

数学与系统科学研究院

计算数学所学术报告

报告人: **Prof. Junping Wang**

(*National Science Foundation, USA*)

报告题目:

**Basic Principles for Weak Galerkin
Finite Element Methods(弱有限元方
法的基本原理)**

邀请人: 周爱辉 研究员

报告时间: **2015 年 6 月 26 日 (周五)**

下午 16:30~17:30

报告地点: 数学院南楼二层

202 会议室

Abstract:

This talk shall introduce a new numerical technique, called weak Galerkin finite element method (WG), for partial differential equations. The presentation will start with the second order elliptic equation, for which WG shall be applied and explained in detail. In particular, the concept of weak gradient will be introduced and discussed for its role in the design of weak Galerkin finite element schemes. The speaker will then introduce a general notion of weak differential operators, such as weak Hessian, weak divergence, and weak curl etc. These weak differential operators shall serve as building blocks for WG finite element methods for other class of partial differential equations, such as the Stokes equation, the biharmonic equation, the Maxwell equations in electron magnetics theory, div-curl systems, and MHD etc. The speaker will demonstrate how WG can be applied to each of the applications, with a discussion on the main features. Furthermore, a mathematical convergence theory shall be briefly given for some applications. The talk should be accessible to graduate students with adequate training in computational methods

欢迎大家参加！