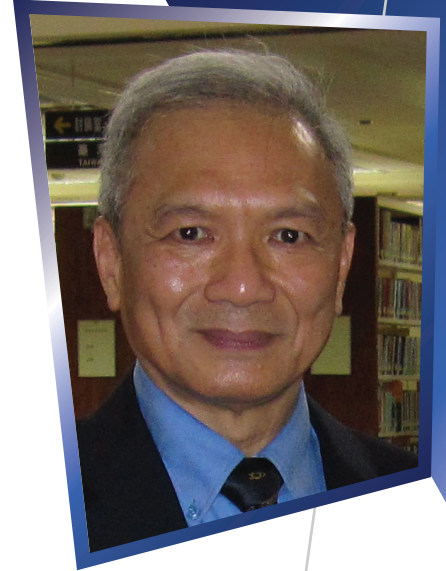


## HKIAS Distinguished Lecture

# 5G Technology and AI Applications

## Professor King-Ning Tu

Department of Materials Science and Engineering  
National Chiao Tung University, Taiwan



Date : 9 October 2019 (Wednesday)

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

As we enter the big data era, there are several events in semiconductor technology which are interesting; Japan is losing its leadership; big European countries such as England, France, and Russia has no impact on microelectronics market; Taiwan and Korea have become the leaders; China is trying to catch up which is the key reason behind the US-China trade war; but the most important event is the ending of Moore's law which has sustained the growth of Si technology for 40 years. However, the 5G communication technology and artificial intelligence applications are now extremely active and productive, and they are changing our society rapidly, but they need the Si technology to keep going beyond the limit of Moore's law. To do so, Si technology is moving from 2D IC to 3D IC, yet reliability is the key challenge in mass production of 3D IC devices. AI + 5G may help overcome the reliability problem. Then, the change from 4G to 5G will be explained by a simple example, which is the change of automatic sink to intelligent sink at home.

### Biography

King-Ning Tu received his PhD degree in Applied Physics from Harvard University in 1968. He spent 25 years at IBM T. J. Watson Research Center as Research Staff Member in Physical Science Department. In July 1993, he joined UCLA. He was Distinguished Professor in Department of Materials Science and Engineering and also Department of Electrical Engineering at UCLA until June 2016. He is now TSMC Chair Professor in National Chiao Tung University in Hsinchu. He is a Fellow of APS, TMS, MRS, and an Overseas Fellow of Churchill College, Cambridge University, UK. He was president of MRS in 1981. He received the 2013 John Bardeen Award of TMS EMPM Division, and 2017 IEEE Components, Packaging, and Manufacturing Technology Award. He is an academician of Academia Sinica. He has over 500 journal publications with citation over 22,500 and h-factor of 78. His textbook on "Electronic Thin Film Reliability" was published by Cambridge University Press in 2011. He co-authored the textbook on "Kinetics in Nanoscale Materials" published by Wiley in 2014. His research interests are in metal-silicon reactions, solder joint reactions, electromigration, and kinetic theories of interfacial reactions. His website is <http://www.seas.ucla.edu/eThinFilm/>.



All are welcome

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