

Differentiated Silicon Technologies for Mobile Radio Front End – a journey from sub 6GHz to mmWave

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Abstract: The RF Front End (RFFE) of a mobile radio plays a key role in determining efficient performance for cellular and WLAN connectivity within both user equipment (UE) and access point (AP). Each transition of cellular and WLAN standards, be it 2G/3G/4G/5G or 802.11b/g/n/ac/ax, drives higher data rate and capacity, while product implementation demands energy efficiency, cost and in case of UE, constraint of form factors. Current short course will focus on the evolution of a class of differentiated Silicon technologies that have been addressing performance, efficiency, cost and form factor throughout the above journey of transitions from 2G and 802.11b/g to 5G, including mmWave and 802.11ax, respectively. The course will highlight the key figures of merits of mobile radio, evolution of RFFE architecture and performances of RFFE components built on differentiated RF Silicon-on-Oxide (RFSOI) and Silicon-Germanium technologies to address the increasingly stringent requirements over multiple generations of connectivity standards.

Biography: Dr. Anirban Bandyopadhyay is the Director, Strategic Applications within the Mobility & Wireless Infrastructure Business Unit of GLOBALFOUNDRIES, USA. His work is currently focused on hardware architecture & technology evaluations for emerging RF and mmwave applications. Prior to joining GLOBALFOUNDRIES, he was with IBM Microelectronics, New York and with Intel, California where he worked on different areas like RF Design Enablement, Silicon Photonics, signal integrity in RF & Mixed signal SOC's. Dr. Bandyopadhyay did his PhD in Radio Physics & Electronics from Tata Institute of Fundamental Research, India and Post-Doctoral research at Nortel, Canada and at Oregon State University, USA. He represents Global Foundries in different industry consortia on RF/mmwave applications and is a Distinguished Lecturer of IEEE Electron Devices Society.