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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：Dr. Solkeun Jee

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South Korea

講　　題：Turbulence modeling with machine learning and transition theory

摘　　要：　如附件

主 持 人：　周逸儒教授

時　　間：　112年11月9日（星期四）上午10時開始

地　　點：　臺灣大學應用力學研究所 400 會議室

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Turbulence modeling with machine learning and transition theory

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Abstract：

Turbulence is everywhere, yet it has not been fully understood. In this talk, I am going to present resent studies on turbulence. Two major topics are the followings: (1) turbulence modeling with machine learning and (2) computations of turbulent transition with the stability theory. For the former, a machine learning technique is applied to a Reynolds-averaged Navier-Stokes (RANS) model for accurate simulation of separated flow, one of major challenges of typical turbulence simulation. A corrected RANS model is able to predict several separated flows including flow separation from a sharp corner and a smooth wall. Regarding the second topic, turbulent transition, I am going to introduce a novel approach i.e., eddy-resolving simulation combined with the stability theory. This approach allows to simulate the intrinsic flow phenomena accurately with a fraction of computational cost of direct-numerical simulation. I am going to show its capability in resolving several transition phenomena in subsonic, supersonic and hypersonic boundary layers.

Bio sketch of Prof. Solkeun Jee

Work Experience

2021 ~ present: Associate Professor, School of Mechanical Engineering, GIST
2016 ~ 2021: Assistant Professor, School of Mechanical Engineering, GIST
2013 ~ 2016: Senior Research Engineer, United Technologies Research Center (UTRC), East Hartford, CT, USA
2010 ~ 2013: Postdoctoral Fellow, NASA Ames Research Center, Moffett Field, CA, USA

Education

Ph. D. in Mechanical Engineering, Univ. of Texas at Austin, USA, 2010
M. S. in Mechanical Engineering, Univ. of Texas at Austin, USA, 2007
B. S. in Mechanical Engineering, Pohang Univ. of Science and Technology, 2004