greenbelt, Maryland, U.S.A.

Currently she is a Professor at the National University of Mongolia and head of the NUM-ITC-UNESCO Remote Sensing and Space Science laboratory . She teaches courses on Remote Sensing, Geographic Information Systems, and Astronomy. She has serves as a Remote Sensing and Space Science consultant to Mongolian government projects. Her research interests include application of Remote Sensing and GIS to environment, Climate Change and Natural Resource management. She has published articles in various journals, including "International journal of Remote Sensing", International journal of Digital Earth" and "International Journal of Environmental Studies".

Obasi, Casmir Oluabuchukwu
Centre For Satellite Technology Development (CSTD)
FCT Abuja Nigeria

Presentation title:

**POPULARIZING SPACE SCIENCE AND SPACE TECHNOLOGY
THROUGH SPACE WEEK ACTIVITIES**

Abstract :

This paper presents an attempt in addressing popularization of space science and space technology through space week activities in Nigerian universities. Over the years through the help of the Centre for Basic Space Science (CBSS) and African Regional Centre for Space Science and Technology Education-English (ARCSSTEE) of which both are an activity centre under the National Space Research and development Agency. Had been able to organize space-week, symposiums which other university students were in attendance. Some of which includes 2012 community development project: “Understanding the Universe”, ‘Hands on Can-Sat training’. Inter university space model competition, ‘designs of refracting optical telescope’ Et cetera. In this paper we shall address some of the achievements, challenges and other future plans, strategies of popularizing space science and space technology education through collaborations with other Nigeria universities and the Nigeria space agency.

Academic Biography:

Obasi, Casmir O. is a graduate of Physics and Astronomy from University of Nigeria (2012). He was the president of Amateur Astronomical Society of Nigeria (AMASON), led the group to participate in the Second Mission Idea Contest (MIC2). Obasi have being involved in so many space related projects such as the designed and constructed a 2.4m Radio Telescope, designs and construction of Optical Telescope for Amateur Astronomical Society of Nigeria, design of AMASON water Rocket and various Space Science models.

Presently, he is doing his National Youth Service Program at Centre for Satellite Technology Development (CSTD) FCT Abuja Nigeria one of the activities Centres of Nigeria Space Agency

Antoni Mauricio, National University of Engineering, Peru

Presentation title:
CANSAT PERU

Abstract :

“CANSAT, A PRACTICAL METHODOLOGY FOR INTRODUCING YOUNG STUDENTS IN SCIENCE AND TECHNOLOGY APPLICATIONS TOWARDS SOCIAL INCLUSION”

We can start UNISEC Peru because:

- ***Network with 2 Universities :***

Our professors at the National University of Engineering lecture in other universities, so the network is :

Universidad Nacional de Ingeniería (National University of Engineering) : Eng. Jose Oliden Martinez

Universidad Peruana de Ciencias Aplicadas: UPC, Eng. Nicolai Vences Ramos

Universidad San Martin : Eng. Guillermo Kemper

- ***Organize a Workshop***

We have already developed workshops since 2011.

School : Teresa Gonzáles de Fanning, 100 girl students in 5 groups.

INICTEL UNI –Girl’s Day (2012) with 40 girl students.

University of Engineering: August 2013, with the Korea Space University, visitors in Peru.

At present we are planning to develop a workshop in September 2013 for undergraduate students of all the network above referred.

- ***Find financial support***

We can provide technical assistance to mining firms. We have not deal with them yet but it is possible to start a project and interest them in CANSAT support.

- ***Find suitable program to join or start***

This CANSAT program suits in the field of capacities in satellite technology, space education.

Academic Biography:

Antoni Mauricio, Peruvian undergraduate student of mechatronic engineering, 20 years old, learning CANSAT technology since August 2011 up to date with a team of nearly 30 undergraduate students in different fields of engineering at the National University of Engineering in Lima – Peru, led by two ex CLTP-CANSAT participants.

Very enthusiastic and keen on this technology, we attended a national contest for undergraduate students organized by IEEE developed in Trujillo, 900 kilometers far from Lima, this month, concerning technological projects in Peru.

“DESIGN MODELLING AND IMPLEMENTATION OF AN AUTONOMOUS MOBILE ROBOT STANDARD ROVER BACK CANSAT FOR MONITORING WEATHER DATA”, our project, won, and got all the attention of judges, and nearly 325 participants. Excellent opportunity to show the CANSAT methodology for learning and applying it to the national environmental policies.

This experience enhances our interest to contribute to establishing and leading a local UNISEC Chapter in PERU, indeed in Latin America.

Stephanie Tumamos, Regulus Spacotech Inc. , The Philippines

Presentation title:**Student CanSat Training and Launching Program in the Philippines****Abstract:**

Philippines has a developing space science community. Starting out in the high school and university level, the country can start a program which will gain the interest of students to study space science for the future of the country's science and technology development. CanSat training program will be offered at the start of the school year. The program will be composed of a preliminary stage where students will be trained through lectures, workshops and actual assembly of CanSat. Next, the program will hold a high school and university-wide competition of CanSat assembly and launching to culminate the program. The students will greatly benefit in this activity as they will be trained to do advanced learning and will give them future benefits such as a job for university students. Likewise, the success of this project will pave way for a more advanced program such as building nano-satellites. The agricultural, forestry, weather and climate and disaster and risk management sectors of the country will greatly benefit from this activity as the students with capabilities to build could help solve the immediate problems of the country. With the help of the members of the press, they can cover the event for public dissemination.

Academic Biography:

I took my undergraduate studies from the University of the Philippines Los Baños with a Bachelor's degree of Applied Physics with a major in Instrumentation. My research experiences range from materials physics to strong background of sensors, embedded systems and microcontrollers. After obtaining my bachelor's degree, I went to graduate school and currently taking MS Environmental Engineering at the University of the Philippines Diliman. As a graduate student, I have applied and have successfully been part of international workshops such as the ASEAN Synchrotron Science Camp in Thailand last 2012 and currently happening as of writing this application, the International School of Young Astronomers in Bandung, Indonesia. Likewise, I'm currently working at Regulus Spacotech Inc. where we develop modules to teach astronomy to kids in different levels. Also, I'm a photojournalist at Business Mirror, a national newspaper circulated around the country in which I focus on the science and technology page.

Igor V. Belokonov, Samara State Aerospace University, Russia

Presentation title:**Educational and Scientific Activity of UNISEC-Samara/RU****Abstract:**

The UNISEC-Samara/RU is based on Space Research Department of Samara State Aerospace University (SSAU). It was established three years ago by three universities: SSAU, Samara State University, Ylyanovsk State University. Some educational programs are realized by UNISEC-Samara/RU: two master programs “Future space technologies and experiments in space”, “Space information systems and nanosatellites. Navigation and remote sensing”. Now more than 30 students are training on the both programs, including foreign students from Kazakhstan, Argentina. The UNISEC-Samara/RU carries out Summer Space School each year in Samara. Its duration is two weeks. The agenda of Schools consists from two parts (www.volgaspaceschool.ru). First part devoted space mission analysis, space mechanics, introduction in attitude motion, problems of navigation and guidance in space, IT technologies used in space applications. The program of second part connected with problems of design of nanosatellites. Famous professors from other countries are often invited for deliver lectures on special themes. These schools have not only education results, but they generate space experiments on micro gravitational space platforms like “FotonM2/M3”. One of the brightest results is successful experiment YES2/ESA with deployment of 30-th km tether system. It is given short description of some nanosatellites projects realized by UNISEC-Samara/RU.

Academic Background:

Professor, Doctor of Tech. Sci., The Head of Space Research Department of Samara State Aerospace University (national research university); Vice-President and Secretary General of Volga Branch of Russian Academy of Cosmonautics. The author of more than 200 research publications in the field of space mechanics, navigation and control in space, satellite radio navigating, methods of statistical analysis and processing of statistical information. IAA Corresponding member (since 2012), academician of the Russian Academy of Cosmonautics (since 1997), academician of International Academy of Navigation and Motion Control (since 2006), member of the IAF SUAC Committee and some technical committee.

Carried out navigating experiments on spacecraft FOTON-12 (1999),-M1 (2001), M2 (2005), M3 (2007). The organizer of International Conferences, Meetings and Schools (1998 – by satellite radio navigating in the frame of cooperation with AGARD NATO; 2000, 2001, 2008, 2011 – by scientific experiments in space on-board micro gravitational platforms and small satellites, 2003-2013 – Summer School “Future Space Technologies and Experiments in Space”).

Sultan Hasan AlSultan, Qassim University, Saudi Arabia

Presentation title:**Nanosatellite Applications for the GCC Region and Saudi Arabia****Abstract:**

In the Kingdom of Saudi Arabia (KSA), The National Policy for Science and Technology, approved by the Council of Ministers in 1423H (2002 G), defined 11 programs for localization and development of strategic technologies that are essential for the Kingdom's future development. One of these programs is the Space and Aeronautics Program. The program is led by the King Abdulaziz City for Science and Technology (KACST). This plan encompasses all R&D and industrialization aspects of these sectors, including civil but excluding military aviation. The strategic program is to be managed by a Space Program Management Office (SPMO) to be formed within KACST, along with group of stakeholders consisting of critical engineering departments in the Kingdoms universities, government units related to aviation and aeronautics and members of the Kingdoms industrial base.

In privet sector we established in Saudi Arabia desert a Geomatic center TECRS for training students and workshop in the sometime we are working in College university project to have Space Education Geomatic Studs'.

The presentation will inform the related developments in KSA regarding the space related education and possibility of forming a local or regional UNISEC to support such activities. Participation in future MIC and CLTP and the benefits that can be obtained from them will be elaborated upon.

Academic Biography :

Obtained PhD from Tokyo Institute of Technology, Japan 2004, specializing in Remote Sensing. Prior to that, received graduate education from MIT, the Massachusetts Institute of Technology, USA, focusing on remote sensing in Urban and Regional Studies. More than 30 years dedicated to develop space and Remote Sensing educational and outreach activities with students and professionals in Saudi Arabia.

At present, Saudi Arabia Shoura Council Member (Saudi Parliament), and Ass. Prof. in Alqassim Univirsty. Worked as a researcher at Space Research Institute, KACST King Abdul Aziz City for Science and Technology and also at the Remote Sensing Technology Center of Japan 1997 t0 2000. Worked research scientist at NASA 1989, USGS 1990 in USA. Research interests include Space and Remote Sensing Education issues.

Ifriky Tadadjeu Sokeng,
Cape Peninsula University of Technology, Came loon
as student representative of Southern African Region

Presentation title:

Broadening the nature of space related inter-university student interactions

Abstract:

There are concrete examples of successful space related inter-university student interactions within the Southern Africa region. These interactions occur within the framework of conferences, workshops and competitions. One can notice, however, that there is little inter-disciplinary interaction between students. Given the relative youth of space activities on the African continent, there is a need for students who specialize in space science and technology to interact with students from disciplines which are unrelated and yet crucial to the development of the space arena in general. These disciplines include (but are not limited to) law, business and politics. Engineers and scientists, especially in the space arena, can no longer afford to be only aware of fundamental science and engineering technicalities. One way to ensure future generations of more complete space scientists and engineers would be to include law, business and political science faculties from various universities to space related projects such as CubeSat mission designs. This sort of interaction can effectively expose students to most of the perks of industrial space mission design. It would also grow space related knowledge among students from these disciplines, and provide a new breed of future leaders in all aspects of the space arena.

Academic Biography :

- 2013:** Completing a DTech in the field of space radiations and materials for space applications (Cape Peninsula University of Technology/F'SATI/iThemba LABS).
- 2012:** Master of Technology in electrical engineering (Cum Laude) (Cape Peninsula University of Technology/F'SATI).
 Master of Science in electrical engineering (Ecole supérieure d'Ingénieurs en Electrotechnique et Electronique/F'SATI, France).
- 2011:** Took part in the space science school outreach program co-organised by the Department of Science and Technology of South Africa.
 Semi-finalist with the C-S Team at the space Mission Idea Contest organised by AXELSPACE (Japan).
 Attended 2nd nano-satellite symposium at the University of Tokyo, Japan.
- 2010:** Attended all three space science industry seminars organised by F'SATI.
- 2009:** Bachelor of Technology in electrical engineering (Cum Laud)
 (Cape Peninsula University of Technology/F'SATI).
- 2007:** Bachelor of Science in physics with a minor in computer science (GPA: 2.94 / 4)
 (University of Buea, Cameroon).

Jordan Vannisten, National Cheng Kung University
Taiwan R.O.C.

Presentation title:

Local UNISEC establishment and space activities in Taiwan

Abstract:

Taiwanese universities have been involved in space projects for several years already.

The National Cheng Kung University (NCKU) and National Central University (NCU) are the most active universities in Taiwan for student space projects. Those two universities are envisaged as a baseline consortium for the establishment of a UNISEC-Taiwan.

In the past, NCKU and NCU have worked together on the ESEMS (Experimental Scientific-Education Micro-Satellite) which have been launched in September 2009.

NCKU has also worked on the LEAP (Low Frequency Earthquake precursor) and the CKUTEX (Cheng Kung University Technology EXperimental) satellites.

Recently, NCKU has finalized the PACE (Platform for Attitude Control Experiment) satellite which is ready for launch and is now working on the PHOENIX satellite in order to take part in the QB50 mission, which is an international network of CubeSats for atmospheric studies.

NCKU has developed and launched several sounding balloons, hybrid rockets and took part in some of the NSPO (National Space Organization) sounding rocket missions by providing some of the payloads.

UNISEC-Taiwan will help to organize outreach events and allow a better collaboration between several laboratories of different Taiwanese (and International) Universities in space student projects (satellites, sounding balloons and rockets).

Academic Biography:

I started my studies at IPSA, France and received my *Expert in Aerospace Systems degree*. During my studies there, I have created IPS'Action, which is a student organization with the goal of organizing national and international events and visits related to aerospace. Also, I have been an active member of the 3AF (French National Aeronautics and Astronautics organization), RAeS (Royal Aeronautical Society, UK) and French Mars Society.

During my last year of engineering study I went to NCKU, Taiwan, as an exchange student and got my *Master's degree in Aerospace Engineering*.

I have then worked for 2 years at the European Space Agency (ESA), the Netherlands, on the European Student Earth Orbiter (ESEO) and CubeSats for the VEGA Maiden Flight where I received the *2012 ESA Award for Teamwork Excellence*.

I now pursue a PhD at NCKU working on the PHOENIX CubeSat (QB50 mission) and on a Martian CubeSat mission.

Kamel Besbes, University of Monastir, Tunisia

Presentation title:

Building UNISEC Tunisia to develop university cooperation in small satellite application

Abstract:

The initiative to build a consortium of university science and space technology came after our participation in some UNOOSA activities, the UN/Japan 4th Nano-Satellite Symposium Nagoya, Japan and MIC2 organization in Nagoya in October 2012.

The consortium UNISEC-Tunisia, proposed is a combination of four universities those of Monastir (FSM), Sousse (ISSATSo), Sfax (ENIS) and Tunis (FST)

Our goal is to encourage and enhance the teaching and academic research activities in Tunisia in the field of small satellites. This association has several impacts: the quality of our training, the development of research, collaboration with external socio-economic environment in the university and the opening of international research.

We began our work by multiplying the teachings of awareness of the various areas of design, communication and space applications. Projects graduation engineers, MSc and PhD theses are on these subjects in order to develop human resources in our laboratories and universities. Finally, we participate in various national and international calls offering to fund our projects. We try to participate to some national and international collaboration. Currently thirty young and senior researchers are involved in UNISEC Tunisia.

The unifying projects UNISEC Tunisia are now:

1. Monitoring the quality of water by satellites.
2. The compact design of small satellites at low cost
3. The development of applications for processing and analysis of satellite images
4. New communication protocols and antennas for small satellites

We present our experience to share success stories and create new national and regional consortium.

Academic Biography :

Kamel Besbes was born in 1960 in Monastir, Tunisia. He received the B.S. degree from the Faculty of Sciences of Monastir (Tunisia) in 1985, the M.S. degree from the Ecole Centrale de Lyon (France) in 1986, the PhD degree from the Institut National des Sciences Appliquées de Lyon (INSA), France, in 1989 and the “State Doctorate Degree” from the Faculty of Sciences of Tunis (Tunisia) in 1995.

In 1989, he joined the Faculty of Sciences of Monastir as an Assistant Professor of Physics and Electronics. He has established teaching and research laboratories in microelectronics since 1990. Research efforts are focused on microelectronics from devices to embedded micro-systems and Instrumentation for detection and navigation for space application.

He has 120, published and presented numerous papers at workshops and conferences and in technical journals. He participated to the scientific and organization committee of several workshops and conferences as International Conference on Microelectronics since 1992 until now and Smart Systems & Devices since 2001. He was the vice-dean of the Faculty since six years (2000-2005). He is elected as the Dean of Sciences Faculty for three years 2008-2011. He is a member of the university council since 2005 until now. He is now a Professor and the head of the Microelectronics and Instrumentation Lab.