



深圳北理莫斯科大学

УНИВЕРСИТЕТ МГУ-ППИ В ШЭНЬЧЖЭНЕ

SHENZHEN MSU-BIT UNIVERSITY

应用数学讲座

Научный Семинар по Прикладной Математике
Research Seminar on Applied Mathematics

应用数学报告 (89)

报告人 / Докладчик / Speaker: 张硕 研究员 (AMSSCAS, Chinese Academy of Sciences)

题目 / Название / Title: Low-degree conservative finite element schemes for incompressible flows

时间 / Время / Time: 2023.11.13, 14:30-17:30

地点 / Место / Venue: 主楼336

摘要 / Аннотация / Abstract:

The strict preservation of the conservation property is important in the design of numerical schemes for various model problems. I will firstly talk about why we would like to study low-degree strictly conservative finite element method for incompressible flows. Then I will talk about a nonstandard approach for designing finite element schemes for fluid computation, which can preserve strictly the divergence free condition for incompressible fluid flows. The schemes work on general triangulations with lower degree of polynomials than known results, and its superiority with respect to some existing schemes are partially illustrated with numerical experiments. The theoretical analysis depends on a careful application of Stokes complex. Both boundary value problems and eigenvalue problems will be mentioned, in case the time permits.

张硕研究员简介:

张硕, 中科院数学与系统科学研究院副研究员。2003 年本科毕业于山东大学, 2008 年博士毕业于北京大学数学科学学院, 2008-2009 年在宾夕法尼亚大学从事博士后研究, 师从著名数学家许进超教授, 2009 年入职现单位。主要从事有限元方法的研究, 其成果主要发表在 SINUM, IAMNUM, Numer. Math, JCP, Sci. China Math. 等著名期刊上。

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