

CE 295 - RESEARCH SEMINARS in STRUCTURAL & GEOTECHNICAL ENGINEERING

Experimental Investigation of the Mechanical Behavior of PT Beams

Date: Thursday, May 22nd, 2014

Time: 4:00 – 4:50 pm

Room: MSTB 124

Guest Speaker: Prof. Zhijian Hu

Abstract:

Fully prestressing and, in particular, post-tensioning (PT) is an established technology for bridge structures. Professor Hu's group has focused on the development of condition state assessment for deteriorated PT bridges. This seminar presents an experimental investigation of the mechanical behavior of PT beams with bonded/unbonded tendons. The aim of the research was to develop an assessment method for PT beams with cracks and deflections. The talk presents experimental results of six model scale specimens and discusses the flexural rigidity, cracking, stress of the prestressed tendons, and residual capacity with consideration of grouting and load types, i.e. monotonic loading and cyclic load of the test specimens. Some simplified formulas are also suggested to evaluate the condition states of deteriorated PT structures. Detailed analytical and test results are presented to show the effectiveness of the suggested formulas by comparing them to current design codes.

Bio:



Dr. Zhijian Hu is an Associate Professor of Bridge Engineering at Wuhan University of Technology, Wuhan, China. He obtained his Ph.D. (2003-2006) from Tongji University at Shanghai, China. Zhijian Hu's teaching and research interests are in the areas of condition state assessment and rehabilitation of concrete bridges; blast-resistant design of bridges. His research is funded by China's Ministry of Science, provincial transportation departments and other state agencies & industries. He has received awards from Chinese Ministry of Transportation and provincial departments of science and technology for his research in bridge engineering. He has published extensively and presented several lectures at international conferences. Dr. Hu is a member of the board

of directors of the Bridge and Structural Engineering Division of the China Civil Engineering Society (BSCCES). He currently is a visiting scholar at UCI.