# Abstracts

## Electrooptic Phase Tracking of Microwave Signals Beyond 18.5 GHz Using an Integrated Electrooptic Modulator as an Optoelectronic Harmonic Mixer in a Phase Lock Loop

*C.-L. Pan, G.-R. Lin, D.-Y. Chyou and H.-H. Wu. "Electrooptic Phase Tracking of Microwave Signals Beyond 18.5 GHz Using an Integrated Electrooptic Modulator as an Optoelectronic Harmonic Mixer in a Phase Lock Loop." 1994 Microwave and Guided Wave Letters 4.4 (Apr. 1994 [MGWL]): 115-117.*

We demonstrate electrooptic phase tracking of microwave signals beyond 18.5 GHz using a gain-switched laser diode as the optical clock. The key element of this system is a fiber-pigtailed integrated-optic Mach-Zehnder Modulator (IOM). The IOM functions as an optoelectronic harmonic mixer in a phase lock loop. The conversion loss of the OEHM is 66dB. The phase error and the single sideband phase noise density of the phase-locked 18.5 GHz signal is 5.6 x 10/sup -5/ rad//spl radic/Hzand -54 dBc/Hz, respectively.

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