

Department of 土木及環境工程學系 Civil and Environmental Engineering

Newsletter
(April to June 2020)

Staff Award

HKIE Grand Award

Structural Excellence Award

Congratulations to Prof. SL Chan, Chair Professor of CEE, on winning the Grand Award of Structural Excellence Award 2020 organized by HKIE.

The awarded paper “Nonlinear finite-element-analysis and design of steel-concrete composite ring (SCCR) joints” was published in the Journal of Constructional Steel Research by Elsevier.

Source: 8 May 2020 香港經濟日報 hket

Graduate News

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CERTIFICATE of APPRECIATION

THIS IS TO CERTIFY THAT
SUN YUQING
WAS AWARDED IN THE
8TH INTERNATIONAL CONFERENCE ON BIOPROCESSING



IBA-IFIBiop2019

WITH THE THEME
“BRIDGING SUSTAINABILITY AND INDUSTRIAL EVOLUTION
THROUGH GREEN BIOPROCESSING”

ASA
BEST YOUNG RESEARCHER

ON
1 - 5 MAY 2019
AT
IMPERIAL HOTEL, MIRI, SARAWAK, MALAYSIA

Prof Suzana Yusup
Conference Chair

Prof Ashok Pandey
General Chair

Prof Duu-Jong Lee
Chairman, IBA-IFIBiop

研發及應用大獎 鋼-混凝土環式節點有限元分析與設計方法

研發新型節點 改善工人施工環境

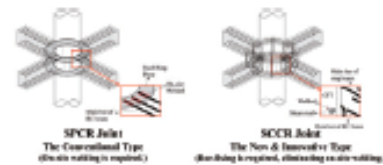
傳統鋼筋混凝土地基樁與巨型混凝土橋之間的連接，需要進行大量焊接工序，既耗時，且施工現場產生很多廢氣，危害建築工人的健康。為此，香港理工大學教授陳紹禧與中山大學副教授劉思威、新鴻基建築設計有限公司劉志遠工程師組成的研究團隊，耗時一年半研究出一種免焊接的新型節點，研究成果更在本屆「卓越結構大獎」中獲「研發及應用大獎」。

在地面和地底同步建築的方法稱為逆作法。由於能夠節省建築時間，這種建築方法在香港很流行。然而，在地庫進行焊接工序時會產生大量廢氣，因而危害到建築工人的身體健康。與此同時，施工過程複雜，建造效率具提升的空間。當了解到業界對如此需求後，研究團隊作出針對性的分析與研究，為業界提供一個新型的組合節點——鋼-混凝土環式節點。

傳統的鋼環節點需要先在混凝土樁的連接位置進行焊接，用以將樁與樓板的鋼筋焊接在鋼環上作固定，而研究團隊設計的環形混凝土樁，可將鋼筋、混凝土樁連接，毋須焊接工藝，為工程節省時間、建築成本，更減少污染和對工人健康的損害。

獨特分析技術 助掌握受力情況

陳紹禧形容，在研究過程中最大的困難在於相關的研究資料非常少；節點體積非常龐大，難以進行物理實驗；礙於混凝土的特性，縮尺試驗可靠性差。「但受益於研究團隊有超過25年的建築結構電腦分析經驗，我們利用



研究團隊設計的環形混凝土樁，毋須焊接工藝可將鋼筋、混凝土樁連接。



陳紹禧教授（左）與劉思威（右）博士都認為是次獲獎的原因在於研究項目與業界需求緊密結合，研究團隊搭配合理，研究方法貼科技發展。

電腦模擬分析技術所得出的數據極貼近實際情況。同時，我們利用了近年新的雲端運算技術，在2至3個月內便進行了數百次模擬計算，得到大量模擬試驗數據，大幅度縮短了研發週期。」他補充，因為電腦和雲端運算技術的發展令大規模電腦分析具備了可行性，研究團隊獨特的電腦分析技術能夠真實模擬節點的力學特性，並依據真實情況做數值模擬試驗。

獲業界採用 提高建造效率

陳紹禧透露，在鋼-混凝土環式節點的研究成果發表後，已經有工程項目採用這種新型節點。對於科研成果能夠滿足業界的需要，並得以採納和應用，改善了工人的工作環境和提高建造效率，研究團隊獲得很大的滿足感和鼓舞。他表示：「未來我們會繼續向政府有關部門、發展商及顧問公司推薦這項科研成果，幫助業界提高建築效率、改善建築環境、降低建造風險和保障工人健康。」

目前，研究成果已經在工程界最權威的學術期刊之一《Journal of Constructional Steel Research》出版，獲得國際學術界的認可，提升本港業界在國際的競爭力。研究團隊將繼續改良節點的形式，深化研究項目，並發表文章，供本地及國際的工程師參考和引用。

Best Young Researcher

Miss Sun Yuqing was awarded the Best Young Researcher in the 8th International Conference on Bioprocessing with her project “Bridging Sustainability and Industrial Evolution through Green Bioprocessing”.



Humboldt Research Fellowship, Germany

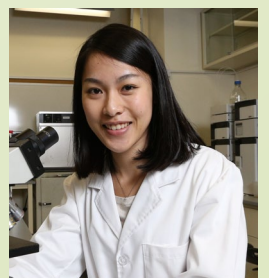
Miss Iris Yu was granted the Humboldt Research Fellowship 2020, Germany.

PhD graduate, Miss Iris Yu

RGC Postdoctoral Fellowship

Miss Season Chen was granted the RGC Postdoctoral Fellowship 2020/21.

PhD graduate, Miss Season Chen



Young CEE Alumni Awardees 2020

To recognize young alumni for their accomplishments and service to the engineering profession and the community, the Young CEE Alumni Award is jointly established by the Department of Civil and Environmental Engineering (CEE) and Civil and Environmental Engineering Alumni Association (CEEAA).

The Young Alumni Awardees 2020 are:



Dr. Lalit Borana
Assistant Professor,
Indian Institute of Technology
Indore, India



Lalit received his PhD in Geotechnical Engineering from CEE of PolyU in 2014. He has dedicated over 13 years to consultancy, academic teaching and research. He is presently serving the IIT Indore Administration as a Senate Board Member, Chief Warden and Sports Committee Convenor.

Lalit has authored and coauthored more than 31 quality publications in esteemed international journals and peer reviewed conferences.

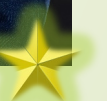
He has received “Outstanding Reviewer Award-2018” from the journal of “Computers and Goetechnics” by ELSEVIER, Netherlands.

Kenny received his bachelor’s degree in Environment & Sustainable Development and master’s degree in Environmental Management and Engineering from CEE of PolyU in 2012 and 2014 respectively. He is currently the Director of EnviPro Technology Company Limited, contributing to consultancy projects related to air, acoustic, odour and health impact assessment in Hong Kong, Macau and Taiwan.

Kenny participates in various professional bodies actively. He was elected as an Executive Committee Member of Hong Kong Waste Management Association (HKWMA) in 2019.

Mr Kenny Lok

Director of EnviPro Technology Company Limited



Mr Wong Ka Chun, Tiger
Manager-Construction Safety in
Construction Industry Council



Tiger is one of the earliest graduates of BSc (Hons) in Environmental and Occupational Safety & Health (Full-time). Upon graduation in 2008, he joined Gammon Construction Limited, where he played a key role in fostering positive safety culture.

He was the winner of Site Safety Professionals Award presented by Construction Industry Council and Lighthouse Club in 2011.

He joined the Society of Registered Safety officers (SRSO) in 2011 and has been serving as an Executive Council Member since 2014. With his experience, he aims to enhance the professional status of safety practitioners, and to promote safety and health across the industries.

Media Coverage



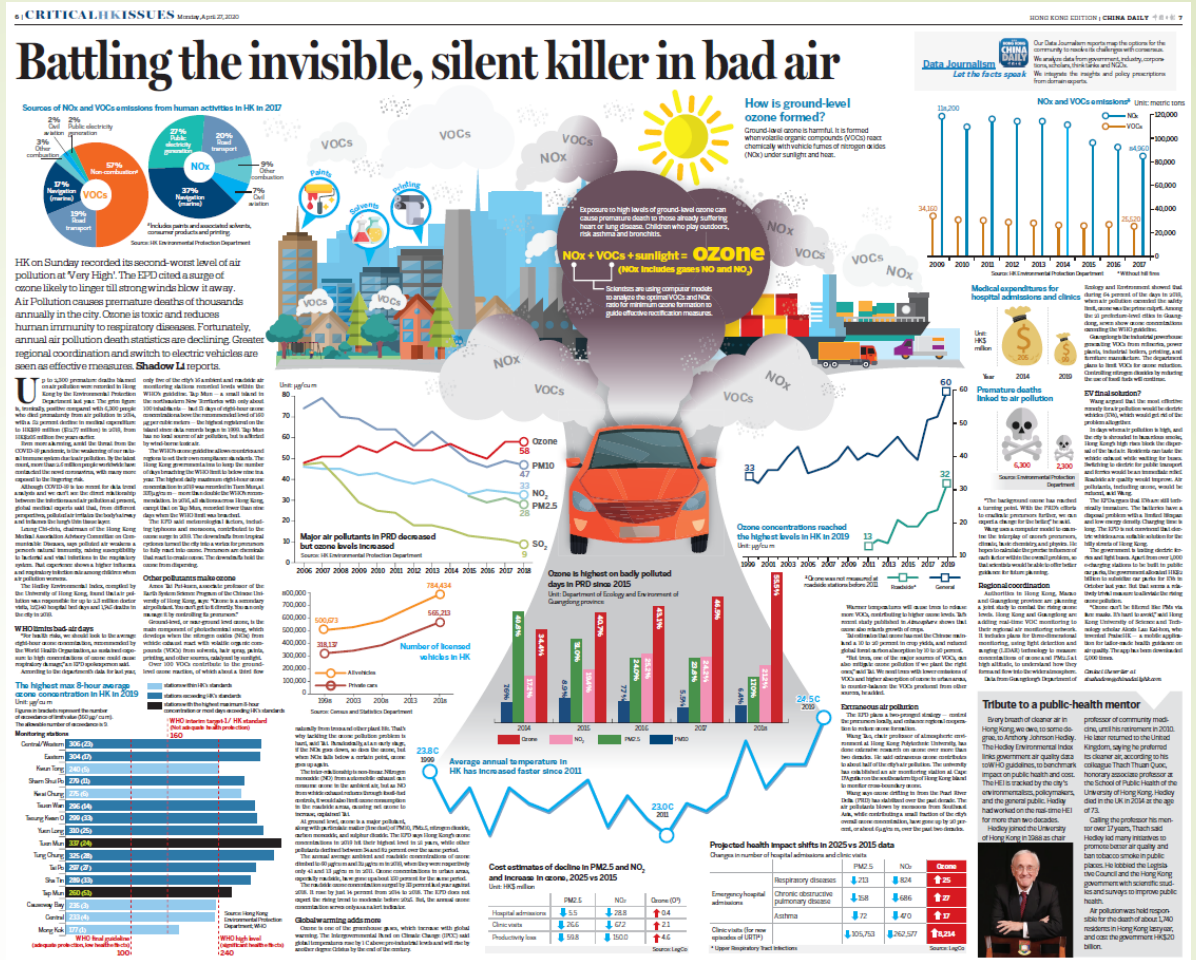
Prof. Tao Wang
Chair Professor



Full article can be found at:

Interviewed by China Daily (HK Section), Prof. Tao Wang, Chair Professor of CEE, shared his views on ozone pollution in the Pearl River Delta region. His team has established an air monitoring station at Cape D'Aguiar on the southeastern tip of Hong Kong Island to monitor cross-boundary ozone for years.

Battling the invisible, silent killer in bad air



China Daily (HK Section) on 27 April 2020

Publication in Nature Sustainability



Dr. Peng Wang
Associate Professor

Dr. Peng Wang's research on "Photovoltaic panel cooling by atmospheric water sorption–evaporation cycle" was published in Nature Sustainability. An accompanying blog post was also published in Nature Sustainability Community.

This new technology contributing to global sustainability was highlighted by Science Magazine.

[Nature Sustainability Full article](#)



[Nature Sustainability Community Blog post](#)



[Science Magazine highlighting article](#)



Intense summer sun can spike temperatures of solar panels, causing their electrical production to plummet. ERLUCHO/STOCK.COM

New solar panels suck water from air to cool themselves down

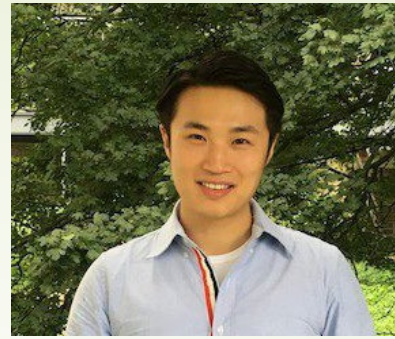
Source: [Science Magazine](#)

Welcome our new members!



Dr Qi Zhao
Assistant Professor

Dr Zhao obtained his PhD from the University of Toronto in 2017, and then he worked as a Postdoctoral at the University of Toronto and UC Berkeley respectively. He develops innovative laboratory experiments to investigate rock mechanics problems.



Dr Guoyang Lu
Research Assistant Professor

Dr Lu received his PhD degree from RWTH Aachen University. His research focuses on sustainable and innovative road infrastructures and materials.



Dr Ho-cheung Ho
Research Assistant Professor

Dr Ho received his PhD from CEE of PolyU in 2005. His research interests are structural instability, experimental investigations, numerical modelling, constitutive models of building materials, steel and composite structures, thin-walled structures, structural fire engineering, artificial intelligence in structural engineering.



Dr Han-lin Wang
Research Assistant Professor

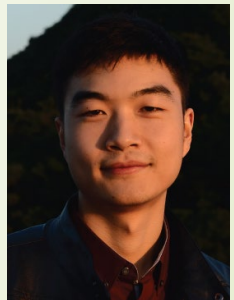
Dr Wang obtained his PhD degree from Zhejiang University in 2017. His research interests focus on unsaturated soil mechanics, soil-structure interaction, pile-supported embankment and soil dynamic responses.



Dr Xiaopu Lyu
Research Assistant Professor

Dr Lyu received his PhD from CEE of PolyU in 2018. His research areas are volatile organic compounds and their environmental behaviors, organic aerosols and ozone in photochemical smog, regional air quality, occurrence, transformation and fate of HAPs, and air toxicological study.

Dr Tan received his PhD from CEE of PolyU in 2019. His research interests focus on natural hazard mitigation, ground improvement, and development of smart monitoring system for geotechnical structures.



Dr Daoyuan Tan, Andy
Research Assistant Professor



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