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：

Applications of quasideterminants in non-commutative integrable systems

邀请人： 常向科 副研究员

报告时间： 2019 年 12 月 11 日（周三）

上午 9:30-10:30

报告地点： 数学院南楼二层

205 教室

Abstract：

Quasideterminants play an important role in noncommutative (nc for simplicity) algebra as determinants in linear algebra. Quasideterminants have many properties similar to determinants besides their essential difference. One of the most attractive features of quasideterminants is their relations to noncommutative integrable systems. As we know, some classical integrable systems have solutions expressed in terms of determinants. In noncommutative setting, noncommutative integrable systems have been found to have quasideterminant solutions in literature. We would like to point out that there are several reasons to result in noncommutativity, such as Moyal product, matrix multiplication and introduction of anti-commutative variables. In this talk, I will first give a brief review on fundamentals of quasideterminant and construct quasideterminant solutions to noncommutative two-dimensional Toda lattice equations by iterating Darboux transformations and binary Darboux transformations. Then I will derive quasideterminant solutions to the matrix sine-Gordon equation by taking two-period reduction of the nc two-dimensional Toda lattice and its quasideterminant solutions. In the end, I will give some explicit solutions to the matrix sine-Gordon equation and analyze the asymptotic behavior of the two kink solutions at infinity, which leads to a Yang-Baxter relation.

欢迎大家参加！