

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:

**An Algorithm for Reconstruction of
Images from Radon Projections**

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报告地点: 科技综合楼三层 311

计算数学所报告厅

Abstract:

The simplest, yet the central, problem of computed

tomography (CT) is to determine a function from its line integrals. CT has important applications in medical imaging, in which the function represents an image and the line integrals stand for the Radon data such as x-rays.

Mathematically, the problem calls for a good approximation (an algorithm) to the function based on a finite set of its Radon projections. We introduce a new reconstruction algorithm, called OPED, based on Orthogonal Polynomial Expansion on the Disk. The algorithm works naturally with the fan data and can be implemented effectively. It is also flexible and can be adopted to solve the limited angle problem. We have proved that the algorithm converges uniformly under a mild condition on the function. Numerical experiments have shown that the method is fast, stable, and has a small global error.

欢迎大家参加！