ADVANCES IN ENERGY-EFFICIENT ARCHITECTURES FOR GREEN 6G NETWORKS

DANIEL K. C. SO

DATE : Tue. March 24, 2026

TIME : 1600-1700

PLACE : ED 108

HOST

LI-CHUN WANG

Lifetime Chair Professor,
Dean of College ECE NYCU
Chair of IEEE Taipei Section

ABOUT SPEAKER

Prof. Daniel K. C. So is a Professor at the University of Manchester. He earned his PhD from HKUST and specializes in 6G networks, green communications, and machine learning. He has served as a Senior Editor and Editor for several prestigious IEEE journals (including IEEE TWC and WCL) and has held leadership roles in major international conferences like ICC and Globecom.

ABSTRACT

The anticipated advancement of 6G mobile networks brings unprecedented opportunities but also intensifies one of the most pressing challenges in wireless communications: energy consumption. Despite energy efficiency improvement in 4G and 5G, the wireless infrastructure continues to account for the majority of network energy use, highlighting the necessity to embed energy efficiency into 6G design from the outset.

This talk will present recent advances in energy-efficient architectures and algorithms for future communication technologies, including cell-free massive MIMO (CF-mMIMO), reconfigurable intelligent surfaces (RIS), federated learning (FL), and non-orthogonal multiple access (NOMA). Through both classical and learning-based optimization on resource allocation, user association, sleep mode management, beamforming, and edge scheduling, significantly improvements in energy efficiency of these systems can be achieved. This talk will also introduce the emerging concept of pinching antennas systems (PASS), exploring their potential to enhance both spectral and energy efficiency.

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