### (19) World Intellectual Property Organization

International Bureau





### (43) International Publication Date 26 January 2006 (26.01.2006)

(51) International Patent Classification: H01S 3/067 (2006.01)

(21) International Application Number:

PCT/CH2005/000570

(22) International Filing Date:

30 September 2005 (30.09.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

04029867.1 16 December 2004 (16.12.2004) EP 05000669.1 14 January 2005 (14.01.2005) EP

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- (10) International Publication Number WO 2006/007756 A3
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### **Declaration under Rule 4.17:**

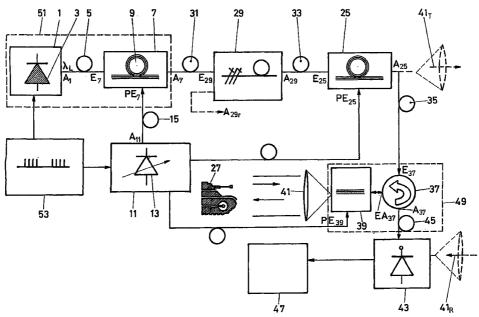
of inventorship (Rule 4.17(iv))

### **Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: NOT TEMPERATURE STABILIZED PULSED LASER DIODE AND ALL FIBRE POWER AMPLIFIER



(57) Abstract: A laser system comprises a master-oscillator/power-amplifier (51) whereby the master-oscillator comprises a pulsed diode (3) and a pumped active optical fibre power-amplifier (9). Substantially all guides of laser light (5, 9, 31, 29, 33, 25, 35, 39, 45) are optical fibres. The pulsed diode (3) is not temperature stabilized. To reduce nevertheless ASE generated in the optical fibre amplifier (9), a narrow band-pass filter unit (29) is used. Filter unit (29) has a central wavelength with a temperature dependence which is matched to the temperature dependent wavelength shift of the pulsed diode (3).

## WO 2006/007756 A3



- upon request of the applicant, before the expiration of the time limit referred to in Article 21(2)(a)
- (88) Date of publication of the international search report:  $$18\ \mathrm{May}\ 2006$

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

### INTERNATIONAL SEARCH REPORT

International application No PCT/CH2005/000570

# A. CLASSIFICATION OF SUBJECT MATTER H01S3/067

According to International Patent Classification (IPC) or to both national classification and IPC

### B. FIELDS SEARCHED

 $\frac{\text{Minimum documentation searched (classification system followed by classification symbols)}{\text{H}01S} \quad \frac{\text{G}01S}{\text{G}02B} \quad \frac{\text{G}02F}{\text{G}02F}$ 

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-In	ternal, WPI Data, PAJ, INSPEC, COM	IPENDEX	
C. DOCUM	ENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the	relevant passages	Relevant to claim No.
Х	US 2002/075472 A1 (HOLTON CARVE 20 June 2002 (2002-06-20) paragraphs [0039] - [0042]; fig	1-10, 13-23	
X	US 5 933 271 A (WAARTS ET AL) 3 August 1999 (1999-08-03) column 7, lines 27-65; figures column 9, line 37 - column 12, column 12, line 60 - column 13, column 14, line 46 - column 16,	1,3-6,9, 10,13,14	
X A	US 6 347 007 B1 (GRUBB STEPHEN 12 February 2002 (2002-02-12) column 4, line 53 - column 6, l figures 1,2	•	1,3-6,9, 10,13,14 16
X Furt	her documents are listed in the continuation of Box C.	X See patent family annex.	
t Special categories of cited documents:  "A" document defining the general state of the art which is not considered to be of particular relevance  "E" earlier document but published on or after the international filing date  "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  "O" document referring to an oral disclosure, use, exhibition or other means  "P" document published prior to the international filing date but later than the priority date claimed  Date of the actual completion of the international search		"T" later document published after the inte or priority date and not in conflict with cited to understand the principle or the invention  "X" document of particular relevance; the cannot be considered novel or cannot involve an inventive step when the do  "Y" document of particular relevance; the cannot be considered to involve an involve and involve and involve an involve and involve and involve an invo	the application but cory underlying the laimed invention be considered to cument is taken alone laimed invention ventive step when the ore other such docusts to a person skilled family
Name and r	mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer  Laenen, R	
Form PCT/ISA/	210 (second sheet) (April 2005)		

# INTERNATIONAL SEARCH REPORT

International application No
PCT/CH2005/000570

C(Continua	tion). DOCUMENTS CONSIDERED TO BE RELEVANT	
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 456 428 B1 (NAKAJI HARUO ET AL) 24 September 2002 (2002-09-24) column 5, line 26 - column 7, line 7; figures 1,6,7 column 9, line 9 - column 10, line 7 column 10, line 46 - column 11, line 10	1-5,7-10
X	column 10, line 46 - column 11, line 10   US 2004/017603 A1 (JAY PAUL ET AL) 29 January 2004 (2004-01-29) paragraphs [0025], [0026], [0031] - [0034], [0044] - [0047]; figures 1,3-6	1-8

International application No. PCT/CH2005/000570

# INTERNATIONAL SEARCH REPORT

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)
This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
Claims Nos.:  because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)
This International Searching Authority found multiple inventions in this international application, as follows:
see additional sheet
As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  1-10, 13-23
Remark on Protest  The additional search fees were accompanied by the applicant's protest.  No protest accompanied the payment of additional search fees.

### FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

- 1. claims: 1-10,13-23
  - 1. Claim 10 comprises a MOPA laser system with substantially all laser light guides being optical fibres with a pass-band optical fibre filter downstream the power amplifier with a spectral position being controllably shiftable.
- 2. claims: 11,12
  - 2. Claims 11,12 are directly or indirectly dependent on claim 10 and comprise in addition to the subject-matter of claim 10 a temperature stabilisation of the filter which is depending on the temperature of the master oscillator.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/CH2005/000570

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
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