



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學



國家鋼結構工程技術研究中心香港分中心
Chinese National Engineering Research Centre
For Steel Construction (Hong Kong Branch)



中国钢结构协会
China Steel Construction Society

Science and Technology Award 2022 Grand Award

**Project Title: Basic Theory, Key Technology and International Application of
Chinese High Strength 690MPa Steel Structures**

Major Organizations

**The Hong Kong Polytechnic University, Tsinghua University, Imperial College London,
Steel Construction Institute, AECOM,
China Road and Bridge Corporation, Shanghai Zhenhua Heavy Industrial Co. Ltd.,
Nanjing Iron and Steel Co. Ltd., CITIC Jiangyin Xingcheng Special Steel Works Co. Ltd.,
Gammon Construction Co. Ltd.**

Major Participants

**K.F. Chung, H.Y. Ban, H.C. Ho, Y.F. Hu, Y.J. Shi,
David Nethercot, Michael C.H. Yam, Ben Young, Robin Sham, Ahmed Elghazouli, T.M. Chan, Nancy Baddoo,
J. Kan, L.F. Ma, Stephanie M.H. Shen, L.H. Liu, C.F. Chan, M. Xiao, X.M. Lin, Y.X. Mei**



The project led by Prof. K. F. Chung received the **Grand Award of the CSCS Science and Technology Awards 2022**, and the prize was presented during the Opening Ceremony of the Annual Conference of CSCS on 10 February 2023 in Guangzhou.

China Steel Construction Society Science and Technology Award 2022

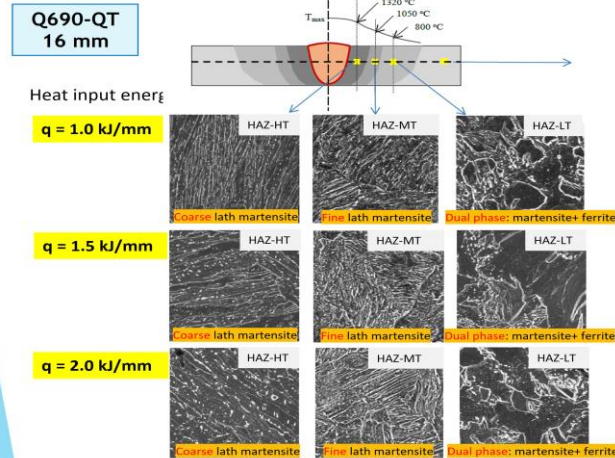
授奖编号	项目名称	主要完成单位	主要完成人	获奖等级
2022-KJ-特-01	山区特殊环境下钢-混组合梁桥的设计理论与装配化建造技术	长安大学、重庆大学、中交第二公路工程局有限公司、陕西省交通规划设计研究院有限公司、中交第一公路勘察设计研究院有限公司、中铁宝桥集团有限公司、重庆市城市建设投资(集团)有限公司、青海省交通工程技术服务中心、中国市政工程西北设计研究院有限公司、青海省交通建设管理有限公司	刘永健、周绪红、赵桢远、刘江、霁建平、姜磊、宋松林、赵昕、刘治国、李铮、李慧、杨欣、韩石、马印平、张鹏、马建勇、蒲北辰、刘彬、马小军、王宣鼎	特等
2022-KJ-特-02	国产690MPa高强钢结构基础理论、关键技术及其国际化应用	香港理工大学、清华大学、英国伦敦帝国理工学院、英国钢结构工程研究院、艾奕康有限公司AECOM、中国路桥工程有限责任公司、上海振华重工(集团)股份有限公司、南京钢铁股份有限公司、中信泰富特钢集团江阴兴澄特种钢铁有限公司、金门建筑有限公司	钟国辉、班慧勇、何浩祥、胡亦非、石永久、David Nethercot、任志浩、杨立伟、Robin Sham、Ahmed Elghazouli、陈德明、Nancy Baddoo、阚军、马立芬、沈敏慧、刘丽华、陈志发、肖蒙、林雪妹、梅镜潇	特等
2022-KJ-特-03	轻量化高性能钢-混组合结构桥梁理论方法与工业化建造技术	中交公路规划设计院有限公司、南京市公共工程建设中心、西南交通大学、清华大学、东南大学、江苏苏博特新材料股份有限公司、中交第二航务工程局有限公司、中铁宝桥集团有限公司、合肥斯派索材料科技有限公司、中交第二公路工程局有限公司	崔冰、武焕陵、刘加平、赵灿晖、聂鑫、郭志明、沈斌、王景全、樊健生、魏乐永、韩方玉、夏辉、李义成、张红燕、黄李骥、赖用满、陈研、邓开来、时贤龙、彭森	特等
2022-KJ-特-04	钢结构高效螺栓连接关键技术	同济大学、同济大学建筑设计院(集团)有限公司、中建钢构工程有限公司、江苏金海新能源科技有限公司、上海宝钢建筑工程设计有限公司	李国强、马人乐、王伟、王彦博、陈振明、何敏娟、扬州、简小刚、何桂荣、杨正军、黄冬平、李征、陈以一、沈佳星、相阳、陈琛	特等
2022-KJ-特-05	高速铁路大跨度钢桥体系创新、建造及维保关键技术与应用	中铁大桥局集团有限公司、中铁大桥勘测设计院集团有限公司、西南交通大学、中铁高新工业股份有限公司、江苏法尔胜缆索有限公司、中铁大桥(郑州)缆索有限公司	秦顺全、高宗余、毛伟琦、潘东发、肖海珠、文武松、徐伟、周功建、李小珍、李军堂、郑清刚、涂满明、勾红叶、彭旭民、朱东明、江湧、张燕飞、田继开、孙英杰、代皓	特等

Project title: Basic Theory, Key Technology and International Application of Chinese High Strength 690MPa Steel Structures

- ▶ The award winning project was led by Prof. Kwok-fai Chung, Director of CNERC at The Hong Kong Polytechnic University, was successfully completed with academics from Tsinghua University and Imperial College London, and experts from famous consulting and construction companies in Hong Kong as well as leading steel fabricators and suppliers in China.



Evolution of microstructures within HAZ



- ▶ This project provided a comprehensive solution to innovative applications of high quality Chinese 690MPa steel in construction. Through a comprehensive research and development collaboration, advanced predictions on mechanical properties and structural behaviour of S690 welded sections were achieved through integrated experimental and numerical investigations. This allowed minimal or even no penalty in both strength and ductility in these welded sections after welding. Effective design rules became available through rigorous design development and codification.

- ▶ The research results have been applied in a number of construction projects in Hong Kong, such as the completed Double Arch Steel Bridge of the Cross Bay Link in Tseung Kwan O, and the long span roof structures of the Kowloon Tsai Swimming Pool as well as the steel roofs of both the East and the West Stands of the Yuen Long Stadium (both under construction).



CSCS Science and Technology Award by China Steel Construction Society

(National Office for Science and Technology Awards Cert. No. 0163)

"CSCS Science and Technology Award" is an important initiative of China Steel Construction Society to encourage enterprises, research institutes, universities and various sectors of the Chinese Steel Construction Industry to contribute to science and technological advancements. It is awarded to organizations and individuals who have made outstanding contributions to the advancement of i) science and technology in steel construction, and ii) overall scientific and technological level of the China Steel Construction Industry.

"CSCS Science and Technology Award" was approved by the *National Office for Science and Technology Awards*, a unit directly under the **State Ministry of Science and Technology** of the People's Republic of China. The Award was established in March 2007 by the China Steel Construction Society, and awards were given annually. The winning awards of the "CSCS Science and Technology Award" can be nominated and recommended by China Steel Construction Society to apply for the **National Science and Technology Award**. Since 2014, **2 First Prizes** and **4 Second Prizes** of the **National Science and Technology Progress Award** were received by these winning awards.

The "CSCS Science and Technology Award 2022" was assessed at a Judging Panel Meeting held in Beijing on 29 September 2022. In accordance with the "*CSCS Science and Technology Award Management Measures*", "*CSCS Science and Technology Award Selection Management Regulations*", "*CSCS Technology Innovation Award Selection Management Regulations*" and other award management systems, the members of the Judging Panel examined application materials, reviewed technical reports, and interviewed project teams of all applications. After a secret ballot, a total of 86 Science and Technology Awards were approved, including 5 Grand Awards, 31 First Prizes, and 50 Second Prizes. In addition, 40 Technological Innovation Awards were also approved.