Joint high power solid state laser

Can ThinZag ® scale solid-state slab lasers to high power levels?
Abstract: A new approach(ThinZag ®) for scaling Nd:YAG solid-state slab lasers to high power levels is described. Using an innovative optical configuration,thin slabs of solid-state gain material are immersed in a flowing cooling fluid,resulting in improved thermal management.

What is a high-power diode laser?
Fibers with a core diameter of 600 µm were used to transport the laser radiation, as used today for diode lasers with comparable power. With the high-power diode lasers becoming available as pump sources, the goal was then to achieve comparable or higher laser power with significantly higher efficiency and better beam quality.

What is the difference between CBC and solid-state laser?
In practical life,however,because of the limited power of single-frequency diode lasers,solid-state lasers are preferred as coherence or brightness converters,and CBC is used only,where the limits of the solid-state laser concept is reached.

How powerful is a CBC-based high-power laser system?
The experimental implementation of this technique in a CBC-based high-power laser system is described in . The combination of both techniques enabled a very high pulse energy of 23 mJ and an average power of 674 W.

What is a high power laser?
High-power lasers for instance used to be neodymium rod lasersthat were pumped by discharge lamps,which emitted across an extremely large spectrum from NIR to UV into a solid angle of basically 4p,resulting in typical electrical-to-optical laser efficiencies of 2%-3% .

Are YB lasers suitable for high-power operation?
Since we want to focus on power scaling and high-power operation,only Yb lasers are consideredin the following. Today,mainly passive mode-locking techniques are used as they enable a shorter pulse duration than active mode-locking approaches,which are limited by the bandwidth of the electronics .

The 15 kW modules represent basic building blocks for the Joint High Power Solid State 100 kW Laser (J-HPSSL) currently being designed and developed by Textron Defense ...

We supported Northrop Grumman"s successful 100 kW Joint High Power Solid State Laser (JHPSSL) development contract with responsibility for beam quality control in the cavity. The program successfully achieved 100 kW operation by ...

"Northrop Grumman has created the gold standard for high-power, solid-state lasers with its JHPSSL

system," said Mark Neice, director, Office of the Secretary of Defense, ...

The beat goes on for the world"s most powerful and reliable solid-state military laser. Since becoming the first to reach the 100-kilowatt power level threshold for a solid-state ...

Seven laser chains were combined to produce a single beam of 105.5 kW. The seven-chain laser demonstrator ran for more than 5 min and achieved an electro-optical efficiency of 19.3%, reaching full power in less than 0.6 s, all with a ...

A major focus for FY 2003 is the Joint-High Power Solid State Laser (Joint HPSSL) project. The objective is accelerate the demonstration of the Solid State Laser at initial weapon ...

Marmo J, Injeyan H, Komine H, et al. Joint high power solid state laser program advancements at Northrop Grumman [C]. San Jose: Society of Photo-Optical Instrumentation Engineers, 2009. ...

<p>Laser propulsion, laser energy transfer, and other major research directions have proposed a major demand for high brightness solid-state laser technology, making relevant research ...

Global defense company Northrop Grumman (Redondo Beach, CA) has announced the introduction of the FIRESTRIKE laser, a ruggedized, high-energy, solid-state ...

Under the Joint High Power Solid-State Laser (JHPSSL) program, Northrop Grumman is developing a laser architecture that can scale to >100 kW with a near-term goal of a 25 kW ...

A new approach (ThinZag ®) for scaling Nd:YAG solid-state slab lasers to high power levels is described. Using an innovative optical configuration, thin slabs of solid-state ...

The Joint High Power Solid State Laser (JHPSSL) program is nearing completion of its third phase; its key objective is to demonstrate a 100kW solid state laser with excellent ...

DESCRIPTION Solid state; ground platform POWER 10 kW; 50/100 kW lasers in development STATUS Successful test c Joint High Power Solid-State Laser U.S. GOVT. ...

HEL systems have the potential to address the following identified Army capability gaps: 1) Defeat In-Flight Projectiles such as rockets, artillery, mortars, anti-tank guided ...

of the program. To this day, the NIF Laser remains the largest and highest-energy laser in the world [1]. In 2009, Directed Energy Systems and Northrop Grumman ...

Joint High Power Solid State Laser Program contractors demonstrated 25 kW operation for 300 seconds at the end of 2005. The joint program settled on diode-pumped Nd:YAG slab technology for the 100 kW ...

Joint high power solid state laser

The Joint High Power Solid State Laser (JHPSSL) program is nearing completion of its third phase; its key objective is to demonstrate a 100kW solid state laser with excellent beam ...

????,?,,?? ...

High-power solid-state lasers are widely used in many research fields, such as fundamental research, industrial services, defense security, and advanced manufacturing. To achieve a high-power laser, many technologies ...

Now in the final integration and test phase of the program, Northrop Grumman has successfully demonstrated milestones for the first gain module and first laser chain that provide the foundation for a fully integrated solid-state laser, and is ...

Web: https://www.bardzyndzalek.olsztyn.pl