Abstracts

Laser-Diode-Based Optoelectronic Subharmonic Phase-Locked Loop

G.-R. Lin, C.-R. Yang and C.-L. Pan. "Laser-Diode-Based Optoelectronic Subharmonic Phase-Locked Loop." 1995 Microwave and Guided Wave Letters 5.10 (Oct. 1995 [MGWL]): 335-337.

An optoelectronic technique for synthesis of frequency versatile electrical signals phase-locked to the optical clock is proposed. The key component is an integrated-optic modulator (IOM) operated in the nonlinear regime. With a photodetector, the IOM functions as an optoelectronic subharmonic mixer for intermixing microwave signals that are subharmonics of the optical clock. As a first demonstration, phase-locked subharmonic and fractional harmonics of the optical clock at f° = 500 MHz, with frequency equal to f°/n or (m/n) f°, where n=2,3,4... and m/n = 2/5, 2/3, 4/3, 3/2 and 5/3 etc., are generated and characterized.

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