```
**********************************
臺灣大學應用力學研究所
演 講 公 告
**********************************
```

主 講 人：鄧志強講座教授

　　　　　臺灣大學醫學工程學系

講　　題：海馬體子網內的資訊交流和高效計算功能

摘　　要：　如附件

主 持 人：　張建成教授

時　　間：　112年9月18日（星期一）下午2時20分開始

地　　點：　臺灣大學應用力學研究所國際會議廳

☆☆　歡 迎 聽 講 ，敬 請 張 貼　☆☆

海馬體子網內的資訊交流和高效計算功能

鄧志強講座教授

臺灣大學醫學工程學系

Abstract：

A key focus of current neuromorphic computing is reduction in power demand in solving artificial intelligence (AI) problems. However, many aspects of brain functions are poorly understood and implemented in AI because of insufficient knowledge in brain network architecture. Our in vitro studies of the hippocampus have revealed details about network coding that could inform neuromorphic computing design to enhance power and performance efficiency, particularly in memory formation and retrieval. Our microfabricated electrophysiology platform was used to monitor spiking activities among the entorhinal cortex, dentate gyrus, CA3, and CA1 neurons extracted from rat hippocampus, yielding crucial findings including sparse connectivity in spatiotemporal coding, subthreshold slow waves in multi-timescale integration, balanced excitation and inhibition in selective feedback, and spiking power-law distributions in wide dynamic range encoding. We expect high-efficiency AI computation beyond the current state-of-research could benefit from these biologic principles of network architecture.