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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
25 September 2025 (25.09.2025)

WIPO | PCT

(10) International Publication Number
WO 2025/199392 A1

(51) International Patent Classification:
H01L 21/768 (2006.01) *H01L 21/02* (2006.01)

(21) International Application Number:
PCT/US2025/020830

(22) International Filing Date:
21 March 2025 (21.03.2025)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
63/568,268 21 March 2024 (21.03.2024) 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, UY, 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,

(54) Title: SELF-PLANARIZING SELECTIVE CARBON GAPFILL DEPOSITION

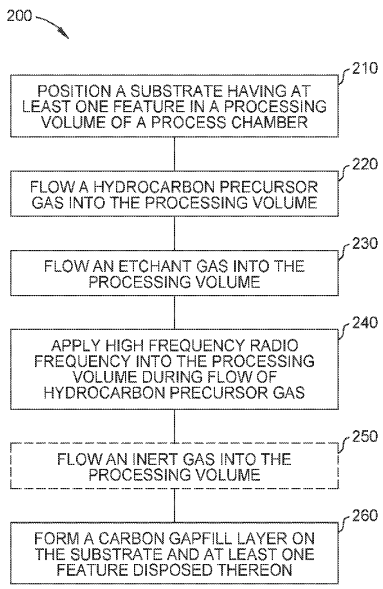


FIG. 2

(57) Abstract: The present disclosure provides methods for forming a carbon gapfill layer. The methods include positioning a substrate having a top surface with at least two features disposed thereon on a substrate support in a processing volume. A hydrocarbon precursor gas is flowed into the processing volume. An etchant gas is flowed into the processing volume. A high frequency radio frequency (RF) power is provided to generate and maintain a RF plasma in the processing volume, where the high frequency RF power includes a frequency of about 10 MHz to about 40 MHz. A carbon gapfill layer is formed over the at least two features by using the RF plasma to concurrently deposit the deposition species on the substrate and etch the deposited deposition species using the etch species.

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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))*