Abstracts

Demonstration of a photonically controlled RF phase shifter

Sang-Shin Lee, A.H. Udupa, H. Erlig, Hua Zhang, Yian Chang, Cheng Zhang, D.H. Chang, D. Bhattacharya, B. Tsap, W.H. Steier, L.R. Dalton and H.R. Fetterman. "Demonstration of a photonically controlled RF phase shifter." 1999 Microwave and Guided Wave Letters 9.9 (Sep. 1999 [MGWL]): 357-359.

Integrated photonic radio frequency (RF) phase shifters with dc voltage control have been realized using a nested dual Mach-Zehnder modulator configuration in a new nonlinear optical polymer, CLD2-ISX. These modulators have a V/sub /spl pi// of 10.8 V and exhibit excellent frequency performance measured up to 20 GHz. A near linear phase shift exceeding 108/spl deg/ was obtained for a 16-GHz microwave signal by tuning the dc control voltage over a 7.8-V range. It is expected that these integrated polymer phase shifters will find widespread applications in new types of lightweight optically controlled phased array systems.

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