Title (en)

SYSTEM FOR DETECTING PULSE DURATION FLUCTUATIONS OF LASER PULSES AND METHOD FOR GENERATING LASER PULSES

Title (de)

SYSTEM ZUR DETEKTION VON PULSDAUERSCHWANKUNGEN VON LASERPULSEN UND VERFAHREN ZUR ERZEUGUNG VON LASERPULSEN

Title (fr)

SYSTÈME DE DÉTECTION DE VARIATIONS DE DURÉE D'IMPULSIONS LASER ET PROCÉDÉ DE GÉNÉRATION D'IMPULSIONS LASER

Publication

**EP 4292175 A1 20231220 (DE)**

Application

**EP 22708809 A 20220209**

Priority

- DE 102021103204 A 20210211
- EP 2022053134 W 20220209

Abstract (en)

[origin: WO2022171675A1] The problem addressed by the invention is that of providing an optical system which allows fluctuations in the pulse duration of ultrashort laser pulses to be detected quickly, sensitively and simply, and in a manner which makes it possible to derive an error signal for controlling the pulse duration from the detection. The invention solves this problem by means of an optical system having: a laser source (1), designed for generating pulsed laser radiation consisting of a chronological sequence of laser pulses; at least one dispersive optical element (4), designed to impress a group transit time dispersion and thus a chirp on the laser pulses; a non-linear medium (5), designed for the non-linear spectral broadening of the laser pulses during propagation through the medium (5); and a detection device (6), designed to detect the spectral broadening. The invention also relates to a method for generating laser pulses.

IPC 8 full level

**H01S 3/00** (2006.01); **H01S 3/10** (2006.01); **H01S 3/13** (2006.01)

CPC (source: EP US)

**H01S 3/0014** (2013.01 - EP); **H01S 3/0057** (2013.01 - EP US); **H01S 3/0078** (2013.01 - US); **H01S 3/0092** (2013.01 - US); **H01S 3/1305** (2013.01 - EP US); H01S 3/0078 (2013.01 - EP); H01S 3/0085 (2013.01 - EP); H01S 3/0092 (2013.01 - EP); H01S 3/1003 (2013.01 - EP); H01S 2301/08 (2013.01 - EP)

Citation (search report)

See references of WO 2022171675A1

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

Designated extension state (EPC)

BA ME

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

**DE 102021103204 A1 20220811**; CN 117121312 A 20231124; EP 4292175 A1 20231220; US 2024195141 A1 20240613; WO 2022171675 A1 20220818

DOCDB simple family (application)

**DE 102021103204 A 20210211**; CN 202280027167 A 20220209; EP 2022053134 W 20220209; EP 22708809 A 20220209; US 202218276673 A 20220209