

Title (en)
LASER SYSTEM HAVING SPECTRAL FILTRATION

Title (de)
LASERSYSTEM MIT SPEKTRALER FILTERUNG

Title (fr)
SYSTÈME LASER À FILTRAGE SPECTRAL

Publication
EP 2583363 A1 20130424 (DE)

Application
EP 11729553 A 20110610

Priority
• DE 102010023756 A 20100615
• EP 2011002870 W 20110610

Abstract (en)
[origin: WO2011157386A1] The invention relates to a laser system comprising a pulsed laser 1. Laser systems on the basis of pulsed lasers are used to generate ultra-short laser pulses. Only complicated, mode-coupled laser systems which can achieve a pulse duration below 10 ps have been known until now from the prior art. However, said systems are always complex and sensitive free beam structures. Therefore the aim of the invention is to produce a laser system which generates pulse durations below 10 ps and can also be produced in a simple and compact manner. In order to achieve said aim, according to the invention the laser system has a spectrally broadening element (2) which spectrally broadens the initial laser pulses of the pulsed laser 1 by means of self-phase modulation, and a spectrally filtering element (3) which temporally compresses the spectrally broadened laser pulses by means of spectral filtering; the spectral filtering can take place via an interference filter or by amplification using, for example, a narrow-band Nd:YAG amplifier. Further pulse shaping takes place by a saturable absorber (4) and a further amplifier (5).

IPC 8 full level
H01S 3/00 (2006.01); **H01S 3/23** (2006.01)

CPC (source: EP)
G02F 1/3511 (2013.01); **G02F 1/365** (2013.01); **H01S 3/0057** (2013.01); **H01S 3/2308** (2013.01); **H01S 3/2316** (2013.01); **G02F 2203/26** (2013.01); **H01S 3/005** (2013.01); **H01S 3/0078** (2013.01); **H01S 3/0092** (2013.01); **H01S 3/113** (2013.01); **H01S 3/1611** (2013.01); **H01S 3/1643** (2013.01); **H01S 3/1673** (2013.01)

Citation (search report)
See references of WO 2011157386A1

Citation (examination)
NODOP D ET AL: "HIGH-PULSE-ENERGY PASSIVELY Q-SWITCHED QUASI-MONOLITHIC MICROCHIP LASERS OPERATING IN THE SUB-100-PS PULSE REGIME", OPTICS LETTERS, OPTICAL SOCIETY OF AMERICA, US, vol. 32, no. 15, 1 August 2007 (2007-08-01), pages 2115 - 2117, XP001506842, ISSN: 0146-9592, DOI: 10.1364/OL.32.002115

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
DE 102010023756 A1 20111215; DE 202010018625 U1 20190108; EP 2583363 A1 20130424; WO 2011157386 A1 20111222

DOCDB simple family (application)
DE 102010023756 A 20100615; DE 202010018625 U 20100615; EP 11729553 A 20110610; EP 2011002870 W 20110610