



(51) International Patent Classification:

G01B 11/06 (2006.01) G01J 5/00 (2022.01)
G01B 11/28 (2006.01) H01L 21/66 (2006.01)
G01J 3/28 (2006.01)

(21) International Application Number:

PCT/US2024/032692

(22) International Filing Date:

06 June 2024 (06.06.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/507,823 13 June 2023 (13.06.2023) US

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(81) Designated States (unless otherwise indicated, for every

kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every

kind of regional protection available): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, 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, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: FOURIER NOTCH FILTER METHOD AND SYSTEM

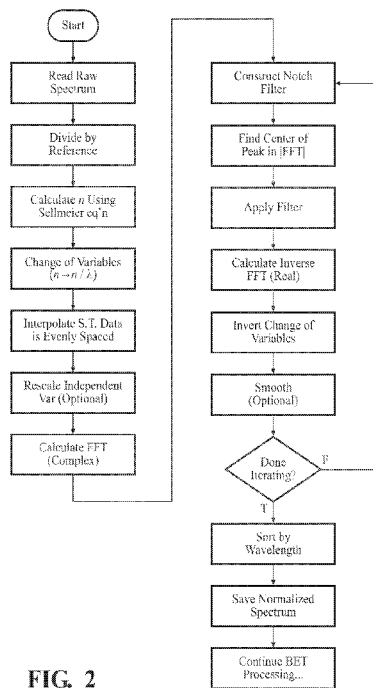


FIG. 2

(57) Abstract: A technique for determining the temperature of a semiconductor film during multiple quantum well (MQW) film growth via Metal-Organic Chemical Vapor Deposition (MOCVD). The temperature is determined in real-time as the film grows and increases in thickness. A spectrum based on the diffusely scattered light from the film is produced at each incremental thickness. A reference division is performed on each spectrum to correct for equipment artifacts. The thickness of the film and an optical absorption edge wavelength value are determined from the spectrum. The temperature of the film is determined as a function of the optical absorption edge wavelength and the thickness of the film using the spectrum, a thickness calibration table, and a temperature calibration table. The film temperature is accurately determined to +/- 0.25 °C using a Fast Fourier Transform (FFT) and a notch filter.



(88) Date of publication of the international search report:
30 May 2025 (30.05.2025)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2024/032692

A. CLASSIFICATION OF SUBJECT MATTER
 IPC - INV. G01B 11/06; G01B 11/28; G01J 3/28 (2024.01)
 ADD. G01J 5/00; H01L 21/66 (2024.01)
 CPC - INV. G01B 11/06; G01B 11/28; G01J 3/28
 ADD. G01J 5/00; H01L 21/66
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B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 See Search History document
 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
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 Electronic database consulted during the international search (name of database and, where practicable, search terms used)
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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y --- A	US 2012/0133934 A1 (BARLETT, ET AL) 31 May 2012; Abstract, Paragraphs [0047]-[0048], [0050]-[0051], [0053], [0064], [0066]-[0067], [0074], [0080], [0083], [0086]	1, 10-19 --- 2-9, 20
Y --- A	Wei. "Detection method of combustion oscillation characteristics under strong noise background" Mechanics and Industry; Article [online]. 14 October 2020 [retrieved 5 August 2024]. Retrieved from the Internet: https://pdfs.semanticscholar.org/accc/f62236961e1dc125f59d23b4fd299ee2a3fc.pdf	1, 10-19 --- 2-9, 20
A	US 2013/0308860 A1 (KATHOLIEKE UNIVERSITEIT LEUVEN K.U. LEUVEN R&D (LEUVEN BE) et al.) 21 November 2013; Paragraphs [0126], [0133], [0193], [0288]	2-4
A	EP 1052772 B1 (CORINNE) 14 April 2004; Paragraphs [0020]-[0021], [0054]	5
A	US 2016/0282457 A1 (U.S. ARMY RESEARCH LABORATORY ATTN: RDRL-LOC-I (ADELPHI US)) 29 September 2016; Paragraphs [0105], [0287]	6-7
A	US 2010/0296529 A1 (ANDERSEN, ET AL) 25 November 2010; Paragraph [0106]	8-9
Y	US 2012/0218561 A1 (OHTSUKA, ET AL) 30 August 2012; Paragraphs [0049]-[0050], [0052], [0059], Equation 5	10-15
Y --- A	US 2021/0033977 A1 (ASM IP HOLDING B.V. (ALMERE NL)) 04 February 2021; Paragraph [0064]	19 --- 20

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Date of the actual completion of the international search 09 August 2024 (09.08.2024)	Date of mailing of the international search report AUG 30 2024
Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300	Authorized officer Shane Thomas Telephone No. PCT Helpdesk: 571-272-4300