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Seattle, WA 98111-1247 (US).(81) Designated States (unless otherwise indicated, for every
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DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
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ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI,
NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU,
RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ,
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TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
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TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))

[Continued on next page]

(54) Title: GENERATING ULTRASHORT LASER PULSES BASED ON TWO-STAGE PULSE PROCESSING

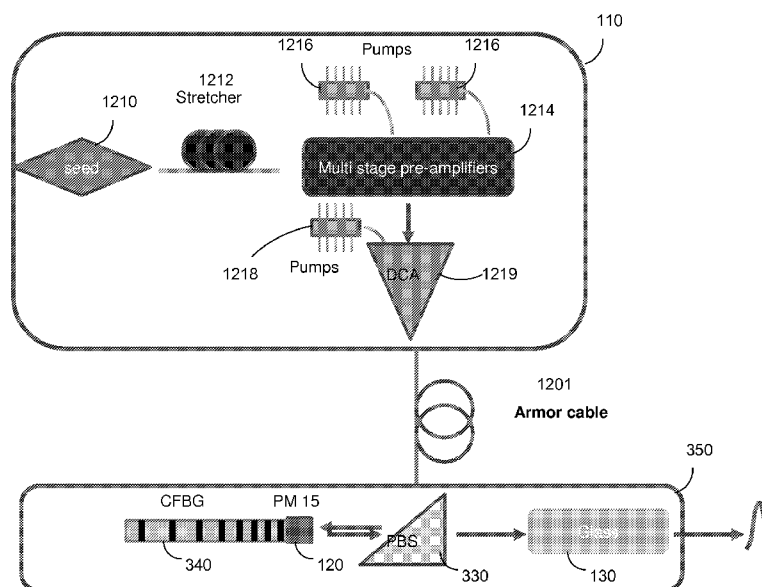


FIG. 12C

(57) Abstract: Techniques and devices for producing short laser pulses, including generating ultrashort laser pulses by separating a nonlinear processing of laser pulses via nonlinear self-phase modulation (SPM) in a nonlinear optical medium from a subsequent linear processing of the laser pulses to achieve ultrashort laser pulses.

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INTERNATIONAL SEARCH REPORT

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PCT/US2013/020583**A. CLASSIFICATION OF SUBJECT MATTER****H01S 3/10(2006.01)i**

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H01S 3/10; G02F 1/365; H01S 3/30; G06G 7/48; H01S 3/09; H01S 3/14; H01S 3/00

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: short, pulse, laser, nonlinear, amplifier, self-phase modulation

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2011-0007760 A1 (JOHN REDVERS CLOWES et al.) 13 January 2011 See abstract, paragraphs [0061]-[0078], claims 23-25 and figures 9-10.	1-52
A	US 2010-0046067 A1 (MARTIN E. FERMANN et al.) 25 February 2010 See abstract, paragraphs [0073]-[0088], claims 1-15 and figures 1-12.	1-52
A	US 2008-0068702 A1 (JIAN LIU) 20 March 2008 See abstract, paragraphs [0021]-[0025], claims 1-10 and figures 3-5B.	1-52
A	US 2008-0037108 A1 (HIROYUKI YOKOYAMA) 14 February 2008 See abstract, paragraphs [0028]-[0036] claim 1 and figure 1.	1-52
A	US 2007-0206647 A1 (JIAN LIU) 06 September 2007 See abstract, paragraphs [0017]-[0018], claims 1, 6 and figures 1-2.	1-52



Further documents are listed in the continuation of Box C.



See patent family annex.

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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