数学与系统科学研究院

计算数学所学术报告

报告人：Associate Prof. Dan Ruan

（ *UCLA, U.S.A* ）

报告题目：

Applied mathematics in medicine: more than just applying

邀请人：　　刘歆 博士

报告时间：2012 年 7 月 5 日（周四）

上午 10：30-11：30

报告地点：　科技综合楼三层 301

计算数学所小报告厅

Abstract：

Applied mathematics and statistical learning are playing an important role in modern medicine, in the field of image processing, evidence-based treatment and various optimization aspects. On the other hand, as certain techniques grow prevalent (e.g., total variation regularization/minimization, levelset representation), they are sometimes applied as it is without considering the specific characteristics of the underlying problem. In this talk, we will start with a sampled overview of medical problems that are computational & applied math (CAM)-intensive, and then present the some medical physics andneurological research in our group, where problem-specific structures are analyzed, and qualitative desirable properties in the solution are translated to mathematical problems. We will present examples in outcome regression, treatment plan optimization, and neurological signal separation. These problems, once reduced to the mathematical level, correspond to various forms of sparsity. We will also discuss a particular anatomy-tracking problem where the use of levelset is justified from the underlying physics problem.

欢迎大家参加！