VDB Solar Solutions

52 w average power tm-doped fiber cpa system

52 w average power tm-doped fiber cpa system

Tm-based fiber-laser system with more than 200 MW peak power ...

200 MW in combination with 24 W average power and 120 uJ pulse energy. Key components enabling this perfor- mance level are a Tm-doped large-pitch fiber with a mode-field diameter of 65 um

Sub-700fs pulses at 152 W average power from a Tm-doped fiber CPA system

A high-power thulium (Tm)-doped fiber chirped-pulse amplification system emitting a record compressed average output power of 152 W and 4 MW peak power is demonstrated.

Tm:fiber CPA driven nonlinear pulse compression stage ...

We report on the generation of 102 uJ-, sub-2 cycle pulses with several GW of peak power centered at 1.73 um wavelength. The intense few-cycle source features 8.8 fs pulse duration (full-width at half maximum, FWHM). It is operated at 196 kHz pulse repetition rate and provides a record average power of 20 W. This result is enabled by the combination of two average power ...

Thulium-doped fiber chirped-pulse amplification system with 2 ...

Here, we present a laser system delivering a pulse-peak power of 2 GW and a nearly

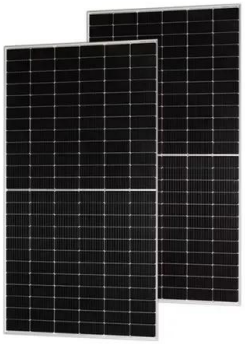
transform-limited pulse duration of 200 fs in combination with 28.7 W of average power. This performance level has been achieved by optimizing the pulse shape, reducing the overlap with atmospheric absorption lines, and incorporating a climate chamber to reduce the humidity ...

Long-term-stable Thulium-doped Fiber CPA with >100W average power ...

We present the first thulium-doped fiber CPA delivering & gt;100 W average-power and simultaneously & gt;1 GW of peak-power with & gt;228 µJ energy and & lt;120 fs duration at 1940 nm center wavelength. It shows an excellent long ...

Ultrafast Tm-doped fiber CPA system delivering GW-level peak ...

In this contribution, we present a Tm-doped fiber chirped pulse amplifier system delivering 108 W of average output power at 417 kHz repetition rate with 250 fs pulse duration and close to 1 ...



Ultrafast Tm-doped fiber CPA system delivering GW-level peak power

In this contribution, we present a Tm-doped fiber chirped pulse amplifier system delivering 108 W of average output power at 417 kHz repetition rate with 250 fs pulse duration and close to 1 GW of pulse peak power. Author Affiliations Ziyao Wang, 1, * Tobias Heuermann, 1, 2 Martin Gebhardt, 1, 2 Mathias Lenski, 1 Christian Gaida, 1, 3 Cesar Jauregui, 1 and Jens Limpert 1, 2, 4

200 MW peak power from a Tm-doped fiber CPA system

We have achieved a record pulse peak power of ~200 MW at 24 W average power and 120 uJ pulse energy in a state-of-the-art thulium-doped fiber CPA system operating at 2 um

152 W average power Tm-doped fiber CPA system

A high-power thulium (Tm)-doped fiber chirped-pulse amplification system emitting a record compressed average output power of 152 W and 4 MW peak power is demonstrated. This ...

500 W average power, multicore fiber-based femtosecond CPA system

We present a rod-type, Ytterbium-doped, multicore fiber with 4x4 cores. This fiber is employed in a CPA setup for coherent beam combination of femtosecond pulses. High average powers of up to 507 W after combination and compression could be achieved at 10 MHz repetition rate. A high combination efficiency of 85% could be realized together with an excellent beam quality. ...

108 W average power ultrashort pulses with GW-level peak power ...

Feb 21, 2020, Ziyao Wang and others published 108 W average power ultrashort pulses with GW-level peak power from a Tm-doped fiber CPA system , Find, read and cite all the research you need on

152 W average power Tm-doped fiber CPA system

A high-power thulium (Tm)-doped fiber chirped-pulse amplification system emitting a record compressed average output power of 152 W and 4 MW peak power is demonstrated.

108 W average power ultrashort pulses with GW-level peak power ...

Fiber Lasers XVII: Technology and Systems : [Proceedings] - SPIE, 2020. - ISBN 9781510632837. 9781510632844 Fiber Lasers XVII: Technology and Systems, SPIE LASE 2020, San Francisco San Francisco, United States, 1 Feb 2020 - 6 Feb 2020 2020-02-01 2020-02-06 SPIE 6 pp. (2020) [10.1117/12.2546591] 2020

Advances in 2-um Tm-doped mode-locked fiber lasers

Furthermore, Tm 3+ has proven to be an outstanding dopant for scaling average power, with a demonstration of over 1 kW of average power from a continuous-wave Tm-doped fiber laser system [24].Since loss due to multi-phonon absorption in silica-based fibers

Sub-700fs pulses at 152 W average power from a Tm-doped fiber CPA system

Thulium-based fiber lasers potentially provide for the demand of high average-power ultrafast laser systems operating at an emission wavelength around 2 um. In this work we use a Tm-doped photonic-crystal fiber (PCF) with a mode field diameter of 36 um enabling high peak powers without the onset of detrimental nonlinear effects. For the first time a Tmdoped ...

200 MW peak power from a Tm-doped fiber CPA system

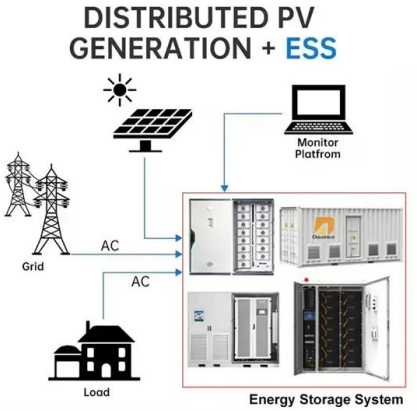
We have achieved a record pulse peak power of ~200 MW at 24 W average power and 120 uJ pulse energy in a state-of-the-art thulium-doped fiber CPA system operating ...

152 W average power Tm-doped fiber CPA system

a Tm-doped fiber CPA system is demonstrated. The use of Tm-doped PCFs allows for an uncompressed output power of 241 W. After compression to sub-700-fs pulse duration, an average power of 152 W

Sub-700fs pulses at 152 W average power from a Tm-doped fiber ...

A high-power thulium (Tm)-doped fiber chirped-pulse amplification system emitting a record compressed average output power of 152 W and 4 MW peak power is ...

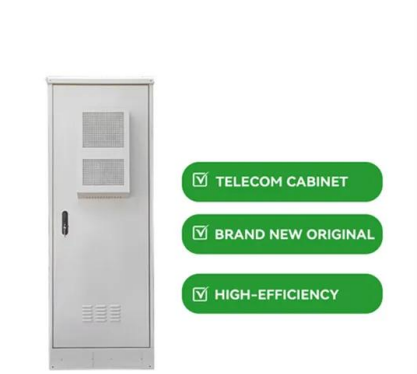


152 W average power Tm-doped fiber CPA system

A high-power thulium (Tm)-doped fiber chirped-pulse amplification system emitting a record compressed average output power of 152& #xA0;W and 4& #xA0;MW peak power is demonstrated. This result is enabled by utilizing Tm-doped photonic crystal fibers with mode-field diameters of 35& #xA0;& #x3BC;m, which mitigate detrimental nonlinearities, exhibit slope ...

High-performance, thulium-doped, ultrafast fiber lasers

[52] Wan P, Yang L-M and Liu J 2013 High power 2 um femtosecond fiber laser Opt. Express 21 21374 Go to reference in chapter Crossref [53] Stutzki F 2014 152 W average power Tm-doped fiber CPA system Opt. Lett. 39 4671-4 Go to reference in chapter



Thulium-doped all-PM fiber chirped pulse amplifier delivering 314 W

PDF , On Aug 14, 2023, Bo Ren and others published Thulium-doped all-PM fiber chirped pulse amplifier delivering 314 W average power , Find, read and cite all the research you need on ResearchGate

90 fs pulses with >5 GW peak power from a high repetition rate Tm-doped

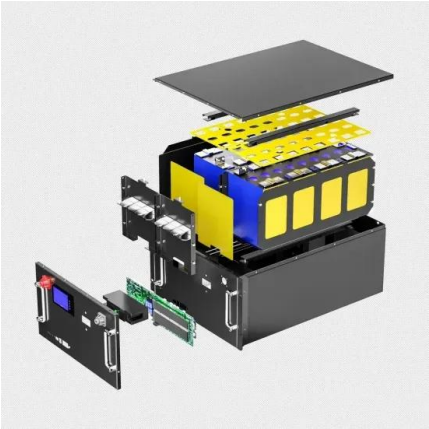
In this Letter, we report on the generation of 1060 W average power from an ultrafast thulium-doped fiber chirped pulse amplification system. After compression, the pulse energy of

2.4 mJ, 33 W Q-switched Tm-doped fiber laser with near ...

A high pulse energy and high average power Q-switched Tm-doped large-pitch fiber oscillator, which allows for large core diameters in combination with effective single-mode operation. We report on a high pulse energy and high average power Q-switched Tm-doped fiber oscillator. The oscillator produces 2.4 mJ pulses with 33 W average power (at a repetition rate ...

108 W average power ultrashort pulses with GW-level peak ...

In this contribution we present a single-channel Tm-doped fiber chirped-pulse amplifier delivering 108 W of average output power at 417 kHz repetition rate with 250 fs pulse duration and 0.73 ...



90 fs pulses with >5 GW peak power from a high repetition rate Tm-doped

Tm-doped fused silica fibers allow for the efficient, linear amplification of broad spectra in the 1.9 µm wavelength region. The single-channel fiber chirped pulse amplification system presented herein delivers a pulse-peak power of & gt;5 GW and a nearly transform-limited pulse duration of 90 fs at 10 kHz repetition rate. An increase of the repetition rate to 100 kHz allowed for ...

108 W average power ultrashort pulses with GW-level peak power ...

In this contribution we present a single-channel Tm-doped fiber chirped-pulse amplifier delivering 108 W of average output power at 417 kHz repetition rate with 250 fs pulse duration and 0.73 GW of pulse peak power.

Sub-700fs pulses at 152 W average power from a Tm-doped fiber CPA system

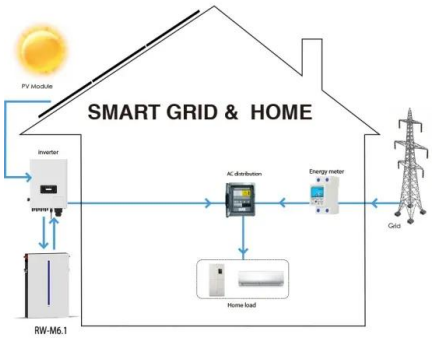
Thulium-based fiber lasers potentially provide for the demand of high average-power ultrafast laser systems operating at an emission wavelength around 2 um. In this work we use a Tm-doped photonic-crystal fiber (PCF) with a mode field diameter of 36 um enabling high peak powers without the onset of detrimental nonlinear effects. For the first time a Tmdoped PCF amplifier ...

Inband-pumped, high-power thulium-doped fiber amplifiers for an

We investigate the influence of the pump wavelength on the high-power amplification of large-mode area, thulium-doped fibers which are suitable for an ultrashort pulsed operation in the 2 µm wavelength region. By pumping a standard, commercially available photonic crystal fiber in an amplifier configuration at 1692 nm, a slope efficiency of 80 % at an average output power of 60 ...

108 W average power ultrashort pulses with GW-level peak power ...

Applications such as material processing, spectroscopy, particle acceleration, high-harmonic and mid-IR generation can greatly benefit from high repetition rate, high power,



ultrafast laser sources emitting around 2 & mu;m wavelength. In this contribution we present a single-channel Tm-doped fiber chirped-pulse amplifier delivering 108 W of average output ...

Tm-Doped Fiber CPA System with 152 W Average Power

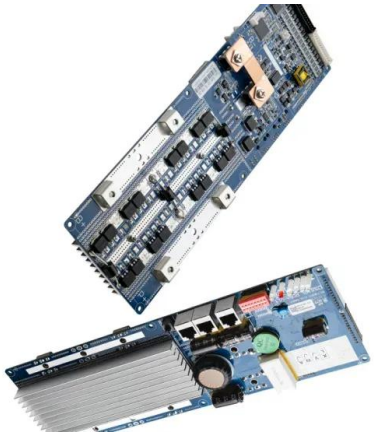
DOI: 10.1364/ASSL.2014.AW4A.4 Corpus ID: 137785762 Tm-Doped Fiber CPA System with 152 W Average Power and Sub-700fs Pulse Duration @inproceedings{Gaida2014TmDopedFC, title={Tm-Doped Fiber CPA System with 152 W Average Power and Sub-700fs Pulse Duration}, author={Christian Gaida and Fabian Stutzki ...

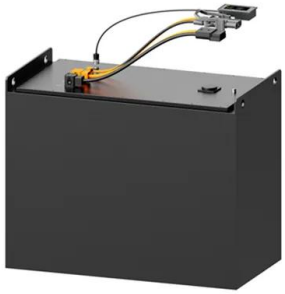
Thulium-doped all-PM fiber chirped pulse amplifier delivering 314 W

Abstract A high-power all polarization-maintaining (PM) chirped pulse amplification (CPA) system operating in the 2.0 um range is experimentally demonstrated. Large mode area (LMA) thulium-doped fiber (TDF) with a core/cladding diameter of 25/400 um is employed to construct the main amplifier. Through dedicated coiling and cooling of the LMA ...

Tm-Doped Fiber CPA System with 152 W Average Power and ...

Thulium-doped photonic crystal fibers exhibit cross relaxation with slope efficiencies of up to 55% and enabled a high power fiber CPA system emitting a record compressed average output ...





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