The Hong Kong Polytechnic University
Department of Applied Mathematics

Colloquium

On

Continuous-time dynamic user equilibrium via differential complementarity systems

by

Professor Jong-Shi Pang
The University of Illinois College of Engineering

Abstract

We report on a two-part study of the continuous-time dynamic user equilibrium (DUE) problem in traffic planning using the recently introduced mathematical paradigm of differential complementarity systems. The first part pertains to an in-depth investigation of continuous-time point-queue models that are used as the building block of a computationally tractable model for the continuous-time DUE problem in the second part. Key features of the models are highlighted and their connections to realistic traffic flows are explained. In both parts of the study, we discuss discretizations of the continuous-time models from which we construct numerical trajectories whose convergence as the time step approaches zero is established. Regularity of the solutions to the continuous-time problems are clarified, and numerical results are presented.

Date : December 28, 2011 (Wednesday)

Time : 2:00 p.m. – 3:00 p.m.

Venue : HJ610, The Hong Kong Polytechnic University

*** * * ALL ARE WELCOME * * ***