数学与系统科学研究院

计算数学所学术报告

报告人： 王文平教授 (香港大学)

报告题目：

Computation of Centroidal Voronoi Tessellation

邀请人： 徐国良研究员

报告时间： 2008 年 10 月 30 日(周四)

下午 4:00—5:00

报告地点： 科技综合楼三层 311

计算数学所报告厅

Abstract：

Centroidal Voronoi Tessellation (CVT) is an optimal geometric structure based on Voronoi

Diagram and used in many applications of computer graphics and geometric processing. The prevailing method for computing CVT is Lloyd's method that has linear convergence in theory and is extremely slow in practice. We will show that the objective function of the CVT problem in Euclidean space of dimension two or higher is almost always C2, contrary to the wrong belief in the literature that it is a nonsmooth function. Based on the C2 smoothness of this objective function, a Newton-like method for computing CVT is devised that is about one order of magnitude faster than Lloyd's method. We will also present several extensions and applications of CVT relevant to shape modeling, including CVT-based surface remeshing and variational computation with Power Diagrams for solving the disk packing problem.

欢迎大家参加！