

## 數值模擬與流場可視化實驗室

# Numerical Simulation and Flow Visualization Lab

負責教師：施陽正

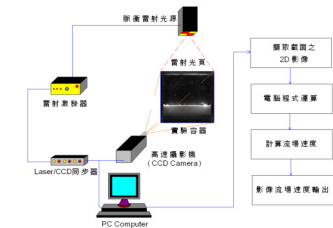
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### ■ 主要研究項目 (Research Focus)

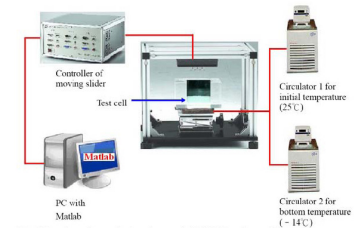
- PIV 流場量測  
Flow field measured by PIV
- 暗影法之流場可視化  
Shadowgraph technique
- 暫態液晶法之流場可視化  
Flow visualization by thermochromic liquid crystal (TLC)
- 雙波長全像干涉術  
Two-wavelength holographic interferometer technique
- 固液相變過程之熱質傳研究  
Heat and mass transfer during the liquid-solid phase change process
- 潔淨室氣流模擬分析  
Airflow simulation within cleanrooms
- 能源與冷凍空調領域之氣流模擬分析  
Application of airflow simulation in the fields of energy and refrigerating and air-conditioning engineering

### ■ 主要研究設備與軟體 (Research Facility)

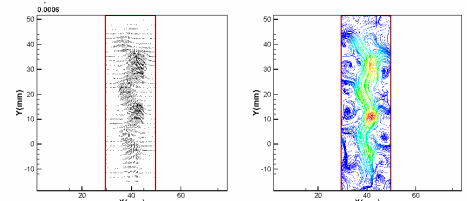
- 質點影像速度儀  
Particle Image Velocimetry (PIV)
- 雙波長全像干涉術量測設備  
Two-wavelength holographic interferometer
- 紋影法流場可視化設備  
Facility for Schlieren technique
- Fluent 熱流數值模擬軟體 ANSYS FLUENT
- Tecplot 後處理軟體 Tecplot for post processing



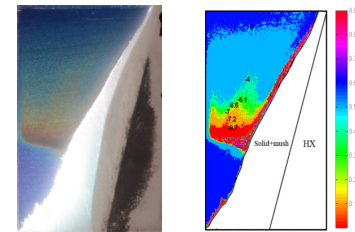
PIV 操作示意圖  
Schematic diagram of PIV system



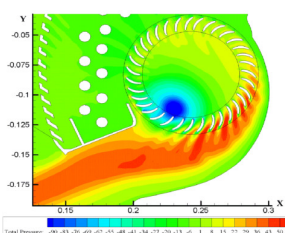
週期性驅動流消除二元溶液凝固過程雙擴散對流設備  
Facility for suppressing double-diffusive convection during the solidification of a binary solution by a periodic lid-driven flow



二元溶液凝固過程雙擴散對流流場  
Double-diffusive convection during the solidification of a binary solution (PIV measurement)

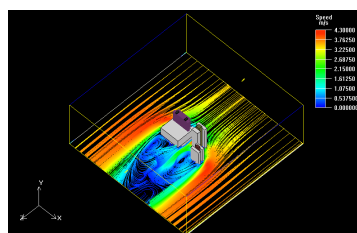


利用暫態液晶法量測二元溶液凝固過程溫度分佈  
Temperature distribution by TLC for the solidification of a binary solution



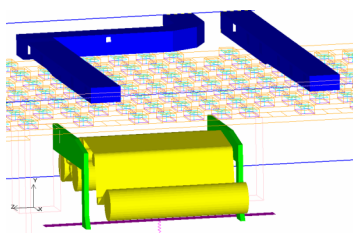
空調室內機氣流模擬分析

Airflow simulation on a split-type air-conditioner



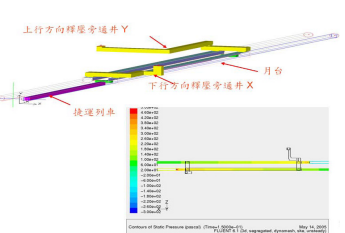
建築物風場模擬

Airflow simulation around buildings



潔淨室氣流模擬分析

Airflow simulation within a cleanroom



捷運列車活塞效應模擬

Airflow simulation on an MRT system