

数学与系统科学研究院

计算数学所学术报告

报告人: **Prof. Chao Yang**

(*Lawrence Berkeley National Laboratory, USA*)

报告题目:

**Structure preserving algorithms for
solving the Bethe-Salpeter
Eigenvalue Problem**

邀请人: 周爱辉 研究员

报告时间: 2016 年 6 月 6 日 (周一)

上午 10:00-11:00

报告地点: 数学院南楼七层

702 会议室

Abstract:

The Bethe-Salpeter eigenvalue (BSE) problem is a dense structured eigenvalue problem that describes the excitation energies required to create correlated electron--hole pairs in materials upon light absorption. I will examine the special structure of this type of eigenvalue problem and describe a number of recently developed algorithms for solving this type of eigenvalue problem and estimating the optical absorption spectrum of the materials. In particular, I will describe an algorithm for computing all positive eigenvalues of the BSE Hamiltonian, and a special Lanczos algorithm for estimating the optical absorption spectrum without computing eigenvalues directly. I will also discuss the possibility of using low rank approximation in computing exciton energies and optical spectrum of materials.

欢迎大家参加！