

Organizer:



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

Second announcement

**ONE-DAY NEW AND REFRESHING ONLINE WORKSHOP ON  
Modern Design Method of Second-order Direct Analysis for Steel Structures  
-Recent advances  
supported by  
Professional Services Advancement Support Scheme PASS**

*This workshop is funded by the Professional Services Advancement Support Scheme of the Government of the Hong Kong Special Administrative Region.*

*Any opinions, findings, conclusions or recommendations expressed in this workshop organised under this project do not reflect the views of the Government of the Hong Kong Special Administrative Region or the Vetting Committee of the Professional Services Advancement Support Scheme.*

Date:	26 November 2020
Lecture Mode:	Z205 for first 50 participants and on-line webinar for others
Time	8:45 am for 9:00 am to 5:00 pm

**Scope and Objectives**

This workshop is supported by PASS for promotion of practical design guidance for engineers using the new design method – Direct Analysis (DA) which will be explained in a simple and practical manner in the lecture with practical examples given and real case studies provided. The lecture note will be related to “Code of practice for the structural use of steel 2011” published by Buildings Department of SAR Government and in many other national codes such as the AISC360 (2016) in USA, Eurocode-3(2005) and GB 50017(2017). To date, it is common to require engineers to design a structure safely and reliably as well as economically by the new DA design technique since critical structural elements will not under-sized and redundant member not over-sized. When using the old and traditional First-order Linear Analysis or Effective Length Method (ELM), the size of structural elements are inappropriately proportioned and sized. The application of direct analysis in conjunction with the new wind code 2019 will also be discussed in the end part of the seminar using a self-generating software Nida-Wind 2020.

This lecture will discuss the 3 analysis methods accepted in design codes in Hong Kong and other codes, namely as the linear analysis with effective length method, second-order Indirect analysis (or the P- $\Delta$ -only analysis in HK and AISC code) and the Second-order Direct analysis P- $\Delta$ - $\delta$  analysis. Theory and applications of these methods will be explained with illustrations by practical project applications. Other applications including use with new local wind code will be described.

In parallel with face-to-face presentation, online lecture will be arranged with use of webinar online. Successfully online registered participants will be emailed a link for webinar. Question and Answer sessions are available. CPD certificates will be issued to attendants with successful online and face-two-face registration.

Supporting Organizations:

**HKIE**  
STRUCTURAL DIVISION,  
THE HONG KONG  
INSTITUTION OF ENGINEERS  
(SPONSOR PENDING)  
香港工程師學會結構分會



### **About the speakers**

**Professor Siu Lai Chan** is the chief and founding editor of the SCI-e international journals “Advanced Steel Construction (www.ascjournal.com)”, “Steel and Composite Structures (2002-2005)” and the regional editor of “International Journal of Applied Mechanics and Engineering”, a member of editorial boards in 7 other journals, the principal consultant of design codes for steel and glass structures in Hong Kong and an 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, he received the first class award for research by the Education Ministry in the Mainland China, research awards by the Structural and the Geotechnical Divisions of HKIE in the same year of 2016 and in Research Grand Award by Structural Division HKIE this year 2020. He also served as the Chairman of the Structural Division HKIE in 2013, of the Structural Discipline in 2017-2019 and Deputy Chairman of Fire Division HKIE in 2016 and he is also a member of board in Chinese national steel code GB50017 (2017). His research in nonlinear analysis has been over 3 decades with several hundred papers published and numerous lectures delivered, including one-day workshop at Imperial College U.K. in 2015 and in National Singapore University on applications of nonlinear analysis to practical design.

**Dr. Y.P. Liu** received his BEng from Sun Yat-Sen university and now he is the director of NIDA Technology Co., Ltd. He obtained his PhD degree from the Hong Kong Polytechnic University and his research interests include development of finite elements; second-order direct analysis and design of steel and composite structures, long-span steel structures and computer applications related to structural engineering. Dr. Liu is a Guest Professor at Southwest Jiaotong University (西南交通大學) and Shenyang Jianzhu University (瀋陽建築大學) and he also serves as an associate editor of the SCI-e International Journal “Advanced Steel Construction” and “Progress in Steel Building Structures” (建築鋼結構進展). Dr. Liu made significant contributions on the drafting work of the new Chinese Steel Code “GB50017-2017” and provides numerous engineering consultancy services for design of numerous large-scale steel structures in Hong Kong, Macau, Singapore, India and Myanmar, including the world longest steel roof archived in Guinness record 2019 with a reporting paper “Design and construction of long-span single-layer dome structures by direct analysis”, HKIE Transactions, 25:1, pp. 29-43, 2018, DOI: 10.1080/1023697X.2017.1409663.

**Dr. Jerry lu** received his BEng and PhD at PolyU and he is currently a research Fellow at PolyU and worked before as a lecture in Queensland University of Technology, Australia, a research fellow in University of New south Wales Australia, Graduate school in Harbin Institute of Technology, China and University of Hawaii USA. He has published some 30 journal papers and 40 conference papers. With two years as a structural engineer in a consultant, Dr. lu has a good and balanced background in research and engineering design. Recently, he worked on research and practical projects related to Direct Analysis.

**The Hong Kong Polytechnic University**

## **ONE-DAY WORKSHOP ON Modern Design Method of Second-order Direct Analysis for Steel Structures**

**Official Language**

English will be the official language medium of the workshop.

**Fees & Registration** same for physical and online attendance

Member of professional bodies or scholarly societies such as HKIE and HKISC.	HK\$150
Others	HK\$250

The registration includes a certificate for physical attendants and an e-copy of the lecture notes and a one-day CPD online attendance certificate for online attendants. Should you have further query, please do not hesitate to contact Mr. Sam Chan at 9206 5565 / 9538 1238.

**Programme**

<b>Time</b>	<b>Programme</b>
8:45 am	Site and Online registration for checking participants' identities and subsequent admission
9:00 am	Design Philosophy – The 3 analysis methods in Eurocode-3, HK Steel Code and AISC codes for design
9:45 am	Types of analysis for structural design
10:30 am	Break
10:35 am	Traditional linear analysis and design with examples
11:35 noon	Break
2:00 pm	Second-order Indirect Analysis P-Δ-only analysis with examples
2:45pm	Second-order Direct Analysis or simply Direct Analysis. P-Δ-δ analysis and imperfections
3:30pm	Break
3:35pm	Direct analysis with Hong Kong Wind Code 2019. Demonstration and examples.
4:00 pm	Examples
4:35 pm	End



**The Hong Kong Polytechnic University**

**ONE-DAY WORKSHOP ON  
Modern Design Method of Second-order Direct Analysis for Steel Structures  
REGISTRATION FORM  
( To be replied on or before 20 November 2020 )**

Please follow the 3-step registration procedure:

1. Email the completed registration form to *Mr Sam Chan* ( [samchina10@gmail.com](mailto:samchina10@gmail.com) or Fax: 852-2334 6389) for preliminary registration.
2. Indicate your preferred mode of attendance as physical (face-to-face) or online. Maximum 50 seats are available for physical or face-to-face attendances which are provided on a first-come-first-served basis.
3. Post the completed registration form within 7 days before the lecture date together with a crossed cheque payable to **The Hong Kong Polytechnic University** to *Mr Sam CHAN* c/o Department of Civil and Environmental Engineering, The Hong Kong Polytechnic University, Hung Hom, Kowloon.  
Or pay online at [https://www40.polyu.edu.hk/foccp/ccp\\_payment\\_menu.jsp](https://www40.polyu.edu.hk/foccp/ccp_payment_menu.jsp) (Event ID: D3185Q5001) after confirmation by email.

Registration confirmation will be emailed to participants upon successful registration before the lecture date. In case of change in condition, the organiser reserves right to change the seminar completely to online mode.

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**To: Mr. Sam Chan Email : [samchina10@gmail.com](mailto:samchina10@gmail.com)**

**Fax: 852- 2334 6389**

Personal Details:

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

Postal and email  
addresses (for  
official receipt):

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I prefer Physical mode  Online Mode .  (please tick one box)

If face-to-face attendance mode unavailable, I will  / will not  take ONLINE mode (please tick one box)

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 e-CPD certificate(s).  Not request for certificate(s).