# Abstracts

## Considerations and Simulations of Subfrequency Excitation of Series Integrated Resonant Tunneling Diodes Oscillator

*R. Sun, O. Boric-Lubecke, D.-S. Pan and T. Itoh. "Considerations and Simulations of Subfrequency Excitation of Series Integrated Resonant Tunneling Diodes Oscillator." 1995 Transactions on Microwave Theory and Techniques 43.10 (Oct. 1995 [T-MTT]): 2478-2485.*

A subfrequency pulse initiation of an oscillator of two series-integrated RTD's is considered and simulated. A voltage-dependent current source is adopted to separate the input and output power to represent a circulator in simulations. Simulations show, for example, a 100 GHz integrated RTD oscillator can be excited by a 50 GHz pulse with about 1 ns decay time (a characteristic decay time of 0.2 ns) without the dc instability problem, while a voltage ramp of 1ns rise or fall time is far too slow to initiate such an oscillator. The mechanism that RTD's are driven by subfrequency into the negative differential resistance (NDR) from the positive differential resistance (PDR) is analyzed in detail. A preliminary analysis of the transition from 50-100 GHz oscillation is also presented.

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