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S-band Q-switched fiber laser using MoSe2 saturable absorber

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Abstract

A passively Q-switched S-band fiber laser using Molybdenum Diselenide (MoSe2) saturable absorber (SA) is proposed and demonstrated. The SA is fabricated by depositing MoSe2 onto two fiber ferrules using the drop-cast method before heating and connecting the two fiber ferrules to form the SA. The passively Q-switched fiber laser designed using the MoSe2 SA has an operational range of 1491.0-1502.0 nm. The output pulse train has a pulse-width ranging from 2.0 μs to 1.0 μs and corresponding repetition rate of between 34.5 kHz and 90 kHz with increasing pump powers, as well as a signal-to-noise of about 35.97 dB. The peak performance of the proposed laser is between 1480.0 and 1490.0 nm, corresponding to the first peak gain region with the S-band. (C) 2016 Elsevier B.V. All rights reserved.

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