UNIVERSITY of HOUSTON

CULLEN COLLEGE of ENGINEERING

Department of Civil & Environmental Engineering

Special Seminar

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A Survey of Semi-Active Control with Magneto-Rheological (MR) Dampers

Wednesday, July 26, 2017
3:00 pm – 4:00pm
Classroom Business Building, 118

Abstract: This presentation intends to provide some information about the vibration control of a 3DOF scaled metallic frame with a MR damper. The device was tested in our laboratory to obtain the main characteristics to develop a numerical model to simulate its behaviour. Then a 3DOF scaled frame was assembled and system identification with an impact hammer procedure was performed to obtain the dynamic response of this structural system. The MR damper was then assembled in the scaled frame and a new identification procedure was carried out to verify the influence of this device in the frame dynamic behaviour. Based on these results a numerical model was created to initiate the semi-active control research process in order to investigate the frame behaviour with the MR damper.

About the speaker:

Dr. Rui Carneiro de Barros graduated in Civil Engng from Faculty Engineering University of Porto (FEUP), Portugal (1974); received his MSc in Ocean Engng at University College London, England (1976); obtained his PhD in Civil Engng at University of Akron, Ohio, USA (1983); achieved the Habilitation Degree in Civil Structural Engng at FEUP on the 4th July 2000.

Since 1983, as Professor in the Civil Engng Department of FEUP, he has been lecturing undergraduate courses and integrated master of science courses on Mechanics (Statics & Dynamics), Ocean Engng, Theory of Structures 1&2, Dynamics of Structures and Earthquake Engng, Structural Project 1&2, and post-graduate courses (of Doctoral Program in Structural Engng) on Analysis of Offshore Structures, Plastic Analysis and Design of Frames, Elastic Stability of Structures and Topics in Lifeline Engng.

As one of FEUP's Professors of Structural Engineering (with Habilitation Degree since 2000) he is currently involved in multidisciplinary research on Civil Engineering mainly with emphasis on Structural Engineering. His major current interests are: Structural Dynamics and Earthquake Engineering, Control of Vibrations of Buildings Towers and Bridges (tall and long span flexible structures) including SHM, Carrying Capacity of Composite Columns and of Asymmetric 3D Frames with Geometric Nonlinearities, Structural Rehabilitation, and Analysis of Offshore Structures up to medium depths.