

Announcement of Workshop **Design of Hillside Barriers for Containing Fallen Rocks**

Organized by
Hong Kong Institute of Steel Construction
Department of Civil and Environmental Engineering, The Hong Kong Polytechnic University
Supported by
Structural Division, The Hong Kong Institution of Engineers (TBC)

Date:	26 October 2018 (Friday)
Time:	8:30 am (registration) for 9:00 am to 5:00 pm
Venue:	Room Y304, The Hong Kong Polytechnic University, Hungghom, Kowloon.

Program Highlight

A large number of barriers including safety nets and rigid barriers built of reinforced concrete have been erected on hillsides all over Hong Kong to protect dwellings and other built facilities from rockfall and debris flow. Whilst methods of calculations have been documented for use by designers to quantify impact actions for both types of barriers alternative methods which are more expedient, and better represent real behaviour, have been developed and verified following studies undertaken locally in Hong Kong and internationally. This one-day workshop is specifically to review existing methods, and to introduced new methods, for the design of these two types of barriers to ensure adequate capacity to withstand impact by fallen rocks. The following is the listing of lectures that are featured in the workshop:

1. Safety Net Design – Flexible barriers allow for large deflection and widely used as protection systems against natural hazards, such as boulder falls, landslides and debris flows and their key feature is that these structures are light yet they can absorb high energy through the large elasto-plastic deformations and the activation of energy dissipating devices mounted on the connecting cables. The loads on foundation could also be greatly reduced.
2. Stability Design of a Rigid Barrier – the conventional method of checking for stability of the barrier based on static analysis is shown to result in overly conservative design of the foundation; a new method that has been verified experimentally is safe and waives away the need of any piled foundation as the barrier is allowed to lift by a small amount when subject to the impact.
3. Reinforced Concrete Design of the Stem wall – the method of calculation to be introduced is able to accurately control the amount of deformation of both the concrete and the reinforcement taking into account the behaviour of the wall in the cracked state; this method of calculation is different to the usual ultimate limit state structural design of reinforced concrete.

We are very honored to invite three recognized experts on this topic: Professor Siu Lai CHAN and Dr. Yao Peng LIU of Hong Kong Polytechnic University and Professor Nelson LAM of The University of Melbourne to deliver these lectures.

Nelson Lam is Professor in Department of Infrastructure Engineering at The University of Melbourne. He has 35 years of experience in structural engineering, and has been working in the specialized field of earthquake engineering, impact dynamics and structural dynamics. He is member of the Seismic and Dynamic Events Panel commissioned by the London Headquarter of The Institution of Structural Engineers and also member of the standing committee for future revisions to the Australian standard for seismic actions. His achievement in research in this field was recognized by the award of the Chapman Medal (1999) and Warren Medal (2006) by Engineers



DEPARTMENT OF
CIVIL AND ENVIRONMENTAL ENGINEERING
土木及環境工程學系

香港理工大學, 土木及環境工程學系

THE HONG KONG POLYTECHNIC UNIVERSITY
Department of Civil and Environmental Engineering



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Australia; and Chapman Medal for the second time in 2010. He is also recipient of Award for Teaching Excellence given out by Engineers Australia in 2012 and Academic Staff Teaching Award by Melbourne School of Engineering in 2013. His early career as structural engineer was with Scott Wilson International throughout the 1980's and attained British chartered engineer status during that period. He was awarded the degree of BSc in civil engineering with first class honours at the University of Leeds, England in 1981, MSc degree in concrete structures at Imperial College of Science & Technology, London in 1982 and PhD in earthquake engineering at the University of Melbourne in 1993.

Siu-Lai Chan is the Chair Professor in Computational Structural Engineering in PolyU and the chief and founding editor of the SCI international journals "Advanced Steel Construction", "Steel and Composite Structures (2002-2005)" and the regional editor of "International Journal of Applied Mechanics and Engineering". He also serves as a member of editorial boards in 8 other journals, and of ad-hoc committees in drafting guides for design of steel and glass structures in Hong Kong and the U.K. He has been a member of technical publications committee and of the Research Panel of the Institution of Structural Engineers, U.K. and a member of expert panel of American Institute of Steel Construction (AISC), the President of the Hong Kong Institute of Steel Construction (HKISC) and adjunct professor at the Southeast University in Nanjing, Harbin Institute of Technology in Harbin and Tongji University in Shanghai. In conjunction with a research team of the Tongji University, Professor Chan was given the first class award for research in steel structures by the Education Ministry in the Mainland China. In 2016, Professor Chan, with practicing engineers and his PhD students, are the recipients of awards independently by Geotechnical and Structural Divisions of HKIE for research in nonlinear analysis and he received numerous research and consultancy awards from his university. He served as the Chairman of the Structural Division of HKIE in 2014/15, in several other advisory committees in HKIE and he is the incumbent Chairman of Structural Discipline (2018).

Yao-Peng Liu obtained his PhD at the Hong Kong Polytechnic University in 2009 and now a senior research fellow at the same department. His research interests mainly concentrate on (1) finite element analysis including numerical method, development of beam-column, cable and shell elements, plastic analysis, etc.; (2) second-order direct analysis and design of steel and/or composite structures; (3) performance-based design on earthquake engineering and fire engineering; (4) construction and offload analysis of long-span steel structures; (5) nonlinear large deflection analysis of flexible barrier system. He has been involved in the development of many programs such as NIDA and RCD used by leading consultants. He has been also involved in the design of many steel structures and seismic evaluation of structures in Hong Kong, Macau, Singapore, India and Myanmar. Dr. Liu has more than 70 publications and currently is an associate editor of the SCI international journal "Advanced Steel Construction". Dr. Liu has made significant contributions on the drafting of the new Chinese steel code "GB50017-2017".

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The rundown of the workshop is as follows: -

Time	Topics
8:45 am – 9:00 am	Registration
9:00 am – 9:15 am	Welcome speech
9:15 pm – 10:15 am	Fundamentals of nonlinear theory in structural analysis and applications of nonlinear analysis for economical and safe design
10:15 am – 10:45 pm	Tea Break
10:45 am – 11:45 am	Design of Flexible Barriers
11:45 am – 1:15 pm	Lunch
1:15 pm – 2:45 pm	Fundamentals of impact analysis
2:45 pm – 3:15 pm	Tea Break
3:15 pm – 4:00 pm	Stability Design of a Rigid Barrier
4:00 pm - 4:45 pm	Reinforced Concrete Design of Stem wall
4:45 pm - 5:00 pm	Q & A

Language media : English

Registration fee : HK\$1,300 (for HKISC member)
HK\$1,400 (for HKIE member / Group of 5+);
HK\$1,500 (for others).
Tea refreshments are inclusive in the registration fee.

CPD certificate : The Workshop is recommended for 6-hours CPD
Deadline for registration: 19 October 2018

Registration & Enquiries

Enrolment will be accepted on a first-come-first-served basis. To enroll, please contact our Workshop Secretariat officer Mr. Sam Chan at samchan@hkisc.org.

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REGISTRATION FORM

(To be replied on or before 19 October 2018)

Please follow the 2-step registration procedure:

1. Fax the completed registration form to *Mr Sam CHAN* (Fax: 2334 6389) for preliminary registration.
2. Post the completed registration form within 7 days together with a crossed cheque payable to **Hong Kong Institute of Steel Construction Limited** to *Mr Sam CHAN*, at:

HKISC, Room ZS972, Block Z, Department of Civil and Environmental Engineering, Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong

To: Mr Sam CHAN

Fax: 2334 6389

Personal Details:

Title	Name in full (Block Letter)	Name of Company	Tel.	E-mail address	Institution/ Membership No.
1.					
2.					
3.					
4.					
5.					

Item	Total no. of registration	Sub-total
1. Special registration (HKISC member's price)	_____ person(s)	= HK\$ _____
2. Special registration (HKIE member's price / Group of 5+)	_____ person(s)	= HK\$ _____
3. Regular registration (Other's price)	_____ person(s)	= HK\$ _____

Postal Address

(for official receipt):

I enclose a crossed cheque (no. _____) with a sum of HK\$ _____ for the registration fee of the captioned Workshop.

Signature: _____ Date: _____

CPD Certificate of Attendance. Please tick the appropriate box to indicate your choice:

Yes, I/ we would like to have CPD certificate(s).

Certificate(s) not required.