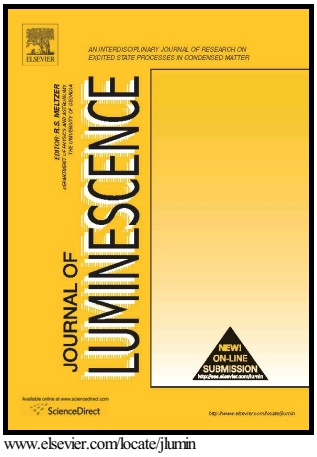

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Abstract

A thermo-optically controllable fiberized saturable absorber (SA) that is based on a combination of graphene oxide (GO), a thermo-optic polymer adhesive, and a thermo-electric temperature controller (TEC), is proposed and experimentally demonstrated. By incorporating the SA into an all-fiberized erbium-doped fiber (EDF) ring cavity, an operation-state-switchable fiber laser is successfully implemented. The operation state of the laser is shown to be switchable from a continuous wave (CW) to the Q-switching state to the harmonic mode-locking state depending on the current that is applied to the TEC under a fixed pump-power condition. As a function of the applied current, the temporal width and the repetition rate of the Q-switched pulses varied from ~5.54 μs to ~12.35 μs and from ~ 31.02 kHz to ~17.25 kHz, respectively. The maximum