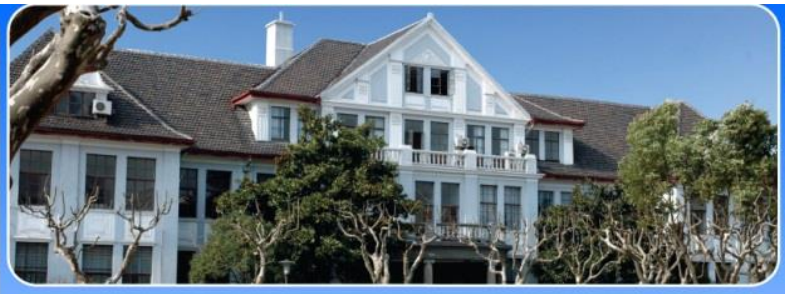


复旦大学数学科学学院

数学综合报告会

报告题目：The kink solutions of the SIdV equation and the associated surfaces

报告人：贺劲松 教授 (深圳大学高等研究院)

时间：2021-03-09 星期二 10:00-11:00

地点：腾讯会议ID: 381 383 960

报告摘要：

In this talk, we study a new non-linear integrable equation, $u_{t}+2 \frac{u_{x}u_{xx}}{u}=\epsilon u_{xxx}$, which is invariant under scaling of dependent variable and was called the SIdV equation, see Commun. Nonlinear Sci. Numeric. Simulat. 17 (2012) 4155. The order-n kink solution $u^{[n]}$ of the SIdV equation, which is associated with the n-soliton solution of the Korteweg-de Vries equation, is constructed by using the n-fold Darboux transformation (DT) from zero “seed” solution. Moreover, we also provide the evolution scenarios of surfaces of revolution associated with the kink-type solutions of the SIdV, where the kink-type solutions play the role of a metric. We put forward two kinds of evolution scenarios for surfaces of revolution associated with two types of kink-type metric (solution) and we study the key properties of these surfaces.

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