# Abstracts

## Frequency multiplication of microwave signals by sideband optical injection locking using a monolithic dual-wavelength DFB laser device

*C. Laperle, M. Svilans, M. Poirier and M. Tetu. "Frequency multiplication of microwave signals by sideband optical injection locking using a monolithic dual-wavelength DFB laser device." 1999 Transactions on Microwave Theory and Techniques 47.7 (Jul. 1999, Part II [T-MTT] (Special Issue on Microwave and Millimeter-Wave Photonics)): 1219-1224.*

Frequency multiplication of a microwave signal was achieved by modulating one arm of a dual-wavelength distibuted-feedback (DPB) laser device and injection locking the other arm of the device on one of the modulation sidebands. The dual-wavelength laser consists of two DFB lasers integrated with a Y-junction combiner on the same semiconductor substrate, thus making a compact device (L=500 /spl mu/m). The output of the combiner was allowed to beat on a high-speed photodetector. The resulting microwave signal had a narrow line shape superimposed on a Lorentzian pedestal and was at a multiple of the modulating radio frequency. Three regimes of operation of the laser device were also observed: chaotic, self-pulsating, and heterodyne.

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