

(51) International Patent Classification:
C01B 31/10 (2006.01)(21) International Application Number:
PCT/US2015/036729(22) International Filing Date:
19 June 2015 (19.06.2015)

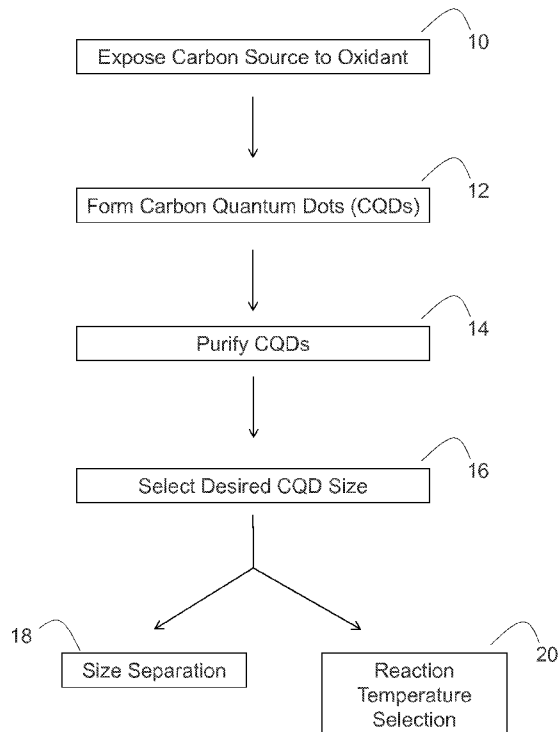
(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
62/014,627 19 June 2014 (19.06.2014) US(71) Applicant: **WILLIAM MARSH RICE UNIVERSITY**
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131851, Dallas, TX 75313 (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, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
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,

[Continued on next page]

(54) Title: BANDGAP ENGINEERING OF CARBON QUANTUM DOTS



(57) Abstract: Embodiments of the present disclosure pertain to scalable methods of producing carbon quantum dots with desired bandgaps by the following steps: exposing a carbon source to an oxidant at a reaction temperature, where the exposing results in the formation of the carbon quantum dots; and selecting a desired size of the formed carbon quantum dots. In some embodiments, the selecting occurs by at least one of separating the desired size of the formed carbon quantum dots from other formed carbon quantum dots; selecting the reaction temperature that produces the desired size of the formed carbon quantum dots; and combinations of such steps. The desired size of carbon quantum dots can include a size range. The methods of the present disclosure can also include a step of purifying the formed carbon quantum dots prior to selecting a desired size.

FIG. 1



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))*