数学与系统科学研究院

计算数学所学术报告

报告人：**Prof. Z.J. Wang**

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报告题目：

Perspective on adaptive high order CFD methods for real world applications

邀请人：　袁礼 研究员

报告时间：**2013** 年 **7** 月 **10** 日（周三）

上午 **10:00**

报告地点：　科技综合楼三层 **301**

计算数学所小报告厅

Abstract:

The important role of CFD in aircraft design will be described. Then the need for high-order accuracy in CFD simulations is illustrated. After that the current status of high-order CFD methods will be discussed, followed by a presentation of several high-order methods under development, including the discontinuous Galerkin (DG) method, spectral volume (SV), spectral difference (SD) methods. Recently, the correction procedure via reconstruction (CPR) formulation was developed to unify these methods under a single framework. All the methods possess the following properties: k-exactness on arbitrary grids, and compactness, which is especially important for parallel computing on clusters of CPUs and GPUs. In addition, the application of high-order methods to compute real world flow problems will be presented. The talk will conclude with several remaining challenges in the research on high-order methods.

Short Bio:

Z.J. Wang(王志坚), Spahr Professor and Chair of Aerospace Engineering at the University of Kansas (KU), received his Ph.D. in Aerospace Engineering from the University of Glasgow in 1990. Then he conducted post-doctoral research in Glasgow and Oxford before joining CFD Research Corporation in Huntsville, Alabama in 1991 as a Research Engineer, and later becoming a Technical Fellow. In 2000, he joined the faculty of Michigan State U as an Associate Professor of Mechanical Engineering. In 2005 he moved to Aerospace Engineering of Iowa State U. In 2012 he joined KU's Aerospace Engineering Department. He has been active in CFD research since early 1990s with over 170 journal and conference publications. His research areas include adaptive high-order methods for the Navier-Stokes equations, algorithm and flow solver development for structured and unstructured, overset and adaptive Cartesian grids, computational aeroacoustics and electromagnetic, large eddy simulation of transitional and bio-inspired flow problems, high performance computing on CPU and GPU clusters, geometry modeling and grid generation. He is an Associate Fellow of AIAA, and an Associate Editor of the AIAA Journal. He was awarded the degree of Doctor of Science in Engineering by the University of Glasgow in 2008.

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