

GHz harmonic mode-locked fiber laser using carbon nanotube saturable absorbers

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DOI:10.31868/RFL.2024.252

There are intense interests in driving the mode-locked fiber laser into GHz repetition rate regimes these days due to their potential applications in metrology and micromachining. Harmonic mode-locking can be an efficient approach to elevate the repetition rate of ultrafast fiber lasers. We use carbon nanotube based saturable absorbers to implement harmonic mode-locked fiber laser into the GHz range. We show that up to 5 GHz, the side mode suppression ratio can be up to 30 dB which is superior to other type of nanomaterials. We also show recent application for a U band laser using nonlinear amplification of these GHz light sources.