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Self-starting harmonic mode-locked Tm-Bi co-doped germanate fiber laser with carbon nanotube-based saturable absorber

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Self-starting harmonic mode-locked Tm-Bi co-doped germanate fiber laser with carbon nanotube-based saturable absorber

N. Saidin D. I. M. Zen S. S. A. Damanhuri S. W. Harun H. Ahmad F. Ahmad K. Dimiyati
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摘要

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Abstract

We report a ring cavity passively harmonic mode-locked fiber laser using a newly developed thuliumbismuth co-doped fiber (TBF) as a gain medium in conjunction with a carbon nanotube (CNT)-based saturable absorber. The TBF laser generates a third harmonic mode-locked soliton pulse train with a high repetition rate of 50 MHz and a pulse duration of 1.86 ps. The laser operates at 1 901.6 nm with an average power of 6.6 mW, corresponding to a pulse energy of 0.132 nJ, at a 1 552 nm pump power of 723.3 mW.

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