

数学与系统科学研究院

**计算数学所学术报告**

**报告人: Dr. Zhijun Qiao**

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**报告题目:**

**The Degasperis–Procesi Hierarchy  
and Its Solutions: Soliton and  
parametric solutions**

**邀请人: 胡星标研究员**

**报告时间: 2007年5月31日(周四)**

**下午 16:00—17:00**

**报告地点: 数学研究院**

**思源楼 712 报告厅**

## **Abstract:**

**This talk deals with soliton solutions of the standard Degasperis-Procesi (DP) equation under an inhomogeneous boundary condition and composes of the following two parts:**

**In Part I, we will present a direct approach to explore the exact traveling solutions of the DP equation. We find all possible single peak soliton solution: regular peakon (corresponding to the homogeneous boundary condition), smooth soliton and cusped soliton (corresponding to the inhomogeneous boundary condition). Theoretical analysis and numerical graphs are provided.**

**In Part II, we will present the DP hierarchy, including the DP equation and a new 5th order integrable equation. The whole DP hierarchy is shown Lax-integrable through solving a key matrix equation. The parametric solutions of all equations in the the DP hierarchy are obtained. In particular, we obtain the parametric solution of the DP equation and the 5th-order PDE.**

**欢迎大家参加！**