

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
25 June 2020 (25.06.2020)



(10) International Publication Number
WO 2020/132377 A1

(51) International Patent Classification:

G01N 21/956 (2006.01) G01B 11/25 (2006.01)
G01N 21/95 (2006.01) G06T 7/00 (2006.01)

(21) International Application Number:

PCT/US2019/067705

(22) International Filing Date:

20 December 2019 (20.12.2019)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/782,594 20 December 2018 (20.12.2018) US
16/678,840 08 November 2019 (08.11.2019) US

(71) Applicant: **KLA CORPORATION** [US/US]; Legal Department, One Technology Drive, Milpitas, CA 95035 (US).

(72) Inventors: **LESHINSKY-ALTSHULLER, Enna**; Dan 37/3, 2706404 Kiryat-Byalik (IL). **TARSHISH-SHAPIR, Inna**; Derech Yad Levanim 198/13 Neve Shaanan, 3269855 Haifa (IL). **GHINOVKER, Mark**; 69 HaTsyalim Street, Apt. 2, 20692 Yoqneam Ilit (IL). **SHAPHIROV, Diana**; Ha-Ayala St. 11a, Apt. 27, 20692 Yoqneam Ilit (IL). **BEN DOV, Guy**; 11 Pinhas Rosen Street, 34784 Haifa (IL). **VOLKOVICH, Roie**; Shderot Alexander 10/10, 3824969 Hadera (IL). **STEELY, Chris**; 2825 Myrtlewood Way, Nampa, ID 83686 (US).

(74) Agent: **MCANDREWS, Kevin** et al.; KLA Corporation, Legal Department, One Technology Drive, Milpitas, CA 95035 (US).

(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, CZ, DE, DJ, DK, DM, DO,

(54) Title: FIELD-TO-FIELD CORRECTIONS USING OVERLAY TARGETS

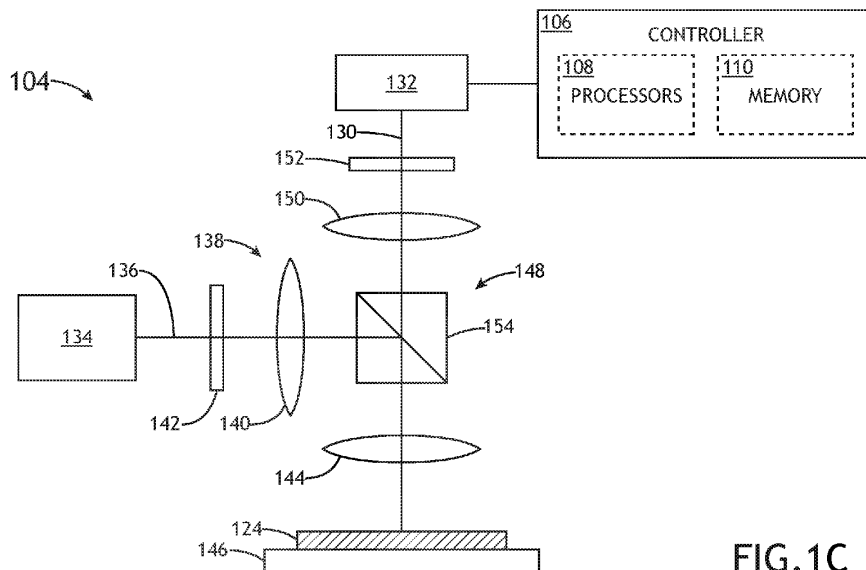


FIG. 1C

(57) Abstract: A metrology system may include a controller coupled to a metrology tool. The controller may receive a metrology target design including at least a first feature formed by exposing a first exposure field on a sample with a lithography tool, and at least a second feature formed by exposing a second exposure field on the sample with the lithography tool, where the second exposure field overlaps the first exposure field at a location of a metrology target on the sample. The controller may further receive metrology data associated with the metrology target fabricated according to the metrology target design, determine one or more fabrication errors during fabrication of the metrology target based on the metrology data, and generate correctables to adjust one or more fabrication parameters of the lithography tool in one or more subsequent lithography steps based on the one or more fabrication errors.

WO 2020/132377 A1

[Continued on next page]

DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, 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, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, 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, 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))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*