

# 國立中山大學應用數學系

## 學術演講

- 講者：Professor Masahiko Shimojo  
Okayama University of Science, Japan
- 講題：On a free boundary problem for the  
curvature flow with driving force
- 時間：2015/1/15（星期四）16：10～17：00
- 地點：理學院四樓理 SC 4009-1 室
- 茶會：15:30 於理 SC 4010 室（系辦公室）

### 摘要

We study a free boundary problem associated with the curvature dependent motion of planar curves in the upper half plane whose two endpoints slide along the horizontal axis with prescribed fixed contact angles. Our first main result concerns the classification of solutions; every solution falls into one of the three categories, namely, area expanding, area bounded and area shrinking types. We then study in detail the asymptotic behavior of solutions in each category. Among other things we show that solutions are asymptotically self-similar both in the area expanding and the area shrinking cases, while solutions converge to either a stationary solution or a traveling wave in the area bounded case. We also prove results on the concavity properties of solutions. This is the joint work with Jong-Shenq Guo, Hiroshi Matano and Chang-Hong Wu.

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