

# 國立中山大學應用數學系

## 學術演講

講者：陳彥宇博士 (臺灣大學)

講題：Some mathematical studies about the  
phenomena appeared on the excitable media

時間：2020/2/20 (Thursday) 14:10 ~ 15:00

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**

On the excitable media, it contains two different states: excited state and resting state. So we can observe some interesting patterns like traveling pulse, traveling spot, spiral wave and so on. To capture these special patterns mathematically, we first consider the wave front interaction model introduced by Zykov and Showalter in 2005. This model describes the boundary of the patterns. Then, under certain conditions, we can show the existence of some special solution which is corresponding to some patterns to the wave front interaction model.

Later on, we use the singular limit approach to a FitzHugh-Nagumo type equation to derive a

reaction-interface equations. Then, we show the existence of some special patterns to this problem. To understand the mechanism of the appearance of some special patterns, we also study the global dynamics of the solution to the reaction-interface equations with initial data. In this talk, I will show some recent results on one-dimensional space.

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