

# 國立中山大學應用數學系

## 學術演講

講者：王穎教授

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講題：(1) Mathematical Analysis and Numerical Methods  
for an Underground Oil Recovery Model ( I )  
(2) Mathematical Analysis and Numerical Methods  
for an Underground Oil Recovery Model ( II )

時間：2019/11/7 ( Thursday ) 16:10 ~ 18:00

地點：理學院四樓理 SC 4009-1 室

茶會：15:00 於理 SC 4010 室 (系辦公室)

### Abstract

In this talk, I will discuss a multi-scale underground oil recovery model which include a third-order mixed derivatives term resulting from the dynamic effects in the pressure difference between the two phases. Analytic study on the computational domain reduction will be provided. A variety of numerical examples in both one and two space dimensions will be given. They show that the solutions may have many different saturation profiles depending on the initial conditions, diffusion parameter, and the third-order mixed derivatives parameter. The results are consistent with the study of traveling wave solutions and their bifurcation diagrams.

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