

**TUP6 Frequency modulated mode-locked fiber laser with an integrated fiber phase modulator**

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A Nd<sup>3+</sup>-doped fiber laser has been FM mode-locked by two means: 20-ps pulses were obtained with a bulk phase modulator. Detuning the modulation frequency induced FM operation which broadened the laser bandwidth to 57 GHz. An integrated fiber phase modulator produced 80-ps pulses. Low intracavity losses led to submilliwatt thresholds and slope efficiencies in excess of 45%.  
(12 min)