

理論科學研究中心

Center for Advanced Study in Theoretical Sciences

- **講者**：吳清森博士 (國立臺灣大學土木工程學系)
- **講題**：Computation of interfacial flow problems with the mixed interface-capturing/tracking technique
- **摘要**：Interfacial flows are ubiquitous in natural environment and industrial processes, such as droplets, castings, polymer blending, water waves, ink-jet printers, and so on. In computations, many algorithms have been devised to track the interface with a formulation varying from algebraic to geometric system. Volume tracking methods are the most popular, because of their established conservation, robustness, and versatility properties, with the achievable property of local volume conservation being particularly valued. More advanced volume of fluid methods have not been extended from 2D to 3D study, because the increase in complexity of the geometry primitives involved has made implementations excessively difficult and ultimately infeasible. In this study, we propose a mixed interface capturing/tracking technique to capture the topology changes at the interfaces of interfacial flows in multidimensional spaces. A computationally efficient and second-order accurate interface reconstruction method is applied. The sequence of the Lagrangian advection in each direction is considered to restrain the fragmentation or the filament occurs as the fluids propagate. The mass conservation is numerically assessed, thus allowing computations to reach the machine precision. A series of numerical experiments have been conducted to verify the robustness of the proposed model for tracking distorted and broken interface.
- **時間**：2015 年 3 月 25 日(星期三) · 15:00-18:00
- **地點**：臺大數學研究中心 308 室(原新數學館)
- **主持人**：周逸儒教授 (國立臺灣大學應力所)