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：

From discrete integrable system to continuous integrable system

邀请人： 胡星标 研究员

报告时间： 2018 年 5 月 16 日（周三）

下午 **15:00-16:00**

报告地点： 数学院南楼七层

702 教室

Abstract：

In this talk, I will give a review on recent development of integrable system, especially the discrete inegrable system. It is known that the tau-functions play a crucial role in both the continuous and discrete integrable sytems. We will start with a type of Gam determinant solution and the Hirota-Miwa equation, or the discrete Kadomtsev–Petviashvili (KP) equation, it satisfies. By introducing Schur polynomial, and Miwa transformation, we will derive the KP hierarchy, whose reductions give rise to the Korteweg-de Vries (KdV) equation and Boussinesq equation. Then we will show by simple transformations, the discrete KP equation can be transformed into discrete modified KP equation and the discrete KP-Toda lattice equation, which in turn lead to the modified KP and KP-Toda hierarchy, whose reductions give the modified KdV equation and Sine-Gordon equation, respectively.

If time permits, we will introduce a deformation of the KP-Toda hierarchy, from which the soliton solutions to some soliton solutions such as the   Camassa-Holm equation can be obtained.

欢迎大家参加！