



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學



Croucher Foundation
裘槎基金會

Croucher Summer Course 2014

New GNSS Algorithms and Techniques for Earth Observations 2014 (nGATEo 2014) — GPS/Beidou/GNSS Satellite Positioning and Navigation and Earth Observation

26-31 May 2014

**Hong Kong Polytechnic University
Hong Kong, P. R. China**



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學



DEPARTMENT OF
LAND SURVEYING AND GEO-INFORMATICS
土地測量及地理資訊學系



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Call for Participation

Change is the only constant phenomenon on this Planet. The ecosystems of this planet where we are living in undergo constantly changes in temporal and spatial domains. The ecosystems become more fragile than before as evidenced by the occurrence and observation of many more unusual phenomena such as global warming, sea level rising, extreme weather, Earthquakes and natural disasters, etc. The ecosystems changes and dynamics of our planet need to be closely and precisely measured and monitored.

The modern GPS/BeiDou/GNSS and Earth Observation Systems (EOS) offer an unprecedented level of capability to deliver PNavT (Positioning, Navigation, Velocity and Timing) and observation information, which can be used to precisely measure and record this planet's dynamic change in a well defined space and time reference system, from both ground-based and space-satellite-based viewpoints.

A 6-day Croucher Summer Course 2014 with a theme on "GPS/Beidou/GNSS Satellite Positioning and Navigation and Earth Observation" will provide an excellent opportunity for internationally distinguished scholars to share their latest research outcomes with summer course participants. It will be an ideal place for all participants to broaden their horizon, diversifying research interests, enhancing their scholarly communications and reach out social network. Anyone interested in this Croucher Summer Course can register and become participant, regardless of whether they are from Hong Kong, Mainland China and any other countries/regions. However, in-school researchers



(PhD/MSc students, Postdoc), university junior faculty, industrial R&D engineers/researchers/professionals, and government professional officers will be given high priority in registration.

The Department of Land Surveying & Geo-Informatics (LSGI), at the Hong Kong Polytechnic University (PolyU), Hong Kong, P.R. China, has the great honor to partner with the Croucher Foundation, Hong Kong, to host this Croucher Summer Course 2014 on the campus of PolyU. The Hong Kong Polytechnic University was proudly ranked the 161st according to the QS World University Rankings 2013. The Department of Land Surveying & Geo-Informatics (LSGI), supported by a strong team of research and teaching faculty, enjoys a long history offering a variety of geomatics programs in Geodesy, Satellite Navigation, Land Surveying, Geographic Information Science (GIS), Photogrammetry, Remote Sensing, and Underground Utility Surveying and Management. The high quality research work conducted at LSGI is widely recognized in the international geomatics community and the Science Citation Index (SCI) of LSGI has been consistently ranked at the top in the world over the past many years. The LSGI will proudly celebrate its 30th anniversary in May 2014.

Organizing Committee for the Croucher Summer Course 2014

Director of Croucher Summer Course 2014:



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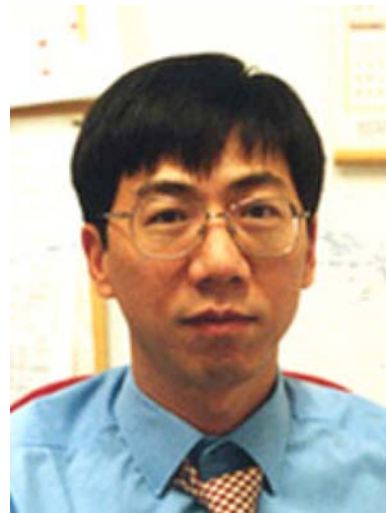
Co-Director of Croucher Summer Course 2014



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Invited Lecturers for the Croucher Summer Course 2014



Dr. Jeffrey T. Freymueller, Professor,
Geophysical Institute and Department of
Geological Sciences
University of Alaska
Fairbanks, USA
E-mail: jeff.freymueller@gi.alaska.edu



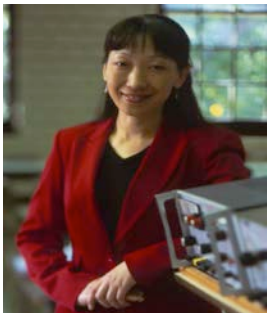
Dr. Yang Gao, Professor
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Schulich School of Engineering
The University of Calgary
Calgary, Alberta, Canada
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Dr. Per Høeg, Professor
DTU Space
Technical University of Denmark
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E-mail: hoeg@space.dtu.dk



Dr. Stelios P. Mertikas, Professor
Geodesy & Geomatics Engineering Lab
Department of Mineral Resources Engineering
Crete Technical University
Greece, GR-73 100
E-mail: mertikas@mred.tuc.gr



Dr. Jade T. Morton, Professor
Department of Electrical & Computer Engineering
Miami University
Oxford, OH 45056, USA
E-mail: mortonyt@muohio.edu



Dr. Chris Rizos, Professor of Geodesy & Navigation
and President of the International Association of
Geodesy (IAG)
School of Civil & Environmental Engineering
University of New South Wales
Sydney, Australia
E-mail: c.rizos@unsw.edu.au



Dr. C. K. Shum, Professor & Distinguished University Scholar
Division of Geodetic Science
School of Earth Sciences
The Ohio State University
Ohio, USA
E-mail: ckshum@osu.edu



Dr. Susan Skone, Associate Professor and Associate Dean
Department of Geomatics Engineering
Schulich School of Engineering
The University of Calgary
Calgary, Alberta, Canada
E-mail: shskone@ucalgary.ca



Dr. Peter Teunissen, Federation Fellow of the Australian Research Council (ARC) and Professor of Geodesy and Navigation
Faculty of Science and Engineering
Curtin University of Technology
Perth, Australia
E-mail: P.Teunissen@curtin.edu.au



Dr. Kefei Zhang, Professor and Director RMIT SPACE Research Centre and Satellite Positioning and Navigation (SPAN) Lab
School of Mathematical and GeoSpatial Sciences
The RMIT University
Melbourne Victoria, Australia
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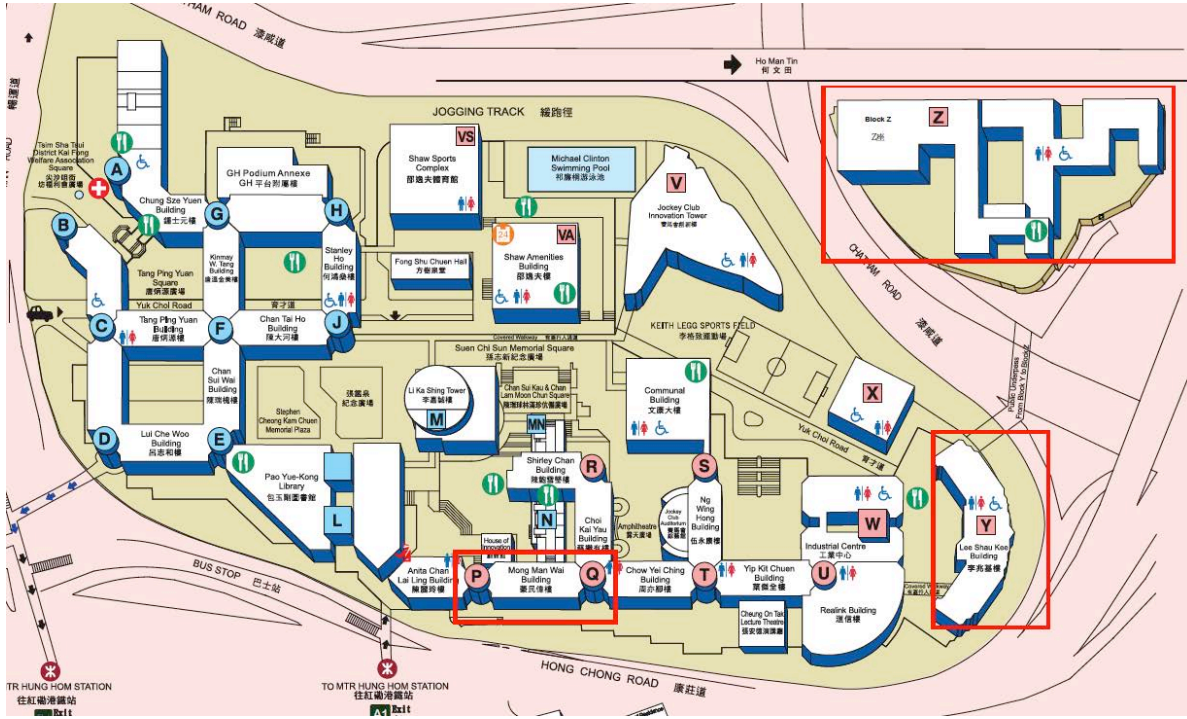
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Lecture Topics for the Croucher Summer Course 2014

Session	Lecturer	Topic
ONE	Prof. Chris Rizos	The role of IAG data services in support of modern geodesy, precise positioning and reference frame definition
TWO	Prof. C.K. Shum	GNSS Altimetry Theory and Its Applications
THREE	Prof. Peter Teunissen	High-Precision GNSS Attitude Determination
FOUR	Prof. Yang Gao	Precise Point Positioning – Latest and Future Developments
FIVE	Prof. Jade Morton	GNSS Software Receiver Algorithms and Applications
SIX	Prof. Jeffrey T. Freymueller	GNSS methods for studying tectonic and hydrologic deformation on various timescales
SEVEN	Prof. Kefei Zhang	GNSS radio occultation - current status and the road ahead
EIGHT	Prof. Per Høeg	GNSS Reflection and Atmospheric Turbulence Measurement
NINE	Prof. Susan Skone	GNSS for Ionosphere and Space Weather Studies
TEN	Prof. Stelios P. Mertikas	Satellite Altimetry Calibration and Validation Techniques
ELEVEN	Prof. Wu Chen	GNSS Integrity Monitoring



PolyU Campus Map



- The Hong Kong Polytechnic University (PolyU) has the street address of 11 Yuk Choi Road, Hung Hom, Kowloon, Hong Kong.
- Lecture Rooms Y304, PQ305 and Y302 are located on the 3rd floor of Y building and PQ buildings, on the PolyU campus. Y, PQ buildings are highlighted in red boxes.
- The Department of Land Surveying & Geo-Informatics (LSGI) is located at the ZS621, South Tower of Block Z (highlighted in red box), PolyU campus. Its street address is: 181 Chatham Road South, Hung Hom, Kowloon, Hong Kong.
- Lecture rooms:
 - For the 1st and 2nd days (26-27 May, Monday to Tuesday), lecture room is: Y304, Block Y, PolyU Campus.
 - For the 3rd, 4th and 5th days (28-30 May, Wednesday to Friday), lecture room is: YPQ305, Block PQ, PolyU Campus.
 - For the 6th day (31 May, Saturday), lecture room is: Y302, Block Y, PolyU Campus.

Transportation Information

Hong Kong International Airport to the Hong Kong Polytechnic University (PolyU)

- (1) PolyU address: 11 Yuk Choi Road, Hung hom, Kowloon, Hong Kong (5 minutes walking to the Hung Hom MTR (mass transportation railway) train station)



- (2) From HK airport, you may take a taxi directly to the PolyU campus. The total taxi cost should be about HK\$300 (about US\$40)
- (3) If you want to experience the Hong Kong's Airport Express, you can take the Airport Express Railway at Airport. The ticket can be purchased at the Airport at a price of HK\$90. The Airport Express train stops at several stations. Your destination station is called "Kowloon station". From Airport to Kowloon station, the train takes about 21 minutes. After you get off the train at Kowloon station, you can then take a taxi to the PolyU. The taxi will be about HK\$50 and about 15-20 minute driving.

From Airport to Kowloon station, the first Airport Express train departs airport at 05:54 AM. The last Airport Express train departs airport at 00:48AM.

From Kowloon station to Airport, the first Airport Express train departs Kowloon station at 05:53 AM. The last Airport Express train departs Kowloon station at 00:52AM.

Some Important Reminders

- (1) Many countries' visitors to Hong Kong do not need a visa. You are suggested to contact your country's consulate in Hong Kong to know whether or not you need a visa to Hong Kong. However a visa is often required to enter into Mainland China.
- (2) Hong Kong uses 220-V electricity. Time zone of Hong Kong is UTC+8 hrs.
- (3) Hong Kong weather information from the Hong Kong Government can be checked at Hong Kong Observatory website: <http://www.hko.gov.hk/>

Supporting and Funding Organizations for the Croucher Summer School 2014

This Croucher Summer Course 2014 is hosted and supported by:



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

Department of Land Surveying & Geo-Informatics (LSGI)
Faculty of Construction and Environment (FCE)
The Hong Kong Polytechnic University (PolyU)
Hong Kong, China



DEPARTMENT OF
LAND SURVEYING AND GEO-INFORMATICS
土地測量及地理資訊學系

This Croucher Summer Course 2014 is financially funded and supported by:



Croucher Foundation
裘槎基金會

Croucher Foundation, Hong Kong



This Croucher Summer Course 2014 is sponsored and supported by:



**International Association of Chinese Professionals
in Global Positioning Systems (CPGPS)**



International Association of Geodesy (IAG)
Sub-Commission 4.5: High Precision GNSS Algorithms and Applications
Sub-Commission 4.2: Geodesy in Geospatial Mapping and Engineering
Sub-Commission 4.6: GNSS-Reflectometry and Applications

Registering with the Croucher Summer School 2014

Please note, at least five (5) Travel Grants will be awarded to 5 participants to waive registration fees. The registration fee of Travel Grant winners will be fully refunded after they complete all the lectures of this **Croucher Summer School 2014**. **To be eligible for being awarded Travel Grants, you must register and pay the full registration fee first and send your full, complete and detailed CV and Travel Grant application (less than one A4 page) to state why you need this Travel Grant (please send Travel Grant application and registration reply to Miss Mandy MAN, shukyan.man@polyu.edu.hk).** The Croucher Summer School 2014 Organization Committee has the final right to select the Travel Grants winners based on the applications received. Early registrations will be considered with a higher priority.

The full registration fee of this Croucher Summer School 2014 is HK\$3,000.00 or US\$450.00 or RMB 2,500.00 (yuan). This non-refundable, non-transferrable registration fee includes free 4-STAR HOTEL rooms for 7 nights and free meals (breakfast/lunch/dinner and coffee breaks) for 6 days, and free lecture materials, thanks to the great support from Croucher Foundation! However international flight or other costs are the responsibility of the participants themselves. Partial registration is not accepted. Registration fee is not refundable at all cases. The number of seats is very limited in order to have the best lecturing and learning quality. You are highly encouraged to register As Soon As Possible before the **Croucher Summer School 2014** is fully registered.

More information can be found at the website: <http://projects.croucher.org.hk/summer-courses>



Croucher Summer School 2014 **Registration Form**

My option is	<input type="checkbox"/> Yes, I will attend the <u>Croucher Summer School 2014</u> . <input type="checkbox"/> Not sure now, I will very likely attend the <u>Croucher Summer School 2014</u> . <input type="checkbox"/> No, I will not attend the <u>Croucher Summer School 2014</u> for the reason that
English Name with titles (Chinese name too, if any)	Office Telephone (include country/area code)
E-mail:	Mobile phone (if any)
Research background	
Affiliation	
Address	
Describe yourself	<input type="checkbox"/> I am a Master student since the year of _____. <input type="checkbox"/> I am a PhD student since the year of _____. <input type="checkbox"/> I am a Postdoc since the year of _____. <input type="checkbox"/> Others, please specify _____
Registration fee (choose one only)	<input type="checkbox"/> I choose to pay HK\$ 3,000.00. <input type="checkbox"/> I choose to pay US\$ 450.00. <input type="checkbox"/> I choose to pay RMB 2,500.00 (yuan).
Payment method (choose one only)	You register with Miss Mandy MAN, shukyan.man@polyu.edu.hk first. We will notify you how to make payment after we accept your registration.
To register: please send this filled form and payment information to Miss Mandy MAN, shukyan.man@polyu.edu.hk . More detailed information regarding payment methods can be found at: http://projects.croucher.org.hk/summer-courses/new-gnss-algorithms-and-techniques-for-earth-observation	
Full payment of registration fee is mandatory whether or not you are applying for the Travel Grant. Only registrations with full payment will be considered valid and be included into this <u>Croucher Summer School 2014</u> . Your registration will be confirmed and notified via email after receiving the full registration fee.	



Contact Information

All the information should be available @ the Croucher Summer Course website:

<http://projects.croucher.org.hk/summer-courses>

However, you are welcome to contact us anytime.

For technical questions, please feel free to contact the Director of Croucher Summer Course 2014:

Dr. George Zhizhao LIU, Assistant Professor

Director, Hydrographic Surveying Laboratory
Secretary, IAG Sub-Commission 4.5: High-Precision GNSS Algorithms and Applications
Faculty of Construction and Environment (FCE)
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For non-technical questions, please feel free to contact:

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