

Joint CQSE and CASTS Seminar

2020

November 13, Friday

TIME Nov. 13, 2020, 2:30~3:30pm
TITLE Cryogenic CMOS Interface Circuits for Quantum Computer
SPEAKER Hann-Huei Tsai
Division Director, Taiwan Semiconductor Research Institute,
NARLabs
PLACE Rm104, Chin-Pao Yang Lecture Hall,
CCMS & New Physics Building, NTU

Abstract:

A basic quantum computing system consists of two parts: a quantum processor (qubits) placed in the refrigerator (mK) and a traditional electronic controller. If quantum computing system is to be scaled up, the control and measurement system must be monolithically integrated and placed close to the quantum processor. CMOS can work down to 30 mK while providing complex SoC (System on a Chip) integration capable of handling thousands or millions of qubits. This speech not only introduces the system block of the control and measurement circuits, and also overviews the challenges and opportunities in designing the cryo-CMOS interface circuits and system for quantum computer.

Biography Brief:

Hann-Huei Tsai received his B.S. and M.S. degrees in electrical engineering from National Cheng-Kung University, Taiwan, in 1992 and 1994, respectively. He had worked in Taiwan Semiconductor Manufacture Company as a process integration engineer and section manager from 1996 to 2006. He joined NARLabs CIC from 2006 and focused on CMOS More than Moore technology including MEMS, biomedical sensor, mixed-signal, RF, high-voltage, GaN, and silicon photonics. He is now the research fellow and division director of heterogeneous chip integration division in TSRI.



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