数学与系统科学研究院

计算数学所学术报告

报告人： **Prof. Chandrajit Bajaj**

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报告题目：

Structure Elucidation and Visualization from 3D Electron Microscopy

邀请人： **徐国良研究员**

报告时间： **2009 年 12 月 28 日(周一)**

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：

With continued advances in three dimensional

Electron Microscopy (3D EM)one is progressively able to elucidate the structural building blocks of of life at varying resolutions. In thistalk, I shall discuss algorithms to detect the secondary structuralmotifs (helices and sheets) of proteins for whichthe volumetric 3D EM maps are reconstructed at 5–10 Angstrom resolution.Additionally, I shall also present geometric and signal processing algorithms to reveal the structure of brain tissue at the submicron scale, so as to analyze the spatial relationships between various cellular (neuronal) structures as well as the arrangement of organelles within neurons. For each of these algorithms, we employ techniques from computational geometry and differential topology, especially thecomputation of stable/unstable manifolds of certain critical pointsof distance

functions of molecular surface boundaries.

欢迎大家参加！