

# 國立中山大學應用數學系

## 學術演講

- 講者：羅元勳 教授（國立屏東大學）  
講題：Random and Deterministic Schemes  
for a Collision Channel without Feedback  
時間：2020/12/3（Thursday） 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）

### Abstract

There are two main medium access control (MAC) approaches to a slot-synchronous collision channel without feedback: random (slotted ALOHA) and deterministic (protocol sequence-based) schemes. Unlike the traditional slotted ALOHA, protocol sequence-based scheme is a deterministic way to guarantee a positive individual throughput within an expectable period of time, even the time synchronous is hard to be achieved. In the first part of this talk, I will survey some results on protocol sequence-based schemes, including user-irrepressible (UI) sequences and conflict-avoiding codes (CACs). Then, for a fair comparison, deadline-constrained slotted ALOHA schemes will be introduced to maximize the probability that a packet can be successfully received within an pre-assigned deadline. Some recent progress including the uniqueness of the optimal transmission probability that maximizes the successful delivery probability under multiple-packet reception (MPR) technology is addressed as well.

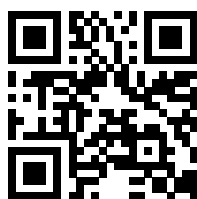
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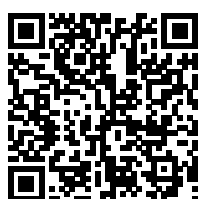
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