Duke Kunshan University

Zu Chongzhi Distinguished Lecture Series

昆山杜克大学祖冲之数学名家讲坛

Semiclassical computational methods for quantum dynamics with band-crossing and uncertainty

Prof. Shi Jin, Shanghai Jiao Tong University

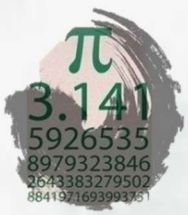
Venue: DKU Academic Building 1078
Date:11am-12pm, Friday, 7 December 2018

Abstract:

Band-crossing is a quantum dynamical behavior that contributes to important physics and chemistry phenomena such as quantum tunneling, Berry connection, chemical reaction etc. In this talk, we will discuss some recent works in developing semiclassical methods for band-crossing in surface hopping. For such systems we will also introduce an "asymptotic-preserving" method that is accurate uniformly for all wave numbers, including the problem with random uncertain band gaps.

报告人简介：

金石获北京大学学士学位，美国亚利桑那大学博士学位，历任美国纽约大学库朗数学研究所博士后，美国佐治亚理工学院助理教授，副教授，美国威斯康星大学（麦迪逊）正教授，数学系系主任，Vilas 杰出成就教授，上海交通大学数学系讲席教授，系主任，自然科学研究院院长。金石曾获得冯康科学计算奖，国家自然科学基金杰出青年基金(海外），教育部长江讲座教授（清华大学），国际华人数学家大会晨兴数学银奖。他是美国数学会（AMS）首批会士，工业与应用数学学会(SIAM)会士，及2018年国际数学家大会邀请报告人。
http://www.math.wisc.edu/~jin/



Kunshan has a special tie with mathematics in its history as the great mathematician and engineering Zu Chongzhi completed the calculation of the eight-bit approximation of the Pi during his appointment as the magistrate of Lou county (former name of Kunshan) around 464 AD. The eight-bit approximation of the Pi (between 3.1415926 and 3.1415927) and the approximate fraction (i.e. 'density') are among the highest mathematical achievements in ancient China, leading the world for nearly a thousand years. Hence, we name after Chongzhi Zu for the center in memorial of this great scientist.

约公元464年，伟大的数学家和科学家祖冲之调至娄县（今昆山）担任县令，在那里完成了圆周率π精确到小数点第7位的计算，所以昆山与数学的特殊关系源远流长。π精确到小数第7位（3.1415926和3.1415927之间）和近似分数（即：密率）是中国古代数学成就最璀璨的明珠之一，领先世界接近一千年。因此，我们将中心以祖冲之命名，以纪念这一伟大的科学家。