# Abstracts

## Optical Fiber Fabry-Perot Cavities and Recirculating Delay Lines as Tunable Microwave Filters

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When an optical interferometer is excited by amplitude-modulated light with a sufficiently long coherence length, there may be the interference of the optical carrier and that of the modulation signals. Two interference effects can be combined to give complicated characteristics at the modulation frequency, which may be in the radio frequency or the microwave range. In this work, the radio frequency or microwave responses of single-mode fiber Fabry-Perot cavities and recirculating delay lines are studied. It is shown that fiber Fabry-Perot cavities may be used as band-pass filters and the recirculating delay lines as band-stop filters at radio or microwave frequencies. These electric filters are tunable by electro-optic effects since the band-pass or band-stop characteristic changes when the cavity or the delay line length is varied by a few tenths of an optical wavelength. The ultimate limit on speed of tuning is set by the coherence time of the light source. The dependence of the filter responses on the spectral purity of light is also studied.

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