

数学与系统科学研究院  
计算数学所系列学术报告

报告人: **Dr. Jonathan Eckhardt**

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报告题目:

**The conservative Camassa-Holm  
flow III: Inverse spectral transform**

**The conservative Camassa-Holm  
flow IV: Long-time asymptotics**

邀请人: 常向科 助理研究员

报告时间:

**2018年7月16日(周一)下午 15:00-17:00**

报告地点: 数学院南楼九层

**902 教室**

## **Abstract:**

The Camassa-Holm equation is a nonlinear partial differential equation that models unidirectional wave propagation on shallow water. Probably the most distinct feature of this equation is the occurrence of finite time blow-up, which to a certain extent resembles wave-breaking. On the other side, the Camassa-Holm equation is known to be formally completely integrable in the sense that there is an associated isospectral problem, giving rise to infinitely many conservation laws. Because of this, it can, at least in principle, be integrated by means of the inverse spectral transform, that is, by solving a corresponding inverse spectral problem. In this series of talks, we will report on various aspects of our recent work on this method of solution. The first talk will discuss the inverse spectral problem for generalized indefinite strings as a prototypical example and establish its connection with continued fractions as well as the Hamburger moment problem. In the second talk, it will be shown how these ideas are related to the notion of global conservative multi-peakon solutions of the Camassa-Holm equation. The third talk will then focus on the inverse spectral transform for general solutions of the Camassa-Holm equation satisfying only a suitable spatial decay restriction. In the final talk, we will present a proof of the soliton resolution conjecture for the Camassa-Holm equation, which states that solutions asymptotically split into a train of (in general infinitely many) peakons in the long-time limit.

**欢迎大家参加！**