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：

Computing partial differential equations on point clouds

邀请人：　　周爱辉 研究员

报告时间：**2013** 年 **8** 月 **14** 日（周三）

上午 **10:00-11:00**

报告地点：　　科技综合楼三层 **311**

计算数学所报告厅

Abstract:

I will present a general framework for solving partial differential equations on manifolds represented by meshless points, i.e., point clouds, without parametrization or connection information. Our method is based on a local approximation of the manifold, such as using least squares, in a local intrinsic coordinate system constructed by local principal component analysis (PCA) using K-nearest neighbors (KNN). Once the local reconstruction is available, differential operators on the manifold can be approximated discretely. The framework extends to manifolds of any dimension. The complexity of our method scales well with the total number of points and the true dimension of the manifold (not the embedded dimension). Applications to point cloud analysis and manifold learning will be discussed.

欢迎大家参加！