

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:

**Constructing two-dimensional
optimal system of the group
invariant solutions**

邀请人: 胡星标 研究员

报告时间: 2018 年 12 月 26 日 (周三)

晚上 19:30-20:30

报告地点: 数学院南楼二层

210 教室

Abstract:

To search for inequivalent group invariant solutions of two-dimensional optimal system, a direct and systematic approach is established, which is based on commutator relations, adjoint matrix, and the invariants. The details of computing all the invariants for two-dimensional algebra are presented, which is shown more complex than that of one-dimensional algebra. The optimality of two-dimensional optimal systems is shown clearly for each step of the algorithm, with no further proof. To leave the algorithm clear, each stage is illustrated with a couple of examples: the heat equation and the Novikov equation. Finally, two-dimensional optimal system of the (2+1) dimensional Navier-Stokes (NS) equation is found and used to generate intrinsically different reduced ordinary differential equations. Some interesting explicit solutions of the NS equation are provided.

欢迎大家参加！