

國家理論科學研究中心

## IAMS / NCTS Applied Math Seminar

**Speaker:** Hans D. Mittelmann (School of Mathematical and Statistical Sciences, Arizona State University)

**Title:** State-of-the-Art in the Solution of Control-Related Nonlinear Optimization Problems

**Abstract:**

We start by giving an overview of some of our activities related to the computational solution of a range of optimization problems, including a leading web-based guide to software and its performance and a major installation of free web-based solvers. Then we sketch two classes of problems from our recent research, PDE constrained optimization as it arises in the control of PDEs and system identification problems. The first class gives rise to very large and sparse nonlinear optimization problems that still challenge state-of-the art algorithms including commercial products. The second class of problems are system identification problems including those suitable for data-centric estimation and control. At first we will address the solution of the crest-factor optimization problems described in the previous lecture, then we will introduce a novel optimization formulation which has facilitated the application of MoD (Model-on-Demand) type of control for process systems. For all problems considered formulations in the modeling language AMPL are utilized and we sketch some exemplarily.

**Time:** Mar. 27 (Fri.) 13:20 – 14:10

**Venue:** R202, Astro-Math Building (NTU Campus)

**Organizer:** Jenn-Nan Wang (NTU)

For more information, please refer to <http://www.cts.ntu.edu.tw/>,  
or contact [ac@ncts.ntu.edu.tw](mailto:ac@ncts.ntu.edu.tw).