241. Title: Continuously-tunable microwave photonic true-time-delay based on a fiber-coupled beam deflector and diffraction grating

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Abstract: This paper reports the demonstration of a continuously-tunable true-time delay line for microwave photonics and optical communications capable of high-resolution phase control throughout the 1-100 GHz modulation range. A fiber-coupled device is demonstrated with 75 ps of continuous delay tuning range, 3 dB optical insertion loss, and minimal RF amplitude and phase variation over the 4-18 GHz band. Measured delay ripple was less than 0.2 ps. Theoretical analysis is also presented which indicates scalability to delay tuning ranges over 1000 ps and modulation band widths over 10 THz.