Abstracts

Coupled-Oscillator Arrays for Millimeter-Wave Power-Combining and Mode-Locking

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Arrays of coupled oscillators have recently been considered for millimeter-wave power-combining. Such systems possess a number of interesting and potentially useful nonlinear dynamical phenomena. A new theory describing arrays of coupled millimeter-wave oscillators is presented, and two important applications of such arrays--CW power combining, and a new mode-locking technique for pulse generation--will be discussed. Conditions for establishing mutual synchronization and the correct phase relationships have been investigated with the theory, and verified experimentally using several prototype X-band arrays.

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