数学与系统科学研究院

计算数学所学术报告

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报告题目:

Computational Models and Complexities of Tarski's Fixed Points

邀请人： 优化与应用研究中心

报告时间: **2011** 年 **12** 月 **21** 日（周三）

下午 **15**：**00**

报告地点： 科技综合楼三层 **311**

计算数学所报告厅

Abstract：

We consider two models of computation for Tarski's order preserving function f related to fixed points in a complete lattice: the oracle function model and the polynomial function model. Tarski's fixed point theorem plays a crucial role in the study of supermodular games (or games with strategic complementarities) for economic analysis. In this work we develop a complete understanding under the oracle function model for finding a Tarski's fixed point as well as determining the uniqueness of Tarski's fixed point in both the lexicographic ordering and the componentwise ordering lattices. In particular, we present the first known polynomial time algorithm for finding a Tarski's fixed point of the componentwise ordering. Moreover, we present a polynomial-time reduction of an integer program to an order preserving mapping from a lattice L into itself. As a result of this reduction, we prove that, when f is given as a polynomial function, determining whether or not f has a unique fixed point is Co-NP hard.

Joint work with Chuangyin Dang and Qi Qi

欢迎大家参加！