National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Noise Analysis in Switched Capacitor-based Differential Capacitive Interfacing Circuits.
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Venue	: VLSI Lab (EC121)
Date and Time	: 03 Jan 2025 (05.45PM)
Abstract	: This brief describes the noise analysis in switched capacitor-based differential capacitive interfacing circuits for MEMS accelerometers. The interfacing circuit consists of a switched capacitor-based charge amplifier, an offset nullifier, and a sample and hold circuit. The transistors and the switches in these circuits contribute to the thermal and flicker noise. The theoretical analysis and the simulation results have been compared well. First, the noise has been calculated in each phase and the noise simulation has been carried out. Finally, the periodic operating point was determined using periodic steady-state analysis then, the periodic noise(Pnoise) simulation was compared with the previous simulation results simulated in each phase. The simulation has been done at the transistor level using Cadence Virtuoso. The effect of flicker noise and thermal noise have been studied and analysed. Keywords— Switched capacitor circuit, MEMS accelerometer, Differential interfacing circuit, Noise analysis.