

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 June 2007 (21.06.2007)

PCT

(10) International Publication Number
WO 2007/070299 A3

(51) International Patent Classification:

H01L 35/34 (2006.01) *H01L 35/20* (2006.01)
H01L 35/02 (2006.01)

(21) International Application Number:

PCT/US2006/046500

(22) International Filing Date:

5 December 2006 (05.12.2006)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

11/301,285 9 December 2005 (09.12.2005) US
11/299,283 9 December 2005 (09.12.2005) US

(71) Applicant (for all designated States except US): **ZT3 TECHNOLOGIES, INC.** [US/US]; 400 Jacaranda Place, Fullerton, CA 92832 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **DUTTA, Biprodas** [IN/US]; 14406 Winnepenny Lane, Silver Spring, MD 20904 (US).

(74) Agent: **BRUEGGEMANN, James, R.; SHEPPARD MULLIN RICHTER & HAMPTON LLP**, 333 South Hope Street, 48th Floor, Los Angeles, CA 90071 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, 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, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

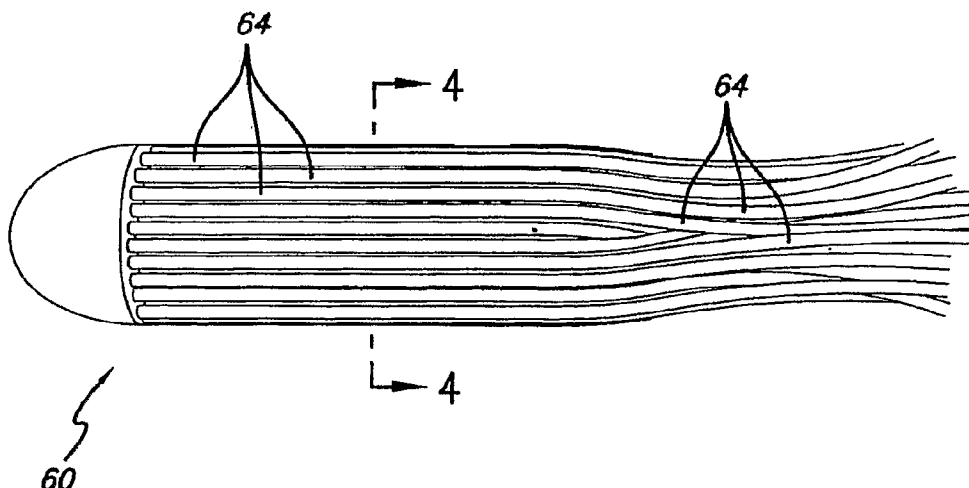
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
24 April 2008

(54) Title: HIGH DENSITY NANOWIRE ARRAYS IN A GLASSY MATRIX, AND METHODS FOR DRAWING THE SAME



(57) Abstract: The present invention provides a method of drawing a thermoelectrically active material (22) in a glass cladding (14), comprising sealing off one end of a glass tube (14) such that the tube (14) has an open end and a closed end, introducing the thermoelectrically active material (22) inside the glass tube (14) and evacuating the tube (14) by attaching the open end to a vacuum pump, heating a portion of the glass tube (14) such that the glass partially melts and collapses under the vacuum such that the partially melted glass tube (14) provides an ampoule (54) containing the thermoelectric material (22) to be used in a first drawing operation, introducing the ampoule (54) containing the thermoelectric material (22) into a heating device (10), increasing the temperature within the heating device (10) such that the glass tube (14) melts just enough for it to be drawn and drawing fibers (24) of the glass clad thermoelectrically active material (22).

WO 2007/070299 A3