



DEPARTMENT OF APPLIED MATHEMATICS

應 用 數 學 系

**The Hong Kong Polytechnic University
Department of Applied Mathematics**

Colloquium

**Implicit Functions, Metric Regularity, and
Applications**

by

Prof. Asen L. Dontchev

Mathematical Reviews (AMS) and The University of Michigan

Abstract

The classical inverse/implicit function theorems revolves around solving an equation in terms of a parameter and tell us when the solution mapping associated with this equation is a differentiable function. Already in 1927 Hildebrandt and Graves observed that one can put aside differentiability obtaining that the solution mapping is just Lipschitz continuous. The idea has evolved in subsequent extensions most known of which are the theorems of F. Clarke and S. M. Robinson. In 1950 Graves obtained another inverse function theorem, in which the inverse is possibly set-valued having a certain Lipschitz property, now called the Aubin property. Yet another theorem by Bartle and Graves from 1952 claims the existence of a continuous selection of the solution mapping under metric regularity. In this talk I will focus on various extensions of these theorems and other companion results, also in nonsmooth setting, and their to applications variational inequalities and optimization problems as well to convergence analysis of algorithms.

Date : 29 November, 2018 (Thursday)

Time : 4:30p.m. – 5:30p.m.

Venue : TU801, The Hong Kong Polytechnic University

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