Title: Strain-Engineering in Advance MOSFETs

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Abstract:

Stress/strain engineering has emerged as a powerful technique for performance enhancement in nanoscale transistors. This presentation is to evaluate how the stress/strain can modify the electrical performance and can propose solutions following the quest for ever greater performance at ultimate scaling. It includes the discussion on stress evolution for the last three decades and the use of predictive Technology Computer-Aided Design (TCAD) tools for designing ultimate CMOS scaling. Here we will try to explore the potential of new innovative devices under development for future generations (beyond 2025) following IRDS guidelines. We will also discuss that the physical process/device simulation using TCAD tools is a feasible approach for advanced technology development at ultimate gate length scaling even at 3nm technology node.