The Hong Kong Polytechnic University
Department of Applied Mathematics

Seminar
on

Variational analysis and generalized differentiation: New trends and developments

by

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Abstract

Variational analysis has been recognized as a rapidly growing and fruitful area in mathematics concerning mainly the study of optimization and equilibrium problems, while also applying perturbation ideas and variational principles to a broad class of problems and situations that may be not of a variational nature. It can be viewed as a modern outgrowth of the classical calculus of variations, optimal control theory, and mathematical programming with the focus on perturbation/approximation techniques, sensitivity issues, and applications. One of the most characteristic features of modern variational analysis is the intrinsic presence of nonsmoothness, which naturally enters not only through initial data of optimization-related problems but largely via variational principles and perturbation techniques applied to problems with even smooth data. This requires developing new forms of analysis that involve generalized differentiation.

In this talk we discuss some new trends and developments in variational analysis and its applications mostly based on the author's recent 2-volume book "Variational Analysis and Generalized Differentiation, I: Basic Theory, II: Applications," Springer, 2006. Applications particularly concern optimization and equilibrium problems, optimal control of ODEs and PDEs, mechanics, and economics. The talk does not require preliminary knowledge on the subject.

Date : **23 May 2006 (Tuesday)**

Time : **2:30 – 3:30 p.m.**

Venue : **Departmental Conference Room HJ610**
The Hong Kong Polytechnic University

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