数学与系统科学研究院

计算数学所学术报告

报告人： **Prof. Wotao Yin**

（ UCLA, U.S. ）

报告题目：

Coordinate Update Algorithms for Image Processing and Machine Learning

邀请人： 刘歆 副研究员

报告时间：2016 年 8 月 4 日（周四）

上午 **11:00-12:00**

报告地点： 科技综合楼三层

311 报告厅

Abstract：

This talk focuses on a class of algorithms, called coordinate update algorithms, which are useful at solving large-sized problems involving linear and nonlinear mappings, and smooth and nonsmooth functions. They decompose a problem to simple subproblems, where each subproblem updates one, or a small block of, variables each time. They have found applications throughout signal/imaging processing, differential equations, and machine learning. We abstract many problems to the fixed-point problem $x^{k+1}=Tx^k$. This talk discusses the favorable structures of the operator T that enable highly efficient coordinate update iterations. It can be carried out in sequential, parallel, or async-parallel fashions. We introduce new scalable coordinate-update algorithms to many problems involving coupling constraints $Ax=b$, composite nonsmooth functions $f(Ax)$, and large-scale data. We will present a software package and its numerical examples. This is joint work with Brent Edmunds, Zhimin Peng and Tianyu Wu (UCLA), Yangyang Xu (Alabama), and Ming Yan (MSU).

欢迎大家参加！