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Volume 17, June 2020, Article number 103124Tunable S+/S band Q-switched thulium-doped fluoride fiber laser using tungsten ditelluride (WTe<sub>2</sub>) (Article) [Open Access](#)Ahmad, H.<sup>a,b</sup> Ismail, N.N.<sup>a</sup> Aidit, S.N.<sup>a</sup> Yusoff, N.<sup>a</sup> Zulkifli, M.Z.<sup>c</sup> <sup>a</sup>Photonics Research Center, University of Malaya, Kuala Lumpur, 50603, Malaysia<sup>b</sup>Physics Dept., Faculty of Science, University of Malaya, Kuala Lumpur, 50603, Malaysia<sup>c</sup>Centre of Advanced Optoelectronics Research (CAPTOR), Physics Department, Kulliyah of Science, International Islamic University Malaysia, Kuantan, Pahang Darul Makmur 25200, Malaysia

## Abstract

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A tunable, passively Q-switched thulium-doped fluoride fiber laser (TDFFL) using a tungsten ditelluride (WTe<sub>2</sub>) thin film based saturable absorber (SA) was proposed and its operational efficacy demonstrated. At a maximum pump power of 250 mW, a Q-switched output at 1494 nm with a 3-dB bandwidth of 3 nm was obtained. The repetition rate was measured to be 36.5 kHz with a minimum pulse width of 3.7 μs, as well as a signal-to-noise ratio (SNR) of approximately 42 dB. Utilizing a tunable bandpass filter (TBPF), tunable Q-switching operation was achieved from 1459 to 1513 nm, giving a tuning range of 54 nm. The proposed laser would have significant use for systems operating in the S-band region, particularly for optical communications networks. © 2020 The Authors

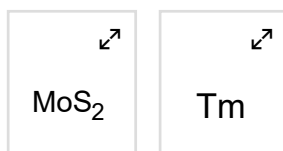
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## Chemistry database information

## Substances



## Author keywords

[Q-switched](#) [Saturable absorber](#) [TDFFL](#) [Tunable](#) [WTe<sub>2</sub>](#)

## Funding details

Funding sponsor	Funding number	Acronym
Universiti Malaya	BKS002-2019,RU011-2019	
Ministry of Higher Education, Malaysia		MOHE

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