



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學



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

CEE



National Rail Transit Electrification and Automation
Engineering Technology Research Center
(Hong Kong Branch)
國家軌道交通電氣化與自動化工程技術研究中心
(香港分中心)



Seminar on Fatigue of Welded Tubular Connections – Simplified Weld Protocol and Enhanced Assessment Approach

Dr. Qian Xudong

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National University of Singapore*

ABSTRACT

The construction of steel tubular connections often requires the complete joint penetration welds, which entail stringent quality control and costly workmanship requirement, due to the unpredictable and unacceptably large lack-of-penetration. To resolve this practical constraint, this seminar presents an alternative, economical welding profile, which aims to deliver full strength of the attached member and equivalent fatigue performance as the complete joint penetration welds, with small and controlled root discontinuities. This study covers a series of experimental and numerical investigations to validate the performance of the tubular joints welded by the proposed welding profile.

Among the common S-N approaches in estimating the fatigue life of welded connections, the effective notch stress based S-N curve represents a most accurate method and corresponds to a single S-N curve for the welded joints. However, accurate estimation of the effective notch stress remains a challenging computational task. In line with the extrapolation method used in estimating the hot-spot stresses for welded connections, this seminar also introduces an extrapolation approach to estimate the effective notch stress at the weld toe of tubular connections. This study also examines the proposed extrapolation approach against a large pool of experimental data collected from the literature for different types of welded tubular connections.

Date: 4 December 2018 (Tuesday)

Time: 3:00pm-4:30pm

Venue: Z510, PolyU

SPEAKER'S BIOGRAPHY

Dr QIAN Xudong is currently an Associate Professor in the Department of Civil and Environmental Engineering. His research work is mainly on the offshore structural engineering, with particular emphasis on the following three aspects: nonlinear analysis of steel offshore platforms, cleavage fracture for ferritic steels in the ductile-to-brittle transition regime, and fatigue and fracture assessments for critical structural components. He is currently serving as the Director for Centre of Advanced Materials and Structures, and Co-Director for JTC-NUC Industry Infrastructure Innovation Centre.

Positions Held

2014-date Associate Professor, National University of Singapore

2007-2013 Assistant Professor, National University of Singapore

2006-2007 Post-doctoral Research Associate, Department of Civil and Environmental Engineering, University of Illinois at Urbana Champaign, U.S.A.

*** All Interested Are Welcome ***

For further information, please contact Miss Autumn Lin at Tel. 3400 8535.
Certificates of attendance will be provided to participants if they attend the whole lecture.