

# 数学与系统科学研究院

## 计算数学所学术报告

报告人: **Prof. Xue-Cheng Tai**

( *Department of Mathematics, University of Bergen, Norway* )

报告题目:

**Continuous Max-flow and Global  
Minimization for Classification of  
High Dimensional Data**

邀请人: **戴彧虹 研究员**

报告时间: **2015 年 6 月 4 日 (周四)**

**下午 15:00~16:00**

报告地点: **科技综合楼三层**

**311 报告厅**

## **Abstract:**

**A network can often be represented as a graph. Max-flow/min-cuts over a given graph can be used to find optimal solutions for many complicated network problems. It is known that these kind of problems are often NP-hard and they pose some very challenging minimization problems for simulations. In this talk, we will show how to use graph and cuts methods for some image processing and computer vision problems. Especially, we shall present our recent work extending the concept of max-flow/min-cuts to "networks" that are infinite dimension, i.e we will talk about continuous max-flow/min-cuts problems. When we discrete these continuous max-flow problems, we come back to the ordinary finite dimension max-flow problems. The continuous max-flow models can be solved through the solution of some partial differential equations and convex optimization techniques.**

**In the end of the talk, we will show two applications of these techniques for classifications of high dimensional data related to machine learning, especially for "Multi-class Transductive Learning" problems. We will also briefly show one application of these ideas for road condition detection from traffic cameras.**

**欢迎大家参加！**