



Document details

< Back to results | 1 of 1

📄 Export 📄 Download 🖨️ Print ✉️ E-mail 📄 Save to PDF ☆ Add to List More... >

View at Publisher

Optics Communications
Volume 382, 1 January 2017, Pages 93-98

S-band Q-switched fiber laser using MoSe₂ saturable absorber (Article)

Ahmad, H.^a ✉️, Ismail, M.A.^a, Sathiyar, S.^b, Reduan, S.A.^a, Ruslan, N.E.^a, Lee, C.S.J.^a, Zulkifli, M.Z.^a, Thambiratnam, K.^a, Ismail, M.F.^a, Harun, S.W.^a 👤

^aSchool of Electrical Engineering, VIT University, Vellore, Tamilnadu 632014, India

^bPhotonics Research Centre, University of Malaya, Kuala Lumpur, 50603, Malaysia

Abstract

View references (17)

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. © 2016 Elsevier B.V.

SciVal Topic Prominence ⓘ

Topic: Saturable Absorbers | Erbium-Doped Fiber | Mode-locked Fiber Lasers

Prominence percentile: 99.458 ⓘ

Author keywords

Fiber laser Molybdenum diselenide Q-switching S-band, saturable absorber

Indexed keywords

Engineering controlled terms: Fiber lasers Fibers Optical pumping Pulse repetition rate Q switched lasers Saturable absorbers Selenium compounds Signal to noise ratio

Engineering uncontrolled terms: Molybdenum diselenide Operational range Passively Q-switched Peak performance Q-switched fiber lasers Repetition rate S-band fiber lasers Signal to noise

Engineering main heading: Q switching

Funding details

Funding sponsor Funding number Acronym

Metrics ⓘ View all metrics >

36 Citations in Scopus
95th percentile
3.77 Field-Weighted
Citation Impact



PlumX Metrics

Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 36 documents

Experimental optimization and dynamics solution of active-passive Q-switched intracavity optical parametric oscillator based on EO modulator and layered-WSe₂ SA

Wang, J. , Pang, J. , Liu, S. (2020) *Infrared Physics and Technology*

Passively Q-switched S+/S band fiber laser with copper telluride saturable absorber

Ahmad, H. , Azmy, N.F. , Kasran, F.A.M. (2020) *Laser Physics Letters*

155 nm-wideband and tunable q-switched fiber laser using an MXene Ti3C2TXcoated microfiber based saturable absorber

Ahmad, H. , Ramli, R. , Yusoff, N. (2020) *Laser Physics Letters*

View all 36 citing documents

Inform me when this document is cited in Scopus:

Set citation alert >

Related documents

All-normal dispersion passively mode-locked Yb-doped fiber

Funding sponsor	Funding number	Acronym
Universiti Malaya	LRGS (2015) NGOD/UM/KPT,RU007/2015,GA010-2014	

Funding text

We would like to thank University of Malaya for the research funding, under Grant number LRGS (2015) NGOD/UM/KPT, GA010-2014 (ULUNG) and RU007/2015 . We would also like to thank Dr. M.Z. Razak for assisting in the graphical work of the paper.

ISSN: 00304018
 CODEN: OPCOB
 Source Type: Journal
 Original language: English

DOI: 10.1016/j.optcom.2016.07.010
 Document Type: Article
 Publisher: Elsevier B.V.

References (17)

[View in search results format >](#)

All [Export](#) [Print](#) [E-mail](#) [Save to PDF](#) [Create bibliography](#)

- 1 Novoselov, K.S., Geim, A.K., Morozov, S.V., Jiang, D., Zhang, Y., Dubonos, S.V., Grigorieva, I.V., (...), Firsov, A.A.

Electric field in atomically thin carbon films

(2004) *Science*, 306 (5696), pp. 666-669. Cited 42216 times.
 doi: 10.1126/science.1102896

[View at Publisher](#)

- 2 Zhao, C., Zhang, H., Qi, X., Chen, Y., Wang, Z., Wen, S., Tang, D.

Ultra-short pulse generation by a topological insulator based saturable absorber

(2012) *Applied Physics Letters*, 101 (21), art. no. 211106. Cited 456 times.
 doi: 10.1063/1.4767919

[View at Publisher](#)

- 3 Coleman, J.N., Lotya, M., O'Neill, A., Bergin, S.D., King, P.J., Khan, U., Young, K., (...), Nicolosi, V.

Two-dimensional nanosheets produced by liquid exfoliation of layered materials

(2011) *Science*, 331 (6017), pp. 568-571. Cited 4390 times.
<http://www.sciencemag.org.ezproxy.um.edu.my/content/331/6017/568.full.pdf>
 doi: 10.1126/science.1194975

[View at Publisher](#)

- 4 Smith, R.J., King, P.J., Lotya, M., Wirtz, C., Khan, U., De, S., O'Neill, A., (...), Coleman, J.N.

Large-scale exfoliation of inorganic layered compounds in aqueous surfactant solutions

(2011) *Advanced Materials*, 23 (34), pp. 3944-3948. Cited 762 times.
 doi: 10.1002/adma.201102584

[View at Publisher](#)

laser using MoS₂-PVA saturable absorber

Sathiyar, S. , Velmurugan, V. , Senthilnathan, K.
 (2016) *Laser Physics*

S-band Q-switched fiber laser using molybdenum disulfide (MoS₂) saturable absorber

Ahmad, H. , Ismail, M.A. , Suthaskumar, M.
 (2016) *Laser Physics Letters*

Wideband saturable absorption in few-layer molybdenum diselenide (MoSe₂) for Q-switching Yb-, Er- and Tm-doped fiber lasers

Woodward, R.I. , Howe, R.C.T. , Runcorn, T.H.
 (2015) *Optics Express*

[View all related documents based on references](#)

[Find more related documents in Scopus based on:](#)

[Authors >](#) [Keywords >](#)