

数学与系统科学研究院
计算数学所系列学术报告

报告人: **Prof. Luigi Brugnano**

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报告题目:

**LINE INTEGRAL METHODS and
their application to the numerical
solution of conservative problems**

邀请人: 孙雅娟 副研究员

报告安排:

I : 2012 年 12 月 27 日 (周四) 上午 10: 00~12: 00 科技综合楼 301 报告厅

II : 2012 年 12 月 28 日 (周五) 上午 10: 00~12: 00 科技综合楼 301 报告厅

III : 2012 年 12 月 31 日 (周一) 上午 10: 00~12: 00 科技综合楼 311 报告厅

IV : 2013 年 1 月 1 日 (周二) 上午 10: 00~12: 00 科技综合楼 311 报告厅

V : 2013 年 1 月 2 日 (周三) 上午 10: 00~12: 00 科技综合楼 311 报告厅

VI : 2013 年 1 月 3 日 (周四) 上午 10: 00~12: 00 科技综合楼 311 报告厅

VII : 2013 年 1 月 4 日 (周五) 上午 10: 00~12: 00 科技综合楼 311 报告厅

Abstract:

The course will provide a self-contained introduction to discrete line integral methods, a class of energy-conserving Runge-Kutta methods recently devised for the numerical solution of Hamiltonian problems. The basic idea on which the methods rely will be fully discussed, along with a corresponding framework for the analysis of the methods.

The class of energy-conserving Runge-Kutta methods named HBVMs (Hamiltonian Boundary Value Methods) will be studied in detail, including the efficient solution of the generated discrete problems.

The same basic approach, based on a discretized line integral, is then extended to derive more general classes of methods, able to cope with general conservative problems, possibly having multiple invariants.

Further generalizations, such as the possibility of obtaining methods which are both symplectic and conservative will be also discussed, along with future directions of investigation.

<http://www.math.unifi.it/brugnano/>

欢迎大家参加!