*Solid State Technology and Devices Seminar*

# News and Future of Semiconductors

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**Abstract:** Semiconductors are in the news--technology, financial and political news. It is recognized as a force that changed and continues to change the world. At the same time, its own future and what to do about its future are being questioned by the public, students, researchers and governments. This talk will look at some of the questions and will leave time for audience questions.

**Bio:** Dr. Chenming Hu is called the Father of 3D Transistor for developing the FinFET in 1999. Intel is the first company to use FinFET in 2011 calling it the most radical shift in semiconductor technology in over 50 years. Soon, all computers, smart phones, and the internet ran on FinFET processors. He received the US National Technology and Innovation Medal from President Obama in 2016. He leads the ongoing development of BSIM, a suite of industry standard transistor models. University of California provides it loyalty free for industry to design integrated circuits worth well over a trillion US dollars since 1995. IEEE, the world's largest technology association, gave him its highest award, Medal of Honor, in 2020 for helping to "keep Moore's Law going over many decades" after calling him "Microelectronics Visionary" for "achievements critical to producing smaller yet more reliable and higher-performance integrated circuits" in 2009. Electronic Design Automation industry's 2013 Kaufman Award noted his "tremendous career of creativity and innovation that fueled the past four decades of the semiconductor industry". Dr. Hu is TSMC Distinguished Chair Professor Emeritus of University of California, Berkeley. From 2001 to 2004 he was the Chief Technology Officer of TSMC, world's largest dedicated integrated circuits manufacturing company. He was the board chairman of the nonprofit Friends of Children with Special Needs and the East Bay Chinese School.
He has authored six books including a semiconductor device textbook and 1000 research papers, and has been granted over 100 US patents. He is honored with memberships in the US National Academy of Engineering, Chinese Academy of Sciences, US Academy of Inventors and Academia Sinica. His other professional honors include the IEEE Jack Morton Award, Solid State Circuits Award, and Nichizawa Medal; Asian American Engineer of the Year Award, Silicon Valley Engineering Hall of Fame, Honorary Doctoral Degree of National Chiao Tung University and the IEEE EDS Education Award for "distinguished contributions to education and inspiration of students, practicing engineers and future educators". He also received UC Berkeley's highest honor for teaching — the Berkeley Distinguished Teaching Award. Dr. Hu received his B.S. degree from National Taiwan University, which honored him with its Distinguished Alumni Award, and M.S. and Ph.D. degrees from UC Berkeley. He shares an interest in painting with his sons Raymond and Jason.