

Title (en)

FIBRE LASER ASSEMBLY AND METHOD FOR GENERATING HIGH-POWER LASER RADIATION

Title (de)

FASERLASERANORDNUNG UND VERFAHREN ZUR ERZEUGUNG VON HOCHLEISTUNGS-LASERSTRAHLUNG

Title (fr)

ENSEMBLE FIBRE LASER ET PROCÉDÉ DE GÉNÉRATION DE RAYONNEMENT LASER HAUTE PUISSANCE

Publication

EP 4292176 A1 20231220 (DE)

Application

EP 22706511 A 20220201

Priority

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- EP 2022052302 W 20220201

Abstract (en)

[origin: WO2022171487A1] In a fibre laser assembly having a doped active fibre (3), laser radiation from a seed laser (1) at a wavelength above the spectral amplification maximum of the active fibre (3) is amplified by optical pumping in the active fibre (3). The fibre laser assembly has a pump laser assembly (2) for the optical pumping of the active fibre (3) with first pump radiation at a first pump wavelength, and a device for generating second pump radiation at a second pump wavelength between the first pump wavelength and the wavelength of the seed laser (1). The doping concentration and length of the active fibre (3) and the power of the first pump radiation are adapted to each other such that the active fibre (3) absorbs >90% of the first pump radiation in the first fibre portion, radiation at the second pump wavelength is amplified in the first fibre portion by the first pump radiation to generate the second pump radiation, and the laser radiation from the seed laser (1) is then amplified in the remaining second fibre portion by the second pump radiation. This allows efficient amplification of long wavelengths, for example at wavelengths > 2070 nm, in a Tm-doped active fibre with better efficiency than in an Ho fibre amplifier.

IPC 8 full level

H01S 3/067 (2006.01); **H01S 3/07** (2006.01); **H01S 3/094** (2006.01); **H01S 3/0941** (2006.01); **H01S 3/16** (2006.01); **H01S 3/23** (2006.01)

CPC (source: EP US)

H01S 3/0675 (2013.01 - EP US); **H01S 3/06762** (2013.01 - EP US); **H01S 3/094003** (2013.01 - US); **H01S 3/094023** (2013.01 - EP); **H01S 3/094042** (2013.01 - EP); **H01S 3/094061** (2013.01 - EP); **H01S 3/161** (2013.01 - EP); **H01S 3/1616** (2013.01 - EP); **H01S 3/06754** (2013.01 - EP); **H01S 3/06758** (2013.01 - EP); **H01S 3/094007** (2013.01 - EP); **H01S 3/094096** (2013.01 - EP); **H01S 3/09415** (2013.01 - EP); **H01S 3/1608** (2013.01 - EP); **H01S 3/2375** (2013.01 - EP); **H01S 2302/00** (2013.01 - EP); **H01S 2303/00** (2013.01 - EP)

Citation (search report)

See references of WO 2022171487A1

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