

# 國立陽明交通大學應用數學系

## 演講公告

主講人：王新博教授（國立臺灣大學）

講題：Group Testing in 6G: Downlink and Uplink

時間：115 年 3 月 17 日(星期二) 下午 14:00 –15:00

地點：(光復校區) 科學一館 213 室

### Abstract

Group testing (GT) is a mathematical trick to identify a small number of targets from a large population using pooled tests, and it has become increasingly relevant in modern communications. For instance, for uplink, the challenge is to arrange devices who want to talk into frequency – time slots; for downlink, on the other hand, the challenge is to send messages to devices without Alice mistaking Bob's message for her own. 6G will benefit from group testing tricks to support a massive number of devices with highly irregular activity.

This talk applies GT to both downlink and uplink through a single design idea that we call cutting the plum pudding (CTPP). The analogy is simple: plums are randomly distributed in a pudding, and it is difficult to cut out exactly one plum. In our setting, the base station performs randomized cuts over device sets so that exactly one device is highlighted. Once the singleton is found, the task reduces to one-to-one communication, which is significantly easier to handle reliably.

敬請公告 歡迎參加

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