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# HKIAS Distinguished Lecture

## **[(Sub)-Millimeter-Wave Systems-on-Chip for Next Generation Detection and Connection]**

### **Professor Mau-Chung Frank Chang**

Distinguished Professor and Wintek Chair in Electrical Engineering,  
UCLA, USA

President Emeritus, National Chiao Tung University, Taiwan

Senior Fellow of CityU HKIAS



Date : 18 February 2020 (Tuesday)

Time : 4:30pm - 6:00pm ( *Light refreshments will be served from 4:00pm to 4:30pm* )

Venue : Lecture Theatre, Hong Kong Institute for Advanced Study (HKIAS)  
Lower Ground Floor, Academic Exchange Building  
City University of Hong Kong

### **Abstract**

This talk highlights a wide range of (sub)-mm-Wave system-on-chip (SoC) applications from space-borne sensing/detection to re-configurable and secured contactless connectivity. Both active and passive SoCs developed by UCLA/NCTU, including heterodyne-radiometer, mixed-signal spectrometer, thermal imagers, phased-array radiators and multiband radio/radars, will be exemplified as size/weight/power-effective means to enable the next generation remote-sensing/detection and compositional analytic instrumentations. Multi-gigabit per second contactless connectors by using mm-Wave carriers have also been developed and commercialized to replace heavy-weight, high-cost, and inflexible mechanical connectors/cables for smartphone, panel display, electrical car, and data-center interconnects. Techniques to augment range and bandwidth of ultra-high speed data links by using multi-band mm-Wave carriers and PAM-4 modulations will also be revealed with key design principle and implementation methods.

### **Biography**

Professor Mau-Chung Frank Chang is currently a Distinguished Professor and Wintek Chair in Electrical Engineering at University of California, Los Angeles (UCLA). Professor Chang is a Member of the US National Academy of Engineering, an Academician of Academia Sinica, Taiwan and a Fellow of the US National Academy of Inventors. He is also a Fellow of IEEE. Throughout his career, Professor Chang's research has primarily focused on the research & development of high-speed semiconductor devices and integrated circuits for RF and mixed-signal radio, radar, imaging spectrometer and interconnect system applications.



Online registration: [www.cityu.edu.hk/hkias/event](http://www.cityu.edu.hk/hkias/event)

**All are welcome**

Enquiries:  
Tel: 3442 6611  
Email: [hkias@cityu.edu.hk](mailto:hkias@cityu.edu.hk)