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Tunable femtosecond dispersive waves generation in PCF[1] JIAHUI PENG, ALEXEI V. SOKOLOV, Institute for Quantum Studies and Physics Department, Texas A&M University, College Station, TX 77843-4242 — Tunable femtosecond optical pulses are widely needed in various applications. Recently, the largest tuning range is generally achieved by adding the desired filter after white light generation, which causes a complicated system and a low efficiency. Due to the most recent development of photonic crystal fibers (PCF), the optical dispersion behavior can be modulated a lot. With ultrashort pulses propagating along the fiber, this modulated dispersion can resolve generation of new wavelengths. We will show that more efficient tunibility can be achieved by simply using a femtosecond oscillator and a piece of PCF, and the tuning range will cover more than octave spectrum. The autocorrelation shows that with a femtosecond pulse propagating in a reasonable short PCF, the shifted pulses are femtosecond pulses as well. This phenomenon may expand applications in the fields that the laser wavelengths are not easily obtained.

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Jiahui Peng
Institute for Quantum Studies and Physics Department,
Texas A&M University, College Station, TX 77843-4242

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