



# BIRDS Project Newsletter

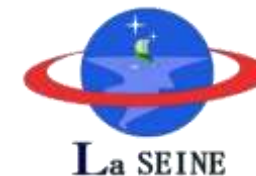


Issue No. 23  
(25 December 2017)  
**FINAL ONE FOR 2017**



Members of BIRDS -1, -2, and -3 on 4 October 2017, at Tobata Campus

**Project website:** <http://birds.ele.kyutech.ac.jp/>  
All back issues are archived at this website.



All back issues of this newsletter can be easily downloaded. Go to here: <http://birds.ele.kyutech.ac.jp/>

At the top, click on the tab called NEWSLETTER. You will get a menu for all back issues.

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### The Guest Box

#### From Nepal (BIRDS-3)



**Boudhanath Stupa (Or Boudha Stupa)** is the largest stupa in Nepal and the holiest Tibetan Buddhist temple outside Tibet. **The diameter is about 100m while standing 40m tall.** It is the center of Tibetan culture in Kathmandu and rich in Buddhist symbolism. The stupa is located in the town of Boudha, on the eastern outskirts of Kathmandu. It is also one of the World Heritage Sites of Nepal.



--Suyog Bam, Grade X,  
Brihaspati School, Nepal

# 01. Post-graduate study on Nano-Satellite Technologies (PNST) has been renewed



UNITED NATIONS  
Office for Outer Space Affairs



About Us ▾ Our Work ▾ Benefits of Space ▾ Information for... ▾ Events ▾ Space Object Register ▾ Documents ▾

Our Work > Programme on Space Applications > BSTI > Fellowship Programme

## Basic Space Technology Initiative Fellowship Programme

United Nations/Japan Long-term Fellowship Programme 2018  
Post-graduate study on Nano-Satellite Technologies (PNST)  
(Kitakyushu, Japan)

Update 22 December 2017: The Application is now OPEN!!

***Hot news !***

**If you are from a non-space-faring nation, you have a solid engineering background (bachelor's degree), and you are under Age 35, you are eligible to receive this scholarship (for either Phd or masters degree).**

Apply at the UNOOSA website shown above – its URL is as follows:  
<http://www.unoosa.org/oosa/en/ourwork/psa/bsti/fellowships.html>

Dead line for applications is 28 January of 2018 – 5:00 PM Japan Standard Time. A complete application package is due by this dead line. Shortlisted candidates will be interviewed via Skype.





## 02. LaSEINE members – group photo



The **BIRDS Project** is undertaken by **LaSEINE**, *Laboratory of Spacecraft Environment Interaction Engineering*.

This is a photo of the staff and students of the laboratory. It was taken on 29 Nov 2017 on the ground floor of our building on the Tobata Campus of Kyutech.

### 03. Winning design of “Lean Sat Logo Competition”

During the month of November 2017, an internal competition was held to come up with a logo for “Lean Satellite” concept. It will be used in various places (websites, flyers, posters, etc.).

**Note:** BIRDS is an example of a lean satellite.

The Lean Sat Logo Competition winning design is shown at the right; it was designed by Rahmi, a PNST Phd Fellow.

1st Prize: Rahmi (Indonesia)

2nd Prize: Turo (Mongolia)

3-5th Prizes:

Joven (Philippines),

Morii (Japan),

Kiran (Bhutan)

First prize is high-quality tea →





**SCTC2018**  
the 15<sup>th</sup>  
**Spacecraft Charging  
Technology Conference**  
**June 25-29, 2018**  
**KOBE, JAPAN**

<http://www.org.kobe-u.ac.jp/15sctc/>

Abstract submission  
Nov. 15, 2017- Feb. 15, 2018

Logos: JAXA, ESA, CNES, ONERA, SGPSS, and others.

## 04. The 15<sup>th</sup> Spacecraft Charging Technology Conference in Kobe in June of 2018

The 15th Spacecraft Charging Technology Conference (SCTC2018) will take place from the 25th to the 29th of June 2018 at Integrated Research Center of Kobe University in Japan. The SCTC is an international series focusing on the science and technology of plasma and charged particle interactions with space systems. Initiated in 1977 it has become a goal to hold the conferences with a periodicity of 2 years, rotating between Europe, the USA, and Japan. The conference is now returning to Japan following the very successful meetings held at Noordwijk (The Netherlands) in 2016 and Pasadena (USA) in 2014.

Contributions are sought on a broad range of technology and science topics concerning the interaction of spacecraft with the charged particle environment and environmental impacts on spacecraft. The followings are the possible fields for the conference session.

- Country Overviews
- Standards
- On-Orbit Investigations & Nanosatellites
- Ground Testing
- Plasma Propulsion and Tethers
- Material Properties
- Charging and Arcing Mitigation
- Space Weather & Charging
- Theory, Modeling and Computer Simulations
- Internal Charging
- Charging of Dusts and Small Bodies in Space
- Solar Array Plasma Interactions

### Organizers:

- Graduate School of System Informatics, Kobe University
- Japan Aerospace Exploration Agency (JAXA), Aerospace Research and Development Directorate

### Sponsors:

- Education Center on Computational Science and Engineering, Kobe University
- Faculty of Engineering, Kobe University

All of the above from the conference website (see the poster at the left)



## 05. Int'l Space Exploration Forum (ISEF2), Side Events

**ISEF2 is a ministerial-level meeting to build support for global cooperation in space exploration.**

**The Japanese government is hosting the ISEF2, to be held on March 3, 2018.**

**Cont'd next page**



人類の活動圏の将来と広がりを感じ、議論する場所  
The place to discuss the future and the expansion of human's sphere

# Y-ISEF/I-ISEF — ISEF2 Side Events —

ISEF2 サイドイベントは、第2回国際宇宙探査フォーラム\*( ISEF2 )に先行して開催されるプログラムで世界のヤングプロフェッショナルを対象としたY-ISEFと企業関係者を対象としたI-ISEFという2つのイベントで構成されています。

第2回国際宇宙探査フォーラム\*  
日本が主催し、政府ハイレベルの関係者等が一堂に会し、  
今後の宇宙探査における国際協力等について議論を行う閣僚級会合。  
2018年3月3日に東京で開催予定。

The Cabinet Office, MEXT, METI and JAXA are hosting the side events to the second International Space Exploration Forum (ISEF2) \*.  
ISEF2 side events are Y-ISEF, for young professionals and I-ISEF, for the industries.

<http://www.isef2-se.space/>

The International Space Exploration Forum (ISEF) is a meeting for dialogue among ministers and other high-level government representatives targeted at promoting international collaboration in space exploration.

The inaugural meeting of ISEF took place in January, 2014 in Washington D.C., U.S.A. In March, 2018, the 2nd ISEF will be convened in Tokyo, Japan.

In conjunction with this international ministerial-level forum, side events will also be held geared for industry (general public may observe: registration required) and young professionals (participants will be solicited through an open application process) with the objective of advancing international space exploration.

The above from <http://www.isef2.jp/>

2017年(平成29年)12月13日(水曜日)

言

宣

奈

陽

# 米宇宙基地 連携協議へ

## 日本、月面有人探査向け

政府は12日、米国が2020年代に計画する月上空の宇宙基地建設構想について、来年3月に東京で行われる国際会議で米国などと具体的な連携を協議する方針を明らかにした。松山宇宙政策相が同日の閣議後記者会見で発表した。

来年3月 東京で

ISEF2の事

この日開かれた政府の宇宙開発戦略本部の会合では、米国の構想への参加などを盛り込んで改訂した宇宙基本計画の工程表を決定した。安倍首相は会合で、米国など関係国との協力強化と、国際宇宙探査の議論の加速を指示した。

訂された工程表は、20年代後半以降の有人探査の方針となる。政府は今後、月面有人探査の実現に向け、宇宙基地内の水や空気の浄化や月への正確な離着陸など、探査に必要な技術開発を進める。

トランプ米大統領は12日(日本時間)、月面に再び米国の宇宙飛行士を送る方針を正式に表明し、米航空宇宙局(NASA)に実現を求める指示書に署名した。この指示書には、「米国は、他国や民間企業と協力して月に飛行士を送り、火星やその先の太陽系の有人探査を目指す」との方針が示されている。

Yomiuri Newspaper of 13 December 2017



## 06. “Space Girls”, a book published in Japan

‘宇宙女子’ カテゴリーのアーカイブ



宇宙女子 単行本 (ソフトカバー) -

加藤 シルビア (著), 黒田 有彩 (著)

★★★★☆ ▾ 9件のカスタマーレビュー

▶ その他 () の形式およびエディションを表示する

単行本 (ソフトカバー)

¥ 1,512

¥ 271 より 9 中古品の出品

¥ 1,512 より 2 新品

[加藤シルビアさんがラジオに出演します！](#)

2015年5月15日

『宇宙女子』の著者のひとり、加藤シルビアさん（TBSアナウンサー）が、あのTBSラジオの長寿番組「大沢悠里のゆうゆうワイド」に出演し、「宇宙女子」について語ります。

時間は、5/18（月）の午前8時半頃からです。

お時間がある方は、ぜひお聴きください！

●TBSラジオ「大沢悠里のゆうゆうワイド」

●『宇宙女子』書籍情報

担当NBO

第1章 私たちが「理系女子」になった理由

第2章 「F=ma」はすばらしい！

第3章 宇宙の根源を知りたくて

第4章 やっぱり私は宇宙に行きたい！

第5章 宇宙や物理の楽しさをもっと広めたい！

← “F=ma is wonderful !”

I discovered this book in the Central Library of Kyutech. It is written in Japanese, of course. It is interesting. A book review of it starts on the next page. - The Editor.

## 『宇宙就職案内』と『宇宙女子』

じつは2004年から2年間ほどJAXAの宇宙オープンラボ・アドバイザ委員を務めていたことがある。当時JAXAは「見上げる宇宙から使う宇宙へ」をスローガンに、宇宙オープンラボの民間利用を促進していたのだ。ホリエモンにはじめて会ったのも、このアドバイザ会議の場だった。JAXAはアメリカではIT経営者たちが次々と宇宙ビジネスに旅立つのを見て、日本でも宇宙に興味をもつIT関係者はいないかと探していたらしい。ソニーコンピュータサイエンス研究所取締役所長の北野宏明氏のその1人だった。当時のJAXA理事長は元NTTドコモ社長の立川敬二氏で、彼を囲んで宇宙マーケティングの可能性などについて良く話し合っていた。間違いなく一部の人たちにとって、宇宙はビジネスの場としてまさに最先端の場所になっていたのである。

『宇宙就職案内』はその身近になった宇宙関連の仕事についての現状報告だ。宇宙開発には「ピークを高く」「裾野を広く」という2つの方向性があるという。「ピークを高く」とはより深部の宇宙へ、「裾野を広く」とは開拓した宇宙を利用するという立場だ。本書の第1章ではまずそのピークを探る天文学者たちが登場する。日本で天文学を職業にしている人は700人ほどだという。そのうち250人ほどが国立天文台に勤務している。職場としてはごく小さく狭き門である。しかし、壮大な深宇宙を毎日覗き考えるという、まさに浮世離れした職業とは羨ましい限りである。その天文学者たちは1日30時間制を使っているという。

すばる望遠鏡のあるハワイとの時差を考えると午前2時よりも26時のほうがミスコミュニケーションを減らすことができるからだ。もちろん天文学者たちはただただそこにある望遠鏡を覗いているだけではない。宇宙望遠鏡や観測装置も自作する。人類が太陽系外の惑星を初めて直接撮影したのは、日本人研究者が開発した観測装置によってだった。その名も「HiCIAO」ハイチャオ！

第2章は宇宙飛行士とそのサポートチームについてだ。高い基礎能力、長く厳しい訓練、宇宙との往復で100回に1回発生する重大事故、宇宙では誰かが発注した実験のオペレーターという立場などを考えると、宇宙飛行士とはいまでも冒険者なのだと思う。ところで、その宇宙飛行士たちが行う実験のなかでもっとも期待されているものの1つに新薬開発がある。無重量のなかでは熱対流がないため、タンパク質の結晶をきれいに成長させることができる。つまりタンパク質の立体構造が決定できるのだ。立体構造が判ればそれにぴったりと嵌めあう新薬を創り出すことができるというわけだ。将来、宇宙飛行士たちが命がけで開発に協力した新薬が登場してくることであろう。

天文学者、宇宙飛行士につづく3番目の仕事はロケットや探査機、人工衛星の開発者だ。先日「H2A」21号機が発射され、韓国の多目的観測衛星「アリラン3号」の軌道投入が成功した。液体燃料のH2Aは非常に高価なロケットで商業的に大成功するとは思われない、しかし2012年には固体燃料ロケットのイプシロンの打上げが予定されている。

Continued

ノートパソコン1台で点検・管制可能という低コストシステムだ。本書では現在運用されている日本の宇宙貨物船「こうのとり」、小惑星探査機「はやぶさ」、月周回衛星「かぐや」、GPS衛星「みちびき」、陸域観測技術衛星「だいち」、温室効果ガス観測技術衛星「いぶき」、水域観測技術衛星「しずく」などが紹介されている。それぞれの役割や機能を知るとワクワクしてくる。

とはいえ本書を読むかぎり、宇宙関連の仕事は非常に専門的・技術的で普通の人では近寄りがたいという印象になってしまう。しかし、実際には多くの普通の女子が宇宙関連ビジネスですでに働いているのだ。『宇宙女子』はそのガイドブックだ。JAXAで宇宙ステーションとの通信スケジュールを決めているのは筑波技術短大卒の28歳の女子だ。ちなみに筑波技術短大は宇宙関連への就職実績が豊富だという。宇宙服を作るのは日本女子大学家政学部被服科卒業で現在ポンジョ教授の女子。大学時代にアルバイトで入った天文雑誌社でいつのまにか編集者になっていた女子。宇宙就活実行委員会を率いる現役女子大生。JAXAで日本の宇宙実験棟「きぼう」のプロモーターをしている女子は元ロンドン観光局公認ガイド。などなど24人の宇宙女子が登場する。

宇宙専門のフリーライターとして紹介されているのは林公代さん。よく見てみたら『宇宙就職案内』の著者だった。彼女の経歴はつくば万博でアルバイト、フリーペーパーを制作する新聞社で営業職、「YAC(日本宇宙少年団)」で編集者を経てフリーライターになっている。結局、みんな好き者なのだ。好きこそものの上手なれ。何かに夢中になることができる才能こそが本物の才能。宇宙のような極端な仕事場にこそ、本物の才能を持った人たちが集まっているのかもしれない。

成毛 眞

2012年05月21日



HONZ代表。元マイクロソフト社長。

インスパイア取締役ファウンダー。

スルガ銀行社外取締役。早稲田大学ビジネススクール客員教授。

週刊新潮、週刊東洋経済、月刊クーリエ・ジャポン

にエッセイ連載中。産経新聞、週刊朝日などに書評寄稿多数。

代表的著書に『面白い本』『大人げない大人になれ』。雅号は「半覚斎」



## 07. PNST and Space Law/Policy course mentioned at UN symposium in South Africa

### United Nations/South Africa Symposium on Basic Space Technology

11 DECEMBER 2017 - 15 DECEMBER 2017

The objectives of this Symposium are to address the status of capacity-building in space technology development, in particular for small satellite activities, with a special focus on Africa; to consider opportunities for regional and international cooperation, as well as legal and regulatory issues of space technology development, including the long-term sustainability of outer space activities; and to discuss recent developments on basic space technology.

The presentation at the right was delivered during the symposium (described above) by Daniel Garcia Yarnoz of UNOOSA. His slides (the next three pages) are reprinted with his permission – which is acknowledged with gratitude.



## Fellowship Programmes

United Nations/Japan Long-term Fellowship  
Programme on Nano-Satellite Technologies  
Hosted by Kyushu Institute of Technology, Japan

Doctorate in Nano-Satellite Technologies



- United Nations/Japan Long-term Fellowship Programme, hosted by the Kyushu Institute of Technology at its Center for Nanosatellite Testing
  - Post-graduate study on Nano-Satellite Technologies (PNST)
  - 3-year PhD and 2-years Masters programme, up to 6 students/year
  - All cost (tuition, living cost, travel) covered
  - More information on:  
<http://www.unoosa.org/oosa/en/ourwork/psa/bsti/fellowships.html>
  - 5 year PNST Symposium: 4-5 Dec 2017
- YASE Panel and Session 7: Tejumola

**The PNST Fellowship at Kyutech was explained during the presentation at the UN/South Africa Symposium in December of 2017.**

## Space Law and Policy for Engineers

United Nations/Japan Long-term Fellowship  
Programme on Nano-Satellite Technologies  
Hosted by Kyushu Institute of Technology, Japan

Doctorate in Nano-Satellite Technologies



- Small Satellite developers require a basic understanding of space law and policy
- To meet this capacity building need, a course on **"The International Dimension of Space Activities: Space Law and Policy for Engineers"** was developed, with support from UNOOSA
- 2-credit course (16x90 minutes), including practical exercises on developing and drafting national space law and policy
- Taught to 38 MSc and PhD Students participating in the UN/Japan PNST long-term fellowship programme and in Kyutech's Space Engineering International Course (SEIC)
- Course will be further developed and offered at Kyutech

**SEIC course taught at Kyutech in early 2017 was also explained.**

It was entitled "The International Dimension of Space Activities: Space Law and Policy for Engineers".

It was taught by Dr Werner Balogh (pictured below) for SEIC at Kyutech from 8 January 2017 to 9 March 2017. The course syllabus appears on the next page.





# Course Syllabus

#	Lecture Content
1	<b>Introduction</b> – why space engineers need to know about space law and policy.
2	<b>History of space activities</b> – how space activities evolved in the context of space law and policy.
3	<b>Importance of space activities</b> – why they are essential for humankind.
4	<b>United Nations and space activities</b> – the role of the United Nations and other international organizations.
5	<b>Essentials of international space law, Part I</b> – fundamentals of international law, outer space treaty.
6	<b>Essentials of international space law, Part II</b> – space objects, liability and registration, Moon treaty.
7	<b>Long-term sustainability of outer space activities</b> – space debris, frequency coordination, orbital positions.
8	<b>Developing a national space policy and strategy for your country</b> – team exercise.
9	<b>National space law</b> – importance of developing and implementing national space law.
10	<b>International space cooperation</b> – why and how to cooperate, space cooperation examples.
11	<b>Developing national space law for your country</b> – team exercise.
12	<b>Space in support of sustainable development</b> – how space activities contribute to Agenda 2030 implementation.
13	<b>Future of space governance</b> – UNISPACE conferences, UNISPACE+50 and Space 2030.



Dr Balogh's course was very well received by Kyutech students. Many said it should be taught every year.

End of reprints of  
presentation by  
Daniel Garcia Yarnoz.

# 2017 PNST Symposium

Post-graduate study on Nano-Satellite Technologies

Day 1 4 December 2017

Day 2 5 December 2017

Venue: Tobata Campus, Kyutech, Kitakyushu City, Japan

*A great many BIRDS students are on PNST scholarships.*

**THIS ARTICLE CONSISTS OF 13 PAGES.**

## Symposium on Post-graduate study on Nano-Satellite Technologies (PNST)

Date December 4 and 5, 2017  
Venue Nakamura Centenary Memorial Hall  
Kyushu Institute of Technology, Tobata-ku, Kitakyushu, Japan

### Program

13:30	Greetings to participants Prof. Yuji Oie (President, Kyutech) Mr. Hiroki Matsuo (Deputy Director-General, Higher Education Bureau, MEXT)
13:45	PNST summary Prof. Mengu Cho (Kyutech, PNST program director)
14:00	Keynote lecture, "UNISPACE+50 and the road to Space2030" Mr. Luc St-Pierre (Chief, Space Applications Section, Office for Outer Space Affairs, United Nations Office at Vienna)
14:30	Keynote lecture, "Challenge for 2030" Mr. Yasuhiro Yukimatsu (Director, National Space Policy Secretariat, Cabinet Office)
15:00	Coffee break, and group photo
15:20	Keynote lecture, "Maximizing the Outcome of the ISS and "Kibo" - Innovative launch opportunity for Micro/Nano-satellite by using one and only function on Kibo/ISS" Dr. Koichi Wakata (ISS Program Manager / Astronaut, Human Space Technology Directorate, Japan Aerospace Exploration Agency)
15:50	Speech by student representative Dr. Mohamed Yahia (PNST Fellow, Egypt)
16:05	Panel discussion: <i>How do we apply the lessons of PNST for more and better space engineering capacity building in the future?</i> Moderator: Prof. M. Cho Panelists: Mr Luc St-Pierre Mr. Yasuhiro Yukimatsu Dr. Koichi Wakata Dr. Erdenebaatar Dashdondog (PNST Fellow, Mongolia) Ms Rojas Quesada (PNST Fellow, Costa Rica)
17:30	Reception

## ← The Program for Day 1 (4 Dec 2017)

Mr. Matsuo was replaced at the last minute by Mr. Shigeki Izumi, Office for Student Exchange, Higher Education Bureau, MEXT.



Workshop  
Reception  
Desk



# Welcoming Remarks



Prof. Oie, President of Kyutech



Mr. Izumi, representative of MEXT



[1]



[2]



[3]



[4]

## Key Note Speeches

- [1] PNST summary, Prof. Mengu Cho (Kyutech, PNST program director)
- [2] Keynote lecture, "UNISPACE+50 and the road to Space2030",  
Mr. Luc St-Pierre, (Chief, Space Applications Section, Office for Outer Space Affairs,  
United Nations Office at Vienna)
- [3] Keynote lecture, "Challenge for 2030",  
Mr. Yasuhiro Yukimatsu (Director, National Space Policy Secretariat, Cabinet Office)
- [4] Keynote lecture, "Maximizing the Outcome of the ISS and "Kibo" - Innovative launch  
opportunity for Micro/Nano-satellite by using one and only function on Kibo/ISS"  
Dr. Koichi Wakata (ISS Program Manager / Astronaut, Human Space Technology Directorate, JAXA)

**Dr Yahia (Egypt)  
makes student  
representative  
speech**

**TOPIC: How do we apply the lessons of PNST for  
more and better space engineering capacity building  
in the future?**

**Panel discussion led by Prof. Cho.**

**BIRDS engineers  
Ibukun (Nigeria) and Turo (Mongolia)**

**Many SEIC students attended**

**Dr Wakata and Jesus (Colombia)**



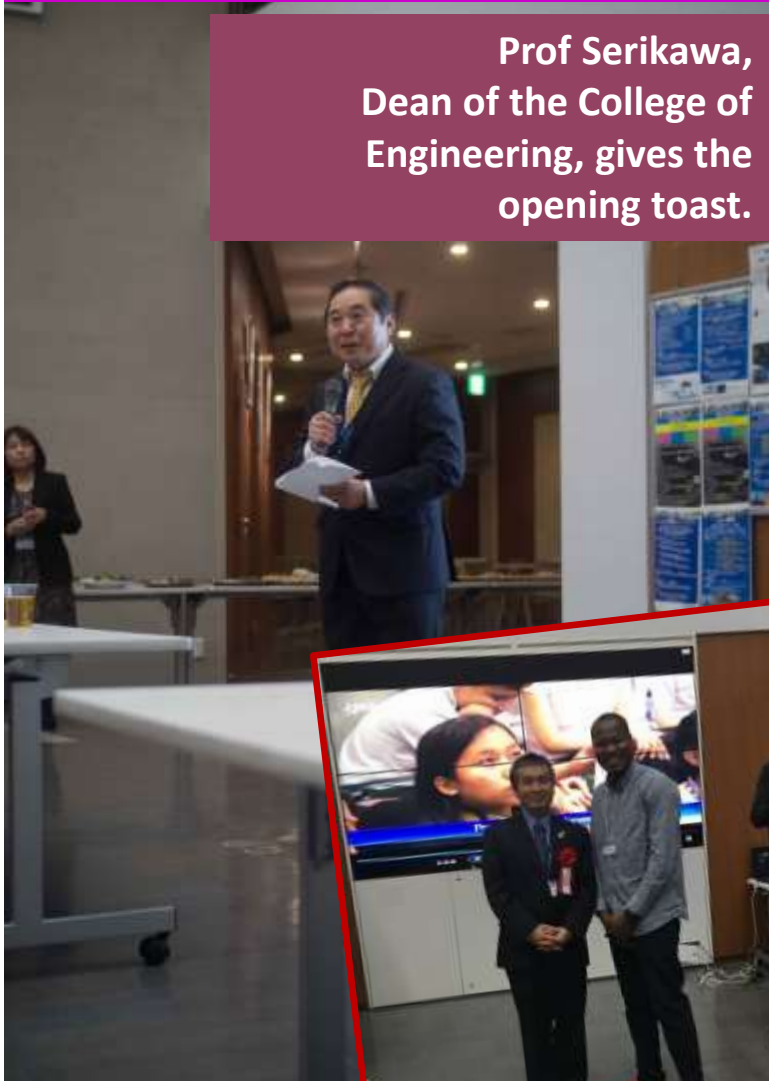


# Official Group Photo for Day 1

Ground floor of  
Nakamura Memorial  
Hall on the Tobata  
Campus of Kyutech

## THE RECEPTION (情報交換会)

Prof Serikawa,  
Dean of the College of  
Engineering, gives the  
opening toast.



**From left:**

- Yeshey (Bhutan)
- Dr Wakata (JAXA)
- Pooja (Bhutan)
- Dulani (Sri Lanka)



**Left:**  
Dr Wakata (JAXA)  
with Taiwo

Meeting old friends  
and making new ones.





Day 2 Program of  
**2017 PNST Symposium**  
Basic Space Technology Initiative Fellowship Programme

United Nations/Japan Long-term Fellowship Programme 2017  
Post-graduate study on Nano-Satellite Technologies (PNST)  
(Kitakyushu, Japan)

December 5, 2017

Location: University Library (see map below), 4th floor AV Hall.  
Master of Ceremonies: Mr G. Maeda, LaSEINE, Kyutech.  
Start time: 9:00 AM.

Day 2 of the PNST Symposium: Discussion between current students and graduates

09:00-09:20 Introductory remarks by Mr. St-Pierre (United Nations Office for Outer Space Affairs) regarding UNOOSA's small sat activities for this year and next. Also, the long-term vision on this matter and its linkages with other issues

09:20-09:45 Sidi Ahmed BENDOUKHA (PhD)  
Algerian Space Agency (ASAL-CDS), Algeria  
*Effectiveness of the Adequate Education Program -- PNST Under UNOOSA/Japan and Recent Achievements of ASAL-CDS*

09:45-10:10 Mohamed Yahia Edries (PhD)  
Space Division, National Authority for Remote Sensing and Space Sciences (NARSS), Egypt  
*Goals and achievements of studying my PhD under PNST program in Japan*

10:10-10:35 Mariela Rojas Quesada (Master Degree)  
University of Costa Rica, Costa Rica  
*How PNST moves from Kyushu to San Jose?*

10:35-10:50 **Break**

10:50-11:15 "Erka" Erdenebaatar Dashdondog (PhD)  
Nano-Satellite Development Laboratory  
National University of Mongolia, Mongolia  
*Possibility of Space technology development based on Nano-satellite technology in Mongolia*

**Cont'd next column**

## ← The Program for Day 2 (5 Dec 2017)

11:15-11:40 Ammarin Pimnoo (PhD)  
Geo-Informatics and Space Technology Development Agency (GISTDA), Thailand  
*Past and Future Cooperation between GISTDA and Kyutech*

11:40-13:00 **Lunch**

13:00-15:00 Afternoon session (to be led by Mr. St-Pierre)  
Afternoon is devoted to exchanges between graduates and current students. Students may get a direct glimpse at the professional world and job market from these exchanges. Graduates may also be interested in hearing (seeing) the projects of current students. Hence the afternoon session is informal in style.



We used the AV Hall of the main library of Tobata Campus





**Luc,  
UNOOSA**



**Sidi,  
Algeria**



**Yahia,  
Egypt**

20-minute presentations



**Mariela,  
Costa Rica**



**Erka,  
Mongolia**



**Ammarin,  
Thailand**

20-minute presentations



After lunch, Luc organized a group discussion exercise. About six groups were formed. Shown here are two groups. Students were asked to outline a system of a constellation of satellites by considering issues such as →



- Maintenance
- Funding
- Governance
- Technology

Students delved into deep discussions !





Rahmi, Indonesia



Cosmas, Kenya



Taiwo, Nigeria

Representatives of each group gave a presentation to summarize the group discussions



# Official Group Photo for Day 2

**This concludes  
the article on the  
2017 PNST  
Symposium**

## 09. Prof Tariqul and Dr Huzaimy commence their 2017 4<sup>th</sup> quarter courses at SEIC



7th Dec. 2017; First Lecture  
“Satellite Communication”  
4th Quarter of 2017; SEIC, Kyutech, Japan

Taught by  
Prof. Tariqul of UKM\_Malaysia  
Visiting Professor, Kyutech.



**A big plus of SEIC education is that world-class space engineering lecturers are invited to teach important subjects for the benefit of SEIC students -- many of them are BIRDS students.**



12th Dec. 2017; First Lecture  
“Space Weather and Satellite System Interaction”  
4th Quarter of 2017; SEIC, Kyutech, Japan

Taught by  
Dr. Huzaimy of UiTM\_Malaysia  
Visiting Professor, Kyutech.



## 10. Work Breakdown and Product Breakdown session of BIRDS-3

Work breakdown and product breakdown presentation of BIRDS-3 was held on 11<sup>th</sup> of December 2017. Work breakdown of the overall project, product breakdown, functions and requirements of subsystems and missions were presented. We announced the role of each person in BIRDS3 in this session.



Cont'd next page

# Role of Each Member

## Subsystems Responsibility

Subsystem	Responsible person	Secondary person
Structure	Sasaki	Kakimoto
OBC	Kakimoto	Dulani
Communication	Tharindu	Makiko
Antenna	Makiko	Tharindu
EPS	Pooja	Tharindu

## Mission Responsibility

Mission	Responsible person	Secondary person
Camera	Abhas	Tharindu
Data Collection	Tharindu	Abhas, Makiko, Pooja
Backplane	Abhas	Makiko
ADCS	Dulani	Kakimoto
Glue	Sasaki	Makiko
Magnetic field density measurement	Dulani	Kakimoto

**This 2-page article was created by Dulani Chamika (Sri Lanka, BIRDS-3)**

## 11. Profiles of the members of BIRDS-3 Team

# *Profiles of BIRDS-3 Members*

Relaxing during a weekend home party







**Name :** Abhas Maskey

**Nationality :** Nepalese

**Major:** BSc. in Mechanical (min.) and Aerospace (maj.) Engineering  
MSc. in Aerospace Engineering, Seoul National University (both degrees)

**Role in BIRDS-3 :** Appointed as the Project Manager for BIRDS-3 project, my main task is to keep the tight development time schedule while managing the team. As the Project Manager's work has expanded to design and development from BIRDS-2, I am also taking care of the Imaging Payload. This was a natural step as my Master's degree thesis was based on scratch camera design for Seoul National University's QB50 SNUSAT-1/1b CubeSat Project.

Suffice to say, I am incredibly honored to be leading such a diverse team while building the first satellite for Nepal.

**Email :** maskey.abhas481@mail.kyutech.jp



**Name :** Withanage Dulani Chamika

**Nationality :** Sri Lankan

**Major:** BSc. Mechatronics Engineering, Asian Institute of Technology, Thailand

**Role in BIRDS-3 :** In Birds-3 project I'm working on Onboard Computer(OBC) system. OBC works as the brain of the satellite. OBC has to execute commands from ground station ,collect and manage housekeeping data, and control subsystems such antenna deployment and electrical power supply control, payloads etc.

In addition, I'm working on Attitude Determination and Control System (ADCS). Active attitude control is a mission in BIRDS-3 project.

Moreover I'm working on the mission "Magnetic field density measurement in the orbit". The purpose of this mission is to collect the magnetic density data in the orbit and create a database.

In addition to these technical activities I coordinate the outreach activities of the BIRDS-3 project. This is my first ever satellite project and I'm so excited to be a part of BIRDS-3.

**Email :** withanage.dulani-chamika622@mail.kyutech.jp



**Name :** Tharindu Lakmal Dayarathna

**Nationality :** Sri Lankan

**Major :** BSc. in Electrical and Electronic Engineering, University of Peradeniya,  
Sri Lanka

**Role in BIRDS-3 :** I have been assigned to communication subsystem of BIRDS-3 project. My role is to ensure every components related to communications functions as they are intended. Beside communication subsystem I am assigned as secondary person for antenna deployment system.

In addition I am the responsible person for Data Collection mission. Data Collection mission is one of main mission of BIRDS-3 project. I think, this mission is quite challenging since it involves many modifications and testing.

I feel fortunate to be able to take part in BIRDS-3 project. I hope my works and BIRDS-3 project will be very successful.

**Email :** malmadayalage.tharindu-lakmal346@mail.kyutech.jp





**Name:** Pooja Lepcha

**Nationality:** Bhutanese

**Major:** B.E in Electrical Engineering from College of Science and Technology,  
Royal University of Bhutan, Bhutan

**Role in BIRDS-3 :** I am primarily responsible for Electrical Power System (EPS) in BIRDS 3. The main function of EPS is to provide uninterrupted power to on board electronics of the CubeSat both in sunlight and in eclipse.

I am also involved in the Ground station development in BIRDS 2; since my country is a participating country in BIRDS 2. BHUTAN-1 will be the first satellite of Bhutan and I feel privileged to be a part of it.

It is also a great opportunity for me to be part of BIRDS 3 team. I expect it to be intriguing and challenging, and I hope to take back home a lot of experiences, lessons and life long friendships.

**Email :** lepcha.pooja586@mail.kyutech.jp



**Name:** Kakimoto Yuta

**Nationality:** Japanese

**Major:** Systems Engineering, Kyushu Institute of Technology, Japan

**Role in BIRDS-3 :** My role is mainly Attitude determination and control system(ADCS). I will try to develop active control by magnetic torquer, which is a different control method from BIRDS-1/2. In this method, considering how to design control algorithm will be the key factor to be succeed. Also, I will have some tasks in OBC, thermal design and some non-product works.

In this project, we can learn the whole process of building a system through designing, developing, testing and operating the satellite. This will be very valuable experience to work as an engineer in the future. I want to contribute greatly in this project while improving my skill.

**Email:** o111013y@mail.kyutech.jp



**Name:** Makiko Kishimoto

**Nationality:** Japanese

**Major:** Systems Engineering, Kyushu Institute of Technology, Japan

**Role in BIRDS3:** I am working on Antenna design and Antenna deployment system for BIRDS3 project. I think this system is a very important part in the satellite, so I want to do my best to be successful.

Then I also have my roles which are the secondary person of Communication system (COM) and some missions (Demonstration of software defined Backplane, Use of Glue which is available on the market and Magnetic field density measurement). In the non-product element, my roles are outreach, advertisement, data distribution, requirement management and inventory management. I think that these roles are also important for to proceed the project, so I want to support BIRDS3 members to make their works easier and to inform BIRDS3 project to the world.

During BIRDS3 project, I will gain more skills and experiences.

**Email:** p111016m@mail.kyutech.jp





**Name:** Kakimoto Yuta

**Nationality:** Japanese

**Major:** Systems Engineering, Kyushu Institute of Technology, Japan

**Role in BIRDS-3:** My role in the BIRD-3 Project is Structure Design. The structure must play the role of mechanical support for all subsystems. I will efficiently arrange all the equipment and missions to move within the limited space in 10 cm cubic. The basic design will take over the design of BIRDS-2 and will change the design to introduce new elements such as the new backplane and magnetic torquer. Therefore, I am playing an important part to make this project successful, so I will do my best to work hard and enjoy my job at the same time.

Projecting with a lot of foreign students will be a very valuable experience for me. I would like to use this opportunity to improve English and learn about foreign cultures at the same time.

I hope that this project will be successful.

**Email:** o111021y@mail.kyutech.jp

## 12. BIRDS-3 Activities during Nov-Dec, 2017 (1), by Abhas

Nov 14, 2017



Mission Mode Revision

Nov 20, 2017



Dr. Kim's Session

Nov 22, 2017



Mission Functions Session

Nov 25, 2017



Potluck with BIRDS-1 (Taiwo, Maisun)

Nov 30, 2017



PIC Programming Hands-on Session  
Tharindu (BIRDS-3)

Dec 02, 2017



BIRDS-3 Radio License Exam

### 13. BIRDS-3 Activities during Nov-Dec, 2017 (2), by Abhas



**BIRDS-3** members are now preparing for the upcoming **Mission Design Review (MDR)** which marks a milestone in the satellite development process. The MDR is posed to be held at Kyutech on Dec 28, 2017. BIRDS-3 satellite is posed to have Data Collection and Imaging Missions as their main missions.



## 14. Special photo report on UN/South Africa Symposium, by Senior of Namibia

The next nine pages were created by Senior Shimhanda, a student in Namibia. There is a chance he will come to Kyutech to enter SEIC, and perhaps join a future BIRDS Project. Kyutech is seeking ways for him to get over here for studies in space engineering.

### United Nations/South Africa Symposium on Basic Space Technology

11 DECEMBER 2017 - 15 DECEMBER 2017



The flag of Namibia

## HEPTA Sat Training




Senior Shimhanda (Namibia), Joseph Quansah (ANUC, Ghana) & Barbara Ojur (University of Cape Town) building a 1U pico-satellite during the HEPTA Sat training.



The symposium venue (The Stellenbosch Institute for Advanced Study, South Africa) →





# The benefits of becoming a spacefaring nation and potential satellite applications in Namibia

Senior Shimhanda, BEng  
Namibia University of Science and Technology



## Introduction

This work covers existing space activities in Namibia and outlines the process of making Namibia a spacefaring nation. Namibia has no space agency or a space related programme but the Namibian government has prioritised Space Science. In this regard, the National Commission on Research, Science and Technology (NCRST) has established a Space Science Council to administer space initiatives in Namibia. Currently, a Radio Astronomy training is operating, but a space technology development programme is lacking. CubeSat as scientific tools can collect data for research purposes and capture high quality photographs of land to monitor urbanisation and the recurring floods in Northern Namibia. For this reason, the Namibian government must invest approximately USD30000 to complement the Space Science Council with a space programme. The aforementioned sum is sufficient to fund two Engineering students to enrol in the Space Engineering International Course (SEIC) of the Kaifu Institute of Technology (Kiyotech), Japan.

## BIRDS Project

BIRDS is a cross-border interdisciplinary satellite project for non-space faring countries supported by Japan. The project follows the United Nations (UN) based mandate to perform space technology capacity building for non-spacefaring nations. BIRDS shall train a minimum of two Namibian students to become competent space engineers who understand the complete process of satellite development. Students are then required to return to Namibia and replicate the entire process. BIRDS newsletter: <http://birds.uts.hi.nitech.ac.jp/newsletter.html>



Figure 1: DARA Trainee 2017 at R.E.S. University

## Space Technology Benefits

**Skills and knowledge transfer:** Skills gained from nanosatellite development are applicable in the telecommunication sector.

**Capacity development:** engineering students can develop plasma diagnostic systems (Double Langmuir Probes) to be carried on board a CubeSat to characterise space plasma.

**Gender Equality:** Women can participate and contribute.

**Industrialisation:** a space programme for Namibia shall have positive ripple effects on Science, Technology, Engineering and Mathematics (STEM) which is key to industrialising Namibia.

**Ionospheric studies:** to study ionospheric delays and geomagnetic induced currents (GIC), which pose a threat to power transmission lines.

**Research purposes:** research into climate change and global warming.

## Space Engineering International Course

The Space Engineering International Course (SEIC) is a Postgraduate degree offered at the Kaifu Institute of Technology (Kiyotech), Japan. SEIC provides extensive research opportunities in nano-satellite systems through the use of nano-satellite development and testing facilities at Kiyotech. SEIC candidates join a nanosatellite development project entitled BIRDS to acquire the technical skills necessary to develop a satellite and international communication skills to work in a multi-cultural team. Upon completion, graduates become competent space engineers who understand the full process of satellite development which includes design, fabrication, integration, testing, launching and operation in space.

## Space Activities in Namibia

A Radio Astronomy programme entitled "Development in Africa with Radio Astronomy (DARA)" is in operation in Namibia to create the Africa Very Long Baseline Interferometry (VLBI) Network (AVIN). AVIN implies a network of VLBI-capable radio telescopes on the African continent which will reinforce the global VLBI network.



Figure 2: Team Bangladesh India Bangladesh's first satellite developed in Kiyotech, Japan

## SEIC students (October 2016)

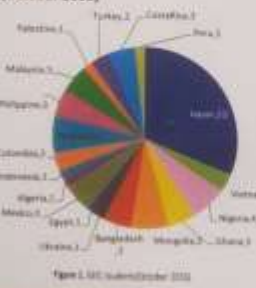


Figure 3: SEIC students October 2016

## Table 1: Potential Space Technology Applications in Namibia

Applications	Beneficiaries
Mapping and surveying	Geophysicists/NGOs
Weather forecasting	Namibia Meteorological Service
Environmental monitoring	Ministry of Environment & Tourism
Disaster monitoring	Ministry of Safety and Security
Radio communications	Telecom Namibia
Remote Sensing	Namibia GIS Society

## Conclusion

- Namibia is a non spacefaring nation but its government has formed a Space Science Council to administer space activities.
- A space programme for Namibia can strengthen research, science and technological innovation.
- A space programme complements Sustainable Development Goal (SDG) and its ripple effects on STEM is key to industrialisation in Namibia.

## Contact

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Namibia University of Science and Technology  
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Website: [www.nust.ac.na](http://www.nust.ac.na)  
Phone: +264(0)607746

## References

1. G. Hondo and M. Cho, "Sustainable Human Resource Development in Space Technology for Japan," *ScienceAsia*, 2017.
2. "Benefits Stemming From Space Exploration," 2012.
3. <http://www.un.org/News/Press/docs/2012/12/121211.unscs.html>
4. <http://www.uts.hi.nitech.ac.jp/newsletter.html>
5. <http://www.uts.hi.nitech.ac.jp/newsletter.html>



Poster Session (Day 4)

← Senior's Poster [Note the BIRDS-1 team of Bangladesh; editor]





**Group 2 members receiving their certificates for completing the HEPTA Sat Training.**  
From left Prof Yamazaki (Nihon University) , Senior Shimhanda (Namibia),  
Barbara Ojur( UCT, South Africa) and Joseph Quansah (Ghana)



Senior (Namibia), Kanyisa (South Africa) and Ahmed (Sudan) – Day 1

## The objectives of the UN/South Africa Symposium are:

1. Review the status of capacity-building in basic space technology for small satellites including lessons learned from the past and on-going development activities with a focus on regional and international collaboration opportunities, in particular for countries in Africa;
2. Examine issues relevant to the implementation of small satellite programmes, such as organizational capacity-building, development and testing infrastructure and launch opportunities;
3. Review state-of-the-art scientific applications of small satellite programmes and their associated supporting technological developments, in particular with focus on applications for agriculture, environment and city monitoring, and education to promote a sustainable growth, in line with the [2030 Agenda for Sustainable Development](#);
4. Elaborate on regulatory issues of space technology development programmes, such as frequency allocation and space debris mitigation measures for enhancing the long-term sustainability of outer space activities as well as import/export controls;
5. Elaborate on legal issues and responsibilities related to space technology development programmes, such as those that are raised from the relevant provisions in international space law;
6. Discuss the way forward for the Basic Space Technology Initiative (BSTI), and its capacity-building and international cooperation activities in preparation of [UNISPACE+50](#).





Senior Shimhanda  
networking with  
Taiwo Tejumola  
(Kyutech) – Day 1

UNISPACE  
+50





Luis Diego Solano (Costa Rica), Senior Shimhanda and Faraaz Shamutally (Mauritius) posing at the New Space Systems stand – Day 3



Hotel of the symposium

**Protea Hotel Stellenbosch**

📍 Techno Avenue, Techno Park Stellenbosch 7600 South Africa



BSTI Participants having dinner at the Protea Hotel Marriot. Wonderful food!



A room with a view.





John (Nigeria), Duckie (SA), Tomas (Slovakia) and Senior (Namibia) in front of the Wallenberg Research Centre





Senior and Taiwo enjoying wine together (Farewell Dinner)



**End of Senior's article on the UN symposium near Capetown, South Africa.**

*- Thank you, Senior !  
The Editor*



15. 27-year-old “Space World”, an icon of the Kitakyushu area, will close its gates this month

読売新聞より, 2017.12.19

YOMI-URI Newspaper 135 2017.12.19 社会 28

スペースワールド  
SPACE WORLD

閉園後 どうなるの？

北九州市八幡東区のテーマパーク「スペースワールド」は、今月末の営業で27年間の歴史にピリオドを打つ。名残を惜しむ来園者でにぎわう一方、跡地活用の具体像は見えておらず、閉園後に向けて、関係者の期待と不安が交錯している。

■鉄都再興のシンボルと語った。スペースワールドは1990年4月、新日本製鉄（現・新日鉄住金）を中心とした第3セクターが、八幡製鉄所の遊休地に開業。「鉄冷え」からの再興を目指す「鉄都・北九州」のシンボルとなった。

しかし、経営悪化で2017年4月に閉園。跡地は約20万平方メートル。来園者でにぎわうスペースワールド（17日午前、北九州市八幡東区で）

★ Cont'd at the right pane.

従業員や跡地 課題多く

“Space World” is a space-themed amusement park not far from the Tobata Campus of Kyutech. It opened in 1990 near the peak of the “Bubble Economy of Japan”. It inspired many kids to consider a space-related career. It was easily visible during the train ride between Fukuoka City and Kitakyushu City. Sadly, expenses outpaced revenue, and so it will soon permanently close its gates.

05年に民事再生法適用を申請。ホテルなどを手がける加森観光（札幌市）が運営会社を引き継いだ。閉園は、アトラクションなどの更新による負担増が見込まれる中、土地を所有する新日鉄住金との賃貸借協議が不調に終わったことが背景にあるとみられている。

■詳細示されず  
跡地利用について、新日鉄住金と優先交渉するイオンモール（千葉市）は、ショッピング機能に「エンターテインメント」「カルチャー」「食」を融合させた複合施設の整備を掲げているが、詳細な内容は示されていない。

そうした中、イオンモールは10月、広島市で18年春にアウトレット店を核とした複合商業施設を開業すると発表。スペースワールドの跡地と規模や基本理念が近く、北九州商工会議所の利島康司会頭は「（広島で消費者の）反応を見て、北九州の活用法を考えるのではないかな。街のにぎわいに貢献するものにしてほしい」と期待する。

一方、商業施設の進出には反対の声も根強い。北九州市内約2600店舗でつくる市商業連合会の宮崎敏久会長は「新たな施設の開設は客を取り合うだけ」と指摘。スペースワールド近くの商店街で服飾店を営む三木進さん（80）も「古くからの商店街は生き残れないかも」と不安を口にする。

従業員の処遇も課題だ。スペースワールドは希望者を加森観光のグループ会社内で異動させる方針を示しているが、市内に生活拠点を置く従業員もあり、ハローワーク八幡と北九州市は今年11、13日、転職説明会を開催。市によると、計約100人が参加した。ある男性従業員は「北九州に残りたいが、希望通りの転職先が見つかるか不安だ」と表情を曇らせる。

## 16. A discussion on NanoRacks CubeSat Deployer, and JAXA's deployer

All BIRDS satellites are deployed via JAXA's J-SSOD. There is another deployment system in the ISS. Read all about both of them.

 Like

### NanoRacks CubeSat Deployer



The **NanoRacks CubeSat Deployer (NRCSD)** is a device to deploy CubeSats into orbit from the International Space Station.

Currently, there are two CubeSat deployers on board the International Space Station (ISS): The Japanese Experiment Module (JEM) Small Satellite Orbital Deployer (J-SSOD) and the NanoRacks CubeSat Deployer (NRCSD). The J-SSOD is the first of its kind to deploy small satellites from the International Space Station. The NRCSD is the first commercially operated small satellite deployer from the ISS, maximizing full capabilities of each airlock cycle of deployments.

Save

### History

#### JEM Small Satellite Orbital Deployer

The Japanese Experiment Module Small Satellite Orbital Deployer (J-SSOD) is the first of its kind to deploy small satellites from the International Space Station. The facility provides a unique satellite install case to the Japanese Experiment Module (JEM) Remote Manipulator System (RMS) for deploying small, CubeSat, satellites from the ISS.<sup>[3]</sup> The J-SSOD holds up to 3 small one-unit (1U, 10 x 10 x 10 centimeters) small CubeSats per satellite install case, 6 in total, though other sizes up to 55 x 55 x 35 cm may also be used. Each pre-packed satellite install case is loaded by crewmembers onto the Multi-Purpose Experiment Platform (MPEP) within the JEM habitable volume.<sup>[3]</sup> The MPEP platform is then attached to the JEM Slide Table inside the JEM airlock for transfer to the JEMRMS and space environment. The JEMRMS grapples and maneuvers the MPEP and J-SSOD to a predefined deployment orientation and then jettisons the small CubeSat satellites.<sup>[3]</sup>

*All of this is continued at :*

<https://www.revolvy.com/main/index.php?s=NanoRacks%20CubeSat%20Deployer&uid=1575>



## 17. Introducing Dr. Noraisyah of UiTM, Malaysia

With any BIRDS project, Kyutech receives students and puts them through tough training so that learn the entire CubeSat development process from A to Z.

However, it is also important to develop human resources back at home. Kyutech strongly encourages staff and students back at home to get involved in any aspect (big or small) of the satellite project.

A good example of staff involvement is Dr. Noraisyah of Malaysia. Read her story on this page and on the next page.

She has applied for the **Hitachi Scholarship**. If she receives this, she will be able to come to Kyutech for a few months next year.

Hi ! I am Noraisyah, currently working as a lecturer in University of Malaya (UM) Malaysia. I completed my PhD dissertation in 2014 on satellite signal propagation, focusing on investigating diurnal variations in the received satellite beacon signal level during clear sky. We extracted satellite propagation data from several experiments, this include NASA's ACTs, INTELSAT beacon experiment observed by Texas A&M University, INTELSAT 705 beacon experiment observed by Pontifical Catholic University of Rio de Janeiro and the Olympus satellite beacons observed by Virginia Tech.

From the investigation we concluded that a 24 hour diurnal variations seen is due to atmospheric effects, and not due to satellite payload or orbital instabilities. From our findings we recommend that the seasonal and diurnal variation of the mean clear-sky level is considered in determining link budget for low margin systems, and the sinusoidal nature of the variation augment the function of radiometers in evaluating the true rain fade level. **Cont'd next page**

Upon returning to Malaysia, I continued to teach Undergraduate and Masters Degree students in various courses pertaining to the field of Electrical and Telecommunications Engineering. I joined a few research groups that focused on satellite communication as well as radio astronomy.

Through Dr Huzaimy of UITM Malaysia, I was introduced to the **BIRDS Project at Kyutech**. My work will be in assisting the development of a double Langmuir probe as payload to monitor the electrons in the ionosphere.

I hope to be able to continue my research in the new field of nanosatellite and assist team Malaysia in sending out our own nanosatellite!

I look forward to have the opportunity to join you in Kyutech.



A picture with my supervisor Prof Jeremy E. Allnutt of George Mason University during my graduation ceremony in Dec 2014



With the radio astronomy research group from UM & UPSI at UITM's applied electromagnetic research lab. (L-R) Ms Ain Zakaria, Myself, Mr Danial, Dr Zamri and Mr Wan Zul.

Dr. Noraisyah: Thank you for this write-up.  
We hope you'll get the Hitachi Scholarship.

- The Editor.

## 18. Yomiuri Newspaper interviews several members of BIRDS -1 -2 and -3 on 20 Dec 2017



The Yomiuri journalist asked, for example,

- ◆ **To Sri Lanka team:** the current status of their work.
- ◆ **To Bhutan team:** What the King of Bhutan asked when they had their Skype call with him a few months ago.
- ◆ **To Benjamin:** What happened when the President of Ghana visited ANUC to confer honors on the GhanaSat-1 team



## 19. International Conference on Space Weather and Satellite Application

This international workshop is being organized by UiTM's **Centre for Satellite Communication** [Director is Dr. Huzaimy].

UiTM is a member of the BIRDS-2 Project, along with Bhutan and the Philippines.

We hope all BIRDS member will consider attending this gathering in sunny Malaysia during 7-8 August of 2018. Please note the various deadlines listed in the red box at the right. The poster is from Dr. Huzaimy.

All questions can be sent to him.



**INTERNATIONAL CONFERENCE ON SPACE WEATHER & SATELLITE APPLICATION**  
7-8 AUG 2018  
SHAH ALAM, SELANGOR  
MALAYSIA

**CALL FOR PAPER**

**IMPORTANT DATES**

Submission deadline:  
**30 March 2018**  
Notification of acceptance:  
**30 April 2018**  
Camera ready:  
**30 May 2018**  
Conference date:  
**7 - 9 August 2018**

Accepted papers will be published in IOP Conference Series indexed by CPCI-S (Web of Science and SCOPUS):

- Earth and Environment Science (EES)
- Material Science and Engineering (MSE)

**ENQUIRIES**  
[icssat2018@gmail.com](mailto:icssat2018@gmail.com)

**REGISTRATION / SUBMISSION**  
<http://icssat.uitm.edu.my/>

**ORGANIZER:**  
Centre for Satellite Communication  
Faculty of Electrical Engineering  
Universiti Teknologi MARA

**CO-ORGANIZER:**  
National Committee on Space Weather and Electromagnetism

**TRACKS**

- Solar system and astronomical instrumentation
- Space weather and space climate
- Upper and lower atmosphere/ionosphere
- Antenna for space communication
- Remote sensing and GIS application
- Satellite and communication technology
- Space data management system
- Circuit design and electronic devices for space application
- Nano satellite and payload
- Simulation and modelling for space application
- Space and Earth's electromagnetism
- Education astronomy and public outreach
- Space policy, governance and entrepreneurship

Logos of participating institutions: UTM, UNESZA, and others.

# 42-page Photo Report of “2<sup>nd</sup> BIRDS International Workshop”



20-24 November 2017; hosted by ANUC, Ghana.

The BIRDS Project gratefully acknowledges the fantastic job performed by ANUC to make this workshop an outstanding success.



Dubai Airport,  
enroute to Ghana

**The *BIRDS Project* would also like to thank JAXA for its significant contributions to this workshop. We are grateful.**





**Breakfast buffet  
started each day  
at 7 AM**

**Members of BIRDS were  
lodged at **Eastern  
Premier Hotel** – about  
20 minutes from the  
workshop venue by bus.**



The dining  
room – each  
day started  
here.



# BREAKFAST OF DAY 1 (20 Nov 2017)



Professors Cho and Juang



Prof. Tsolmon and Marco



Mr Ozawa, Dr Huzaimy, Dr Tsolmon, Dr Marciano

# TRANSFER FROM HOTEL TO VENUE ON DAY 1

DEPARTURE



ARRIVAL



Ghana  
Sat-1

Venue banner



# THE VENUE



Reception Desk



Apiwat, Ibukun, Adrian



Mr Kwizera and Prof. Akinyede



Giant photos of Ernest, Benjamin, Joseph are on the stage screen



# Welcome speech by the President of ANUC, Dr Samuel Donkor



A packed hall



30-minute  
keynote address  
by Prof. Jimmy  
Adegoke, interim  
executive director  
of WASCAL.  
I thought he made  
several good points.



# BIRDS PRESENTATION BY PROF. MENGU CHO





# JAXA PRESENTATION BY MESSRS. AKAGI AND OZAWA



**Above: RBF pin and Ghana flag (returned from the ISS) are presented to ANUC**





Above: **RBF pin and Ghana flag** (returned from the ISS) are presented to Dr. Carlene, vice president of ANUC, by Mr Akagi.



**Coffee break –  
continued on  
the next page.**





From left:  
Dr Moutaman,  
Dr Faure,  
Prof Cho



The Coffee Break Room

ANUC generously  
provided coffee, tea,  
and cakes, during  
breaks throughout  
the workshop.



Marco (Costa Rica) and Joel (Philippines)



# LUNCH OF DAY 1 – continued on next page



Fried chicken is common in Ghana









## After lunch: ***BIRDS session of Day 1***

THE NEXT FEW PAGES

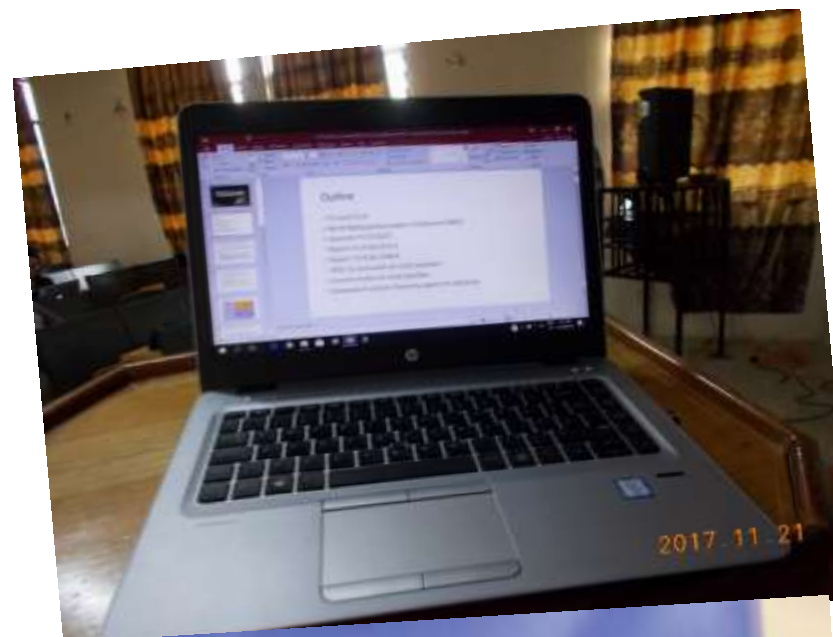


← Prof Cho makes a few key points



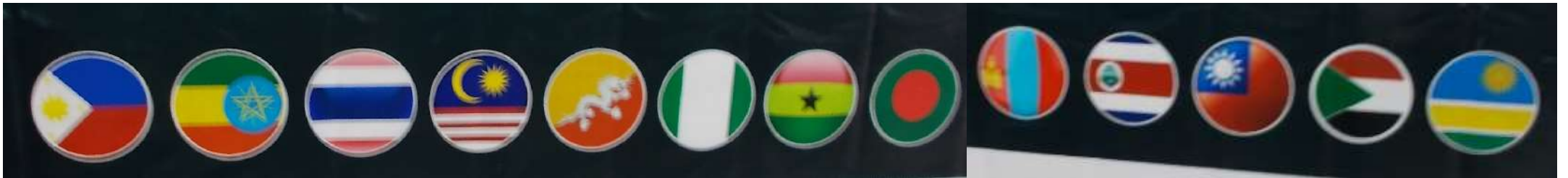
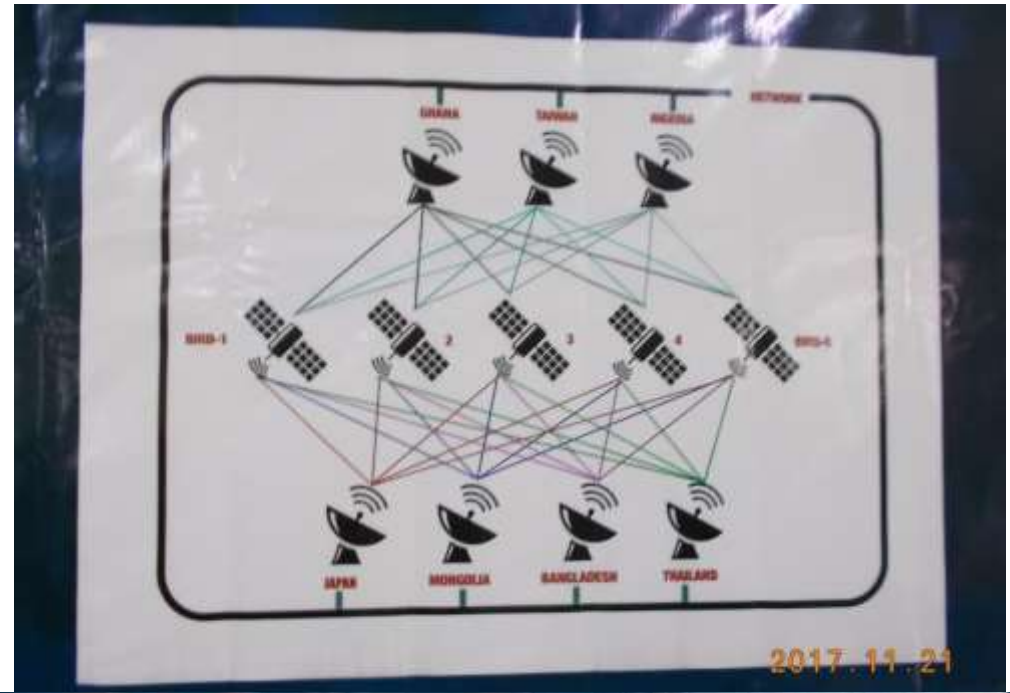


**Dr Moutaman of Sudan**



**The JSPS banner**

**Airfare for BIRDS participants was provided by JSPS**





# Mr. Georges Kwizera (RURA, Rwanda) discusses nanosatellites and the ITU



We learned about the international licensing aspects of the ITU



Mr. Sithar Dorji of Satellite Working Group, Bhutan





Marco talks about TEC's new space engineering lab – the first one in Central America



Currently the only BIRDS partner from Latin America is TEC of Costa Rica.

# **GALA DINNER OF DAY 1 – continued on the next 3 pages**

## **[photos by G.Maeda and Apiwat]**







**Dr Donkor addresses  
the participants**







Apiwat & Joseph



Lots of dancing – Ghana style



Ernest







**Many thanks to ANUC for this wonderful dinner**



**Lots of dancing – Ghana style**



# DAY 2

(in the morning)

## Panel Discussion

Topic:

*Fighting illegal  
mining (Galamsey)  
from space*



# LOCAL HIGH STUDENTS CHECK OUT THE JAXA EXHIBIT



Joseph (BIRDS-1 member) explains the ISS cubesat deployer **J-SSOD** in this outreach endeavor.



# DAY 2

## (in the afternoon)

### Extensive discussions about GhanaSat-2



Dr Carlene closes **THE 6TH SPACE  
SCIENCE AND SATELLITE TECHNOLOGY  
APPLICATIONS CONFERENCE**



Adrian



Marco



Quentin



## STORE AND FORWARD PRESENTATIONS OF DAY 3 (WEDNESDAY)



# STORE AND FORWARD PANEL DISCUSSION

Moderated by  
Prof Cho

Morning of Day 3

<b>Prof Cho</b>	<b>Joel</b>	<b>Adrian</b>	<b>Quentin</b>	<b>Huzaimy</b>	<b>Marco</b>
<b>Japan</b>	<b>Phil.</b>	<b>Phil.</b>	<b>France</b>	<b>Malaysia</b>	<b>Costa Rica</b>



Tour of the ANUC  
ground station – rain  
was coming down  
violently during this tour



Mr Benjamin Bonsu explains the system



## On Day 3

**I had the pleasure of having lunch with Dr Delele (Ethiopia), on the left, and Dr Moutaman (Sudan).**

**This is in the campus cafeteria. Editor.**

**The Blue Nile starts in Ethiopia and flows into Sudan**



Taiwan



Malaysia



Philippines



Mongolia



Nigeria



## COUNTRY PRESENTATIONS

The last formal item of the workshop:  
*Signing the Letter Of Intent (LOI)*

The LOI was first signed at the “1<sup>st</sup> BIRDS Int’l Workshop” (Kyutech, 2016). By signing, it indicates a willingness to join the “BIRDS Network.” New members were added with the **Appendix** shown at the right; it contains 7 new members.



Joining the LOI requires the approval of existing members of the LOI (a Kyutech rule). Prof. Mengu Cho confirmed this approval, and then signed the **Appendix** as the official witness.

- Nigeria
- Sudan
- Ethiopia
- Costa Rica
- Malaysia
- Bhutan
- Philippines

APPENDIX

Description of this page:  
"22-NOVEMBER-2017 APPENDIX" TO THE ORIGINAL "LETTER OF INTENT" (LOI OF 29-JUNE-2016, WHICH WAS SIGNED BY THE PARTICIPANTS OF THE 1<sup>st</sup> BIRDS INTERNATIONAL WORKSHOP AT KYUTECH, JAPAN, IN JUNE OF 2016.

During the "2<sup>nd</sup> BIRDS International Workshop" (ANUC in Ghana) the signatories of the original LOI were asked if the following entities could be added to the original LOI as signatories. Their approval was witnessed and confirmed by Prof. M. Cho, PI of the BIRDS Project.

Confirmed by Prof. M. Cho (Kyutech):

Date of signing:

New signatory one  
Federal University of Technology  
- Akure (FUTA), Nigeria;  
Prof. Akinyode

New signatory two  
Institute of Space Research and  
Aerospace (ISRA), Sudan;  
Dr. Mountan

New signatory three  
Bahir Dar University (BDU),  
Ethiopia;  
Dr. Ayale Delele Worku

New signatory four  
Tecnológico de Costa Rica (TEC),  
Costa Rica;  
Mr. Marco Gomez Jenkins

New signatory five  
Universiti Teknologi MARA,  
Malaysia;  
Assoc. Prof. Dr.  
Mohamad Husaimy Jusoh

New signatory six  
Satellite Working Group (SWG),  
Bhutan;  
Mr. Sithar Dorji

New signatory seven  
Univ. of Philippines at Diliman  
Philippines  
Prof. Joel Marciano

WITNESS  
(see photo)

Nov. 22, 2017.

22-11-17

22/11/2017

22/11/2017

22/11/2017

22/11/2017

22/11/2017





**Group photo after the LOI signing ceremony  
-- the “BIRDS Family” photo**

# Workshop Excursion to *Manhyia Palace*

Located in Kumasi,  
the capital of  
the Ashanti Kingdom and Ashanti Region.

Thursday (5am til 8pm)  
23 November 2017  
in two mini-vans provided by ANUC



Prof. Tzolmon (NUM, Mongolia) in a gift shop



## Along the way to the destination . . .



Weaving  
factory



**Manhyia Palace.** This is the principal [façade](#), the Front; originally constructed and completed in 1925. It acquired its present appearance following a remodelling, in 1995.

-- Wikipedia





Grounds (above) and gift shop (below) of Manhyia Palace

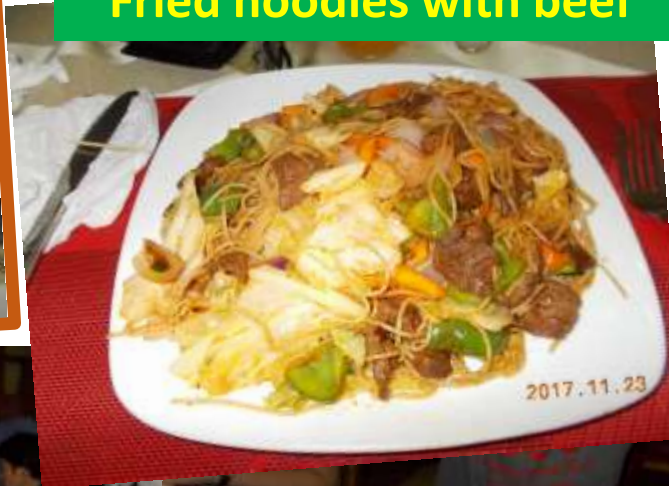






## Excursion lunch in the city of Kumasi

**Fried noodles with beef**



Pauline France   Mr Dorji Bhutan   Huzaimy Malaysia   Georges Rwanda



Some of the dishes were extremely spicy hot.



**7:30 AM departure on 24 Nov 2017 from hotel to airport (one batch)**



Ibukun Nigeria   Dr Delele Ethiopia   Dr Moutaman Sudan   Dr Faure France   Georges Rwanda   Dr Akinyede Nigeria   Turcia S.Africa   Dr Dahunsi Nigeria



**Loading the van**

**... SEE YOU AT THE 3<sup>RD</sup> BIRDS INT'L WORKSHOP IN MONGOLIA !**



**2017**  
**2<sup>nd</sup> BIRDS International Workshop**

A special lecture by a member of the  
**BIRDS Network**  
for the benefit of ANUC students

**Title: CubeSats**

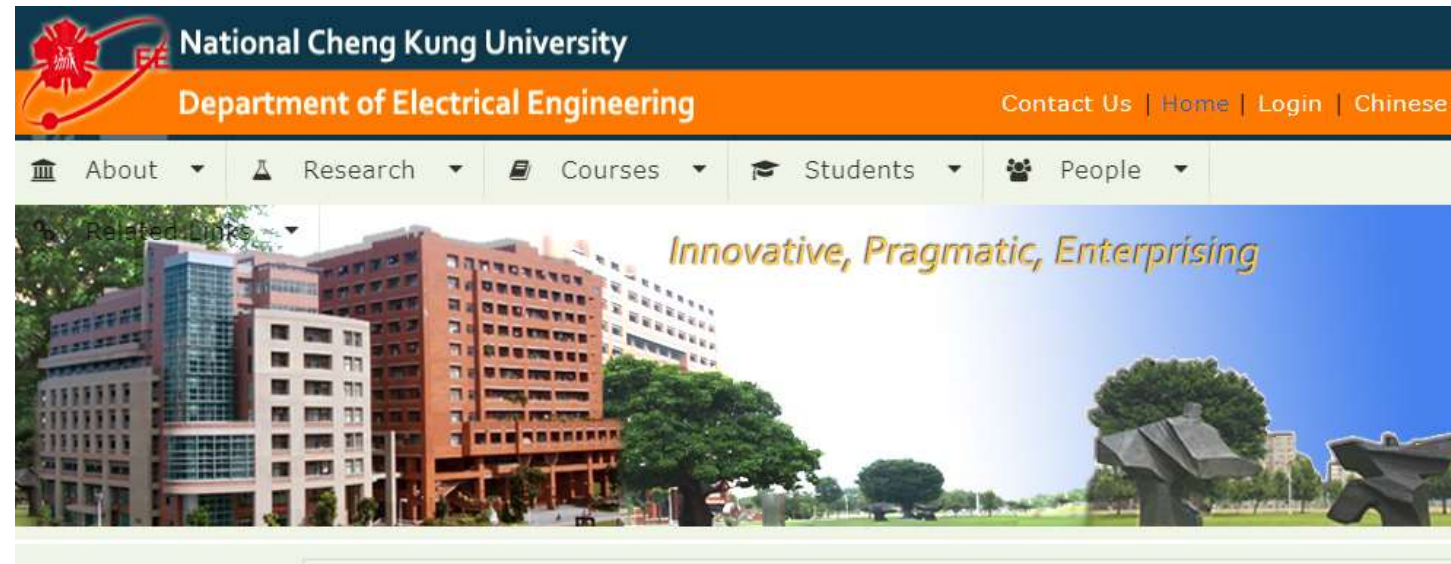
Lecturer: Prof. Jyh-Ching Juang

With the:  
Department of  
Electrical Engineering,  
National Cheng Kung University  
Tainan, Taiwan  
国立成功大学、台湾



Date of lecture: Friday, 24 Nov. 2017

Location: Main campus of All Nations University





# Special half-day lecture by Prof. Jyh-Ching Juang







Prof. Juang,  
Thank you for this  
enlightening and  
enriching lecture.

- workshop organizers,  
ANUC and Kyutech





The next BIRDS workshop will be  
hosted by NUM in Mongolia  
(logo above designed by Turo)

**End of article about the Ghana workshop**



# End of this **BIRDS Project Newsletter** – Issue Number Twenty-Three

This newsletter is archived at the BIRDS Project website:

**Project website:** <http://birds.ele.kyutech.ac.jp/>



When a new issue is entered in to the archive, an email message is sent out over a mailing list maintained by the Editor (G. Maeda, Kyutech). If you wish to be on this mailing list, or know persons who might be interested in getting notification of issue releases, please let me know.

This newsletter is issued once per month. The main purpose of it is to keep BIRDS stakeholders (the owners of the satellites) informed of project developments.