



A group photo, taken after the talk, brought a smiling end to the successful presentation after the COVID-19 pandemic was contained in Wuhan City, China. (From left, sixth in the middle row): Prof. Xiaojun Bi, Prof. Dongsheng Liu, Prof. Ma, Prof. Zou (executive dean of Wuhan International Institute of Microelectronics), and Prof. Chao Wang (Chapter chair).

because the cost of investment and R&D is too high. Ma said that we should learn from semiconductor companies, such as Texas Instruments and Analog Devices Inc., and focus on conquering the technical fortress of 45–180 nm.

Ma proposed that, based on the current application scenarios of the CMOS process platform, most products can be made with a process above 45 nm, and their performances can fully meet the needs of

end users, which can greatly reduce R&D cost and cycle time. It will offer China’s semiconductor industry an opportunity to “change lanes and overtake.”

During the question-and-answer session, Ma answered many queries about the future of China’s semiconductor industry. Prof. Xuecheng Zou and Ma carried out an enlightening discussion on the survival of China’s IC-related companies in the future. Several postgraduate students

continued one-on-one discussions with Ma after the presentation. The technical talk was very well received by more than 60 attendees, including faculty, researchers, and students from different schools at HUST.

—Ao Hu  
Student Member

—Chao Wang  
Chapter Chair

## IEEE CASS/EDS/SSCS Wuhan Joint Chapter and HUST Organize a Talk on Silicon-Based RF/Millimeter-Wave ICs

The IEEE Circuits and Systems Society (CASS), IEEE Electron Devices Society (EDS), and IEEE Solid-State Circuits Society (SSCS) Wuhan joint Chapter,

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along with the School of Optical and Electronic Information, Huazhong University of Science and Technology (HUST), Wuhan, China, organized a technical talk, “Silicon-Based Radio-Frequency (RF)/Millimeter-Wave ICs and Systems Based on Multitank

Technology,” presented by Prof. Kai-xue Ma, IEEE Senior Member, Tianjin University, China. The lecture was held at the HUST campus on 21 November 2020.

Ma introduced the problem of high dielectric and metal loss faced

by commercial silicon-based ICs, especially RF and millimeter-wave ICs. To solve such a problem, he proposed a multiresonance model. Using this model and design method, the performances of RF and millimeter-wave ICs can be greatly improved. During his talk, Ma explained how to use the model and method in the circuit design of the voltage-controlled oscillator, divider, and switch as well as a 60-GHz transceiver system on chip. Experiments showed that the model can support RF/millimeter-wave circuits with frequencies up to 300 GHz.

Ma's talk was eloquent, illustrative, comprehensive, focused, and easy to understand. He not only presented the specific circuits and device models to analyze practical application designs but also shared many successful and effective circuit cases, which made it easier for the audience to understand how to effectively solve the problem of high dielectric and metal loss through the multiresonant model. Ma's explanation greatly stimulated the interest of undergraduate and postgraduate students in learning about millimeter-wave ICs.

During the question-and-answer session, Ma responded to many interesting questions in the field of millimeter-wave ICs raised by audience members. Prof. Guoan Wu presented Ma with a souvenir and expressed sincere thanks on behalf of the School of Optical and Electronic Information, HUST.

—Yi Zhan  
Student member

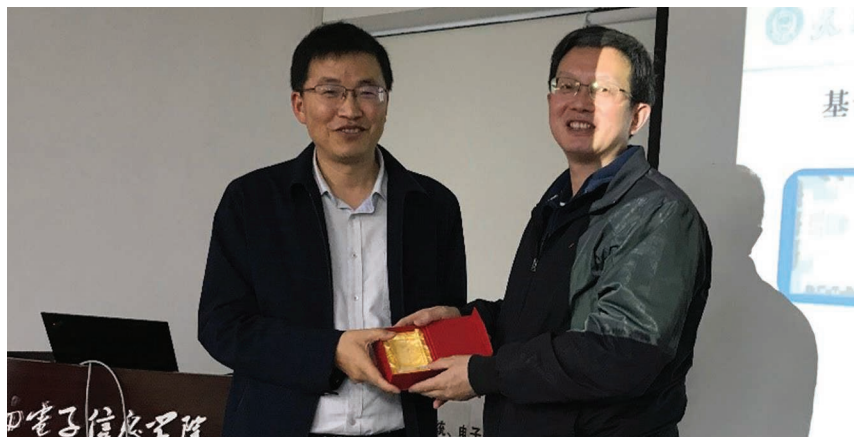
—Chao Wang  
Chapter chair



Prof. Chao Wang (right), chair of the Wuhan Chapter, welcomes Prof. Ma (left).



Prof. Ma's lecture attracted a full room of students and faculty members from HUST.



Prof. Wu (right) presents a souvenir to Prof. Ma.