

Department of Systems Engineering and Engineering Management Centre for Systems Informatics Engineering

Seminar Series

State of Art Review of the High Speed Rail Systems

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Date: 11 December 2017 (Monday)

Time: 3:00pm to 4:30pm

Venue: P7303, Yeung Kin Man Academic Building (AC1)

Abstract

The modern High Speed Rail (HSR) has been developed for more than 50 years. Although the basic elements of the technology resemble conventional rail transport, there are numerous major engineering differences and challenges.

This presentation reviews the unique features of a modern HSR system with particular emphasis on its subsystems of trains, propulsion system, signaling system, communication & controlling system.

Basic principles and elements of each subsystem will firstly be introduced. Challenges to fulfill the requirements of a safe and reliable high speed rail system were then be followed. Finally the state of art in designing each system to fulfill its challenges will be summarized.

This presentation also presented the history and development of various high speed systems such as Japanese, European and Chinese.

A short introduction to the future high speed systems such as maglev, tube train and Hyperloop will also will be presented.

About the Speaker

In spring of 2010, Dr. Kao traveled to the United States from Taiwan and taught “High Speed Rail Engineering” at University of Illinois at Urbana- Champaign (UIUC). This is the first such class has been taught in the North America. Ever since then, Dr. Kao expands his HSR courses at UIUC to a series of three covering “Engineering”, “Planning” & “Construction & Management” aspects of a HSR system. These three classes reflect his 36 year experience in participating in the planning, design, construction & operation of Taiwan HSR project and the research work he did on the subject of HSR systems. Besides in the US, these three classes also were taught in Hong Kong, China, Thailand, Taiwan and India.

Dr. Kao also serves as adviser to the World Bank and Hong Kong MTR Corporation on their HSR projects.

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All are Welcome!