



(51) International Patent Classification:  
*H01B 1/02* (2006.01) *H01B 5/14* (2006.01)  
*H01B 1/22* (2006.01) *B82B 3/00* (2006.01)

(21) International Application Number:  
PCT/US2010/059236

(22) International Filing Date:  
7 December 2010 (07.12.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
61/267,248 7 December 2009 (07.12.2009) US  
61/377,241 26 August 2010 (26.08.2010) US

(71) Applicant (for all designated States except US): **DUKE UNIVERSITY** [US/US]; Office of Licensing & Ventures, 2812 Erwin Rd., Ste 306, Durham, North Carolina 27705 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WILEY, Benjamin** [US/US]; 124 Science Drive, Durham, North Carolina 27708 (US). **RATHMELL, Aaron** [US/US]; 124 Science Drive, Durham, North Carolina 27708 (US).

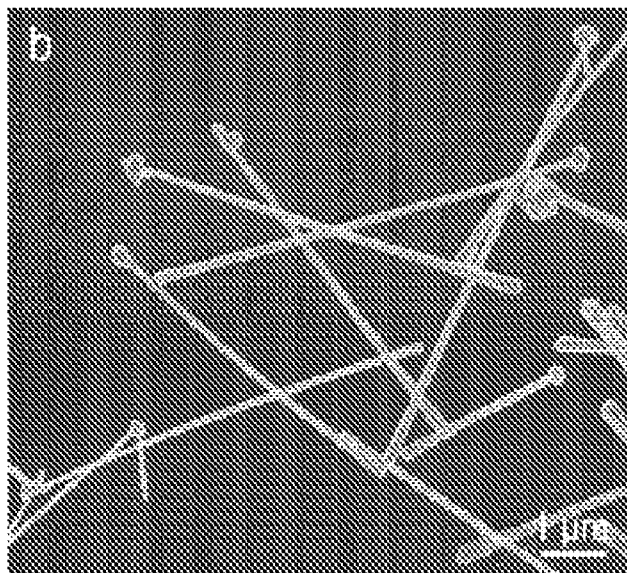
(74) Agent: **FUIERER, Tristan**; Moore & Van Allen PLLC, P.O. Box 13706, Research Triangle Park, NC 27709 (US).

(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, 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, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: COMPOSITIONS AND METHODS FOR GROWING COPPER NANOWIRES



(57) Abstract: A method of synthesis to produce gram-scale quantities of copper nanowires in an aqueous solution, wherein the copper nanowires are dispersed in said solution. Copper nanowires grow from spherical copper nanoparticles within the first 5 minutes of the reaction. Copper nanowires can be collected from solution and printed to make conductive films (preferably <10,000 Ω/sq) that preferably transmit greater than 60% of visible light.

FIGURE 2



---

**Published:**

- *without international search report and to be republished  
upon receipt of that report (Rule 48.2(g))*