



微流體與系統模擬實驗室

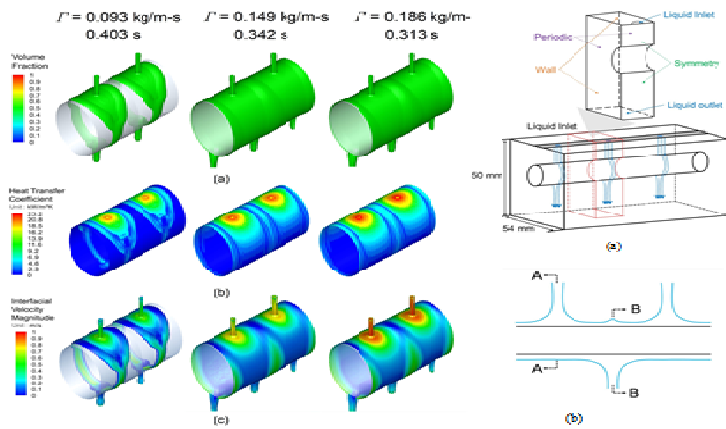
Microfluidics and System Simulation Lab

負責教師：楊安石 An-Shik Yang

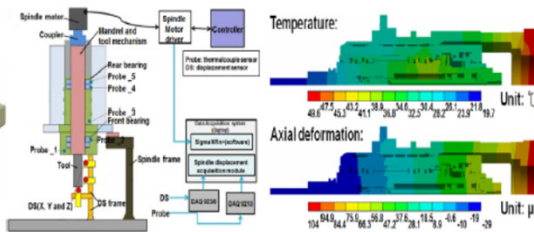
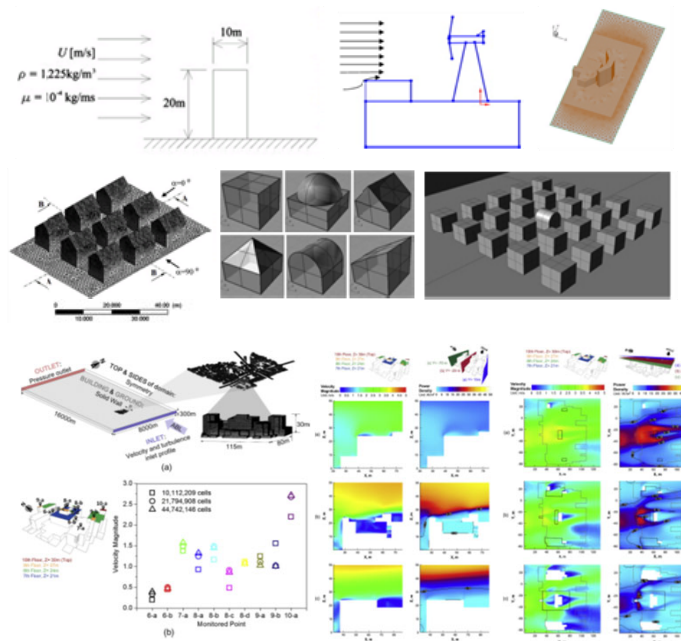
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● 主要研究項目

- 橢圓管上滴淋/噴淋蒸發降膜的熱傳特性研究 (Effect of counter current airflow on film dispersion and heat transfer of evaporative falling film over a horizontal elliptical tube)
- 整合實驗設計降低工具機主軸系統熱誤差研究 (Design improvement to minimize thermal errors of a high speed spindle system)



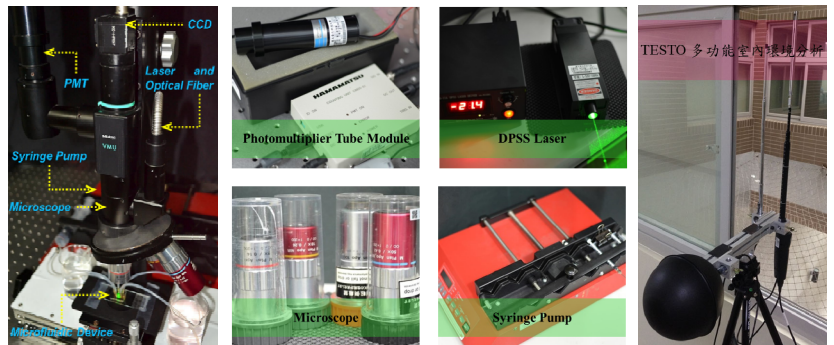
- 建築物理環境數值模擬技術 (Building Physics Environment Simulation)
- 真實城市街廓微氣候環境研究 (Enhancement of city breathability by arcade design in a realistic high-rise urban area)
- 微型風機設置於城市環境地區之細部風場評估研究 (Estimation of Wind Power Generation in a Dense Urban Area)



● 主要研究設備

■ 全域照亮式微流場可視化 (Micro-flow visualization)

1. 可錄影式同軸光源顯微鏡 (Fluorescence Microscope, VMU-L, Mitutoyo)
 1. 光電倍增管 (Photomultiplier, PMT, H7360-03)
 2. 光子計數器 (Counting Unit, C8855-01)
 3. DPSS Laser (1 W and 300 mW, 532nm)
 4. 顯微物鏡 (Mitutoyo M Plane NIR 10x)
 5. (CCD) Camera (SONY XC-HR57)
 6. 微量注射幫浦 (Syringe Pump, NE-1600)
 7. 三軸可變焦對位平台 (Three-axis positioning platform with variable focal length zoom)
 8. 微組裝精密移動平台 (Micro-assembly moving platform)



- Gill WindMaster 三维超聲波風速風向儀 (3D sonic anemometer)
- TESTO 480 多功能空調環境分析儀 (Climate measuring instrument)
 1. 熱線式溫濕風伸縮測棒 (Thermal flow velocity probe)
 2. 黑球溫度測棒 (Black-bulb thermometer)

- 高階繪圖工作站 (High performance graphics workstation)
- 流場數值模擬軟體 (CFD software, ANSYS-Fluent)
- SolidWorks 設計軟體 (Design software)
- Autodesk Building Design Suite 軟體組
- 多重物理流場數值模擬軟體 (CFD software, ESI CFD-ACE+)
- CFD可視化與資料分析軟體 (Tecplot Visual data analysis tools)