

# 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:

**CRE solvability and exact solutions  
of nonlinear systems**

邀请人: 胡星标 研究员

报告时间: 2015 年 4 月 15 日 (周三)

晚上 20:30

报告地点: 数学院南楼七层

702 会议室

## **Abstract:**

**A consistent Riccati expansion (CRE) is proposed for solving nonlinear systems with the help of a Riccati equation. A system having a CRE is then defined to be CRE solvable. The CRE solvability is demonstrated quite universal for various integrable systems including the Korteweg de-Vries, Kadomtsev-Patviashvili, Ablowitz-Kaup-Newell-Segur (and then nonlinear Schrödinger), sine-Gordon, Sawada-Kotera, Kaup-Kupershmidt, modified asymmetric Nizhnik-Novikov-Veselov, Broer-Kaup, dispersive water wave, and Burgers systems. In addition, it is revealed that many CRE solvable systems share a similar determining equation describing the interactions between a soliton and a cnoidal wave. They have a common nonlocal symmetry expression and they possess a formally universal once Bäcklund transformation.**

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