

# 國立中山大學應用數學系

## 學術演講

講者：劉聚仁教授（國立成功大學數學系）  
講題：Sleep Stage Scoring based on the Scattering Transform  
時間：2021/04/29（Thursday）14:10 ~ 15:00  
地點：理學院四樓理 SC 4009-1 教室  
茶會：13:30 於理 SC 4010 室（系辦公室）

### Abstract

This presentation discusses an unsupervised approach for sleep dynamics exploration and automatic annotation by combining modern signal processing tools and probability models. In our algorithm, we applied the scattering transform to extract features from physiological signals, including the EEG, EOG, and EMG, and use the canonical correlation analysis to fuse them. Based on the fused feature sequence and the expert-determined sleep stages, we construct a predict model by the kernel support vector machine. The prediction performance is evaluated based on Taiwan Integrated Database for Intelligent Sleep (TIDIS). Apart from the purpose of autoscoring, our algorithm has also been applied to assess the consistency of experts' scoring rules. We will also report this part of results. This talk includes the joint works [1-2] with Yu-Lun Lo, John Malik, Yuan-Chung Sheu, and Hau-Tieng Wu.

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