LHD 国际学术报告会(主楼 312 会议室 2012 年 3 月 29 日周四下午 3:00)

报告题目：

Drag Reduction through Reduced Wing Sweep and Shock Control

演讲人：

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时间：2012 年 3 月 29 日（周四）下午 3:00

地点：力学所主楼 312 会议室

邀请人：郑洪伟 特聘副研

报人简介：

Ning Qin is Professor of Aerodynamics and Director of Centre for Greener Aerospace Technologies at the University of Sheffield in the UK. He obtained his BSc(Math 1982) and MEng(Aerodynamics 1984) from NUAA in China, and PhD(Aerospace Engineering 1987) from the University of Glasgow in the UK. Before moving to Sheffield in 2003, he was Professor of Computational Aerodynamics at Cranfield University College of Aeronautics.

He is a Fellow of the Royal Aeronautical Society, an Associate Fellow of the American Institute of Aeronautics and Astronautics and an NUAA Visiting Professor. He was awarded the RAeS Hafner Prize on VTOL Technology in 2000. He is on the Editorial Boards of AIAA Progress in Aeronautics and Astronautics, IMechE J of Aerospace Engineering, Chinese Journal of Aeronautics, and Advances in Applied Mathematics and Mechanics.

His recent research activities are in flow control (shock and separation control), aerodynamic design optimisation (drag reduction), MAV and UAV aerodynamics, hypersonic heating, CFD method development including adaptive and moving mesh techniques. He is the technical coordinator of the FP7 MARS project on Manipulation of Reynolds stresses for drag reduction and separation control. He has published over 200 technical papers in computational aerodynamics.

报告摘要：

In this presentation, the effects of wing sweep on aircraft drag will be discussed. Its impact on aircraft wave drag and skin friction drag will be analysed side by side in the context of overall wing drag reduction. In order to achieve substantial drag reduction for future greener transport aircraft, a reduction of the conventional wing sweep is advocated to accommodate potential for large natural laminar flow region on the wing. However, both reduced sweep and natural laminar flow profile requirement are accompanied by increased shock strength if the transonic flight Mach number is maintained. A key enabler is an effective control of the shock wave on a lower sweep natural laminar flow wing, which will be discussed along with some recent work in design optimisation.

Keywords: drag reduction, shock control, natural laminar flow