Universidad de Alcalá

MODE-LOCKED PULSED LASER USING SATURABLE ABSORBER

Patent
ES2622354

Code

TIC_UAH_19_P

Application areas

- Information and Communication Technologies
- Measurements and standards Environment and risk prevention
- Energy

Type of Collaboration

- Technical cooperation
- Commercial agreement and Technical assistance
- License agreement

Main Researchers

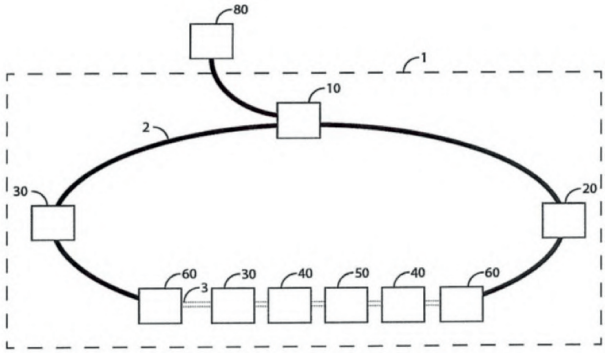
Dr. Fernando B. Naranjo Vega
Dr. Marco Jiménez Rodríguez

CONTACT

OTRI Universidad de Alcalá
Escuela Politécnica Superior
Campus Científico-Tecnológico
28805, Alcalá de Henares
(Madrid)
(+34) 91 885 45 61
otriuah@uah.es

@otriuah

OTRI Universidad de Alcalá



ABSTRACT

It is a mode-locked pulsed laser whose optical resonator comprises a saturable absorber based on nitrides of group III. The use of this type of materials as saturable absorber allows to achieve a high stability and emission energy without increasing the complexity of the system. A mode-locked pulsed laser based on a resonator with an optical gain medium and a saturable absorber, wherein the saturable absorbent comprises at least a nitride of group III. The nitride of group III is selected from one of the following subgroups, being able to comprise elements of several subgroups in order to configure the wavelength and emission power of the device. Binary compounds: gallium nitride (GaN), aluminum nitride (AIN) or indium nitride (InN). Ternary compounds of gallium nitride and indium nitride, such as InGaN. Ternary compounds of gallium nitride and aluminum nitride, for example AlGaN. Ternary compounds of aluminum nitride and indium nitride such as AlInN.Quaternary compounds of gallium nitride, aluminum nitride and indium nitride, for example AlInGaN.

ADVANTAGES AND INNOVATIONS

This is a completely new use of nitrides of group III, Particularly related to the development of lasers, it introduces as saturable absorbers, materials composed of nitrides of group III, that allow to reach a high stability and emission energy without increasing the complexity of the system. Nothing similar has been found in patent databases or in the scientific literature consulted.

The mode-locked laser provides high peak power, energy per pulse, stability, and oper- ating range. It also allows operation independently of the polarization, simplifying the design and control of the device.

Development with reasonable costs and possibility of distribution in the international market: USA, Europe and Japan.

The group seeks for companies in the ICT, health and industrial sector or any company that manufactures mode-locked laser based on fiber optic, to sign technical cooperation agreements, commercial agreements with technical assistance or patent licensing agreements.