

数学与系统科学研究院

计算数学所学术报告

报告人: 凌青 副教授

( 中国科学技术大学 )

报告题目:

**Decentralized Dynamic Optimization  
Through the Alternating Direction  
Method of Multipliers**

邀请人: 刘歆 博士

报告时间: 2014 年 10 月 17 日 (周五)

上午 10:00-11:00

报告地点: 数学院南楼二层 204

会议室

## **Abstract:**

**This talk discusses the application of the alternating direction method of multipliers (ADMM) to optimize a dynamic objective function in a decentralized multi-agent system. At each time slot agents in the network observe local functions and cooperate to track the optimal time-varying argument of the sum objective. This cooperation is based on maintaining local primal variables that estimate the value of the optimal argument and auxiliary dual variables that encourage proximity with neighboring estimates. Primal and dual variables are updated by an ADMM iteration that can be implemented in a distributed manner whereby local updates require access to local variables and the most recent primal variables from adjacent agents. For objective functions that are strongly convex and have Lipschitz continuous gradients, the distances between the primal and dual iterates to their corresponding time-varying optimal values are shown to converge to a steady state gap. This gap is explicitly characterized in terms of the condition number of the objective function, the condition number of the network that is defined as the ratio between the largest and smallest nonzero Laplacian eigenvalues, and a bound on the norm of the drift of the optimal primal variables.**

**欢迎大家参加!**