

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
25 June 2009 (25.06.2009)

PCT

(10) International Publication Number
WO 2009/079150 A1

(51) International Patent Classification:
H01L 51/30 (2006.01) **H01B 1/20** (2006.01)

(21) International Application Number:
PCT/US2008/084122

(22) International Filing Date:
20 November 2008 (20.11.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/014,101 17 December 2007 (17.12.2007) US

(71) Applicant (for all designated States except US): **3M INNOVATIVE PROPERTIES COMPANY** [US/US];
3M Center, Post Office Box 33427, Saint Paul, Minnesota
55133-3427 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **ZHU, Peiwan**
[CN/US]; 3M Center, Post Office Box 33427, Saint Paul,
Minnesota 55133-3427 (US).

(74) Agents: **LOWN, Jean A.**, et al.; 3M Center, Office of In-
tellectual Property Counsel, Post Office Box 33427, Saint
Paul, Minnesota 55133-3427 (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, 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, PG, PH, PL, PT,
RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL,
NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG,
CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the
earlier application (Rule 4.17(iii))

Published:

- with international search report

(54) Title: SOLUTION PROCESSABLE ORGANIC SEMICONDUCTORS BASED ON ANTHRACENE

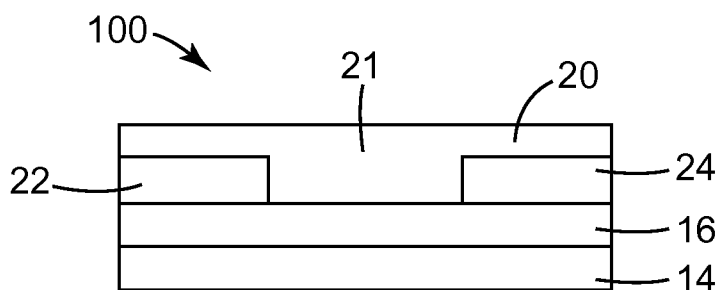


FIG. 1

(57) Abstract: Semiconductor devices, methods of making semiconductor devices, and coating compositions that can be used to provide a semiconductor layer within a semiconductor device are described. The coating compositions include a small molecule semiconductor, an insulating polymer, and an organic solvent that can dissolve both the small molecule semiconductor material and the insulating polymer. The small molecule semiconductor is an anthracene-based compound (i.e., anthracene derivative) substituted with two thiophene groups as well as with two silylethynyl groups.

WO 2009/079150 A1