

# 國立陽明交通大學應用數學系

## 學術演講公告

主講人：Prof. Van Tien Nguyen(台大數學系)

講題：Multiple-collapsing blowup solutions for the 2D  
Keller-Segel system

時間：113 年 4 月 23 日(星期二) 下午 14:00 –15:00

地點：(光復校區) 科學一館 223 室

### Abstract

It is well known that the 2D Keller-Segel system has finite time blowup solutions if the initial density has total mass greater than  $8\pi$  and finite second moment. We have several constructive examples showing that the solution blows up with the only  $8\pi$ -mass concentration. We will exhibit a *new blowup mechanism* formed by a collision of two sub-collapses, resulting in a  $16\pi$ -mass concentrating solution. A similar phenomenon appears in the 2D mass critical NLS by the work of Martel-Raphael in 2018, where the construction relies on two specific features: a conformal invariance and a minimal mass blowup constraint. These properties are not available for parabolic equations such as the Keller-Segel system. We bring here for the first time a directly rigorous construction of such a multiple-collapsing blowup solution.

敬請公告 歡迎參加

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