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臺灣大學應用力學研究所  
演 講 公 告

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講 題：渦旋動力學於介面流與非穩態空氣動力學之應用

摘 要： 如附件

主 持 人： 張建成教授

時 間： 112年9月25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 ☆☆

# 渦旋動力學於介面流與非穩態空氣動力學之應用

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Abstract :

While computational fluid dynamic (CFD) is expensive and time consuming, vortex dynamics provide another physical-based and mathematically sound approach to analyze fluid flows. We first discuss its application in modeling interfacial flows. Classic vortex dynamic concerns inviscid flows with uniform density and no body force. We derive two extensions from the classic models in vortex filaments and contour dynamics, with the addition of sharp density interface. A linear stability theory applied to parametric instabilities while density and surface tension are present. We also look into a two-dimensional unsteady model for thin airfoils using discrete vortex methods (DVM). Contrast to the conventional aerodynamic of fixed wings, the flow induced by the unsteady motion of an airfoil is of interest. A crucial parameter, leading edge suction parameter LESP, is used to determine when to release vortices from the leading edge. The critical value of leading edge suction parameter is chosen so that appropriate amount of circulation is shed from the leading edge.