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臺灣大學應用力學研究所
演 講 公 告

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主 講 人：李崇綱副教授
成功大學機械工程學系

講　　題：以超級電腦運算之低速可壓縮流計算流體力學架構及其實際應用

摘　　要：　如附件

主 持 人：　張建成教授

時　　間：　112年11月27日（星期一）下午2時20分開始

地　　點：　臺灣大學應用力學研究所國際會議廳

☆☆ 歡 迎 聽 講 ，敬 請 張 貼 ☆☆

CFD Framework for Low-Speed Compressible Flow and Its Applications Using Supercomputers

ChungGang Li
cgli@gs.ncku.edu.tw

Department of Mechanical Engineering, National Cheng Kung University

Abstract:

Compressible flow at low Mach numbers plays a significant role in engineering applications and our daily lives. The utilization of computational fluid dynamics (CFD) on supercomputers to understand intricate flow phenomena in low-speed compressible flow shows great promise. However, effectively handling low-speed compressible flow remains a significant challenge. In this lecture, I will introduce numerical methods developed specifically for low-speed compressible flow. These methods include the low-speed compressible solver, immersed boundary method (IBM), turbulence models, and time-stepping schemes designed to address practical problems. Moreover, all these methods have been implemented based on a hierarchical structured grid known as the Building Cube Method (BCM) to harness the computational power of supercomputers. Various practical applications, such as vehicle aeroacoustics, COVID-19 infection risk evaluation, and human phonation, will be discussed to demonstrate the capabilities of the current framework.

Keywords: Compressible flow, low speed, CFD, supercomputers, practical applications