

Electronics and Spintronics in 2D Materials

S.K. Banerjee
Microelectronics Research Center
University of Texas at Austin

Abstract: 2D materials such as graphene and transition metal dichalcogenides have opened up avenues in mechanically flexible circuits for IoT applications, and low power, beyond-CMOS device concepts. We will discuss processing challenges such as growth and doping of these materials. We will also discuss our work involving 2D-2D tunneling in these materials, leading to transistors with negative differential resistance. Other 2D materials such as topological insulators and transition metal oxides have applications in spintronics. They can be used for beyond-CMOS, non-volatile low power logic and memory devices.