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Abstract

A Multiphase Sinusoidal Oscillator (MSO) configuration derived by employing appropriate non-linear transconductors which implement lossy integrators in the Sinh-Domain is introduced in this paper. Owing to its companding nature, the oscillator offers the benefits of electronic tuning of the oscillation frequency and the capability for operating in a low-voltage environment. In addition, the condition of oscillation could be electronically adjusted without disturbing the oscillation frequency. This has been achieved by introducing a novel Sinh-Domain lossy integrator topology. The performance of the proposed oscillator has been evaluated through a design example, where a six-phase topology has been simulated by utilizing the Analog Design Environment of the Cadence software.

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