

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

CORRECTED VERSION

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
26 April 2012 (26.04.2012)

(10) International Publication Number  
**WO 2012/054910 A8**

(51) International Patent Classification:  
**H01L 51/00** (2006.01)

(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, QA, RO, RS, RU, RW, 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.

(21) International Application Number:  
**PCT/US2011/057410**

(22) International Filing Date:  
22 October 2011 (22.10.2011)

(25) Filing Language:  
English

(26) Publication Language:  
English

(30) Priority Data:  
61/405,870 22 October 2010 (22.10.2010) US

(71) Applicant (for all designated States except US): **POLYERA CORPORATION** [US/US]; 8045 Lamon Avenue, Suite 140, Skokie, IL 60077 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ZHU, Zhengguo** [CN/US]; 8 Meehan Drive, Chelmsford, MA 01824 (US). **PAN, Hualong** [CA/US]; 4855 Carol Street, Unit F, Skokie, IL 60077 (US). **DREES, Martin** [DE/US]; 622 Arbor Lane, Glenview, IL 60025 (US). **USTA, Hakan** [TR/US]; 531 Hinman Ave., Apt. A-1, Evanston, IL 60202 (US). **LU, Shaofeng** [CN/US]; 5234 Oakton St., #2A, Skokie, IL 60077 (US).

(74) Agent: **CHAN, Karen, K.**; Polyera Corporation, 8045 Lamon Ave., Suite 140, Skokie, IL 60077 (US).

(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, 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).

Published:

— with international search report (Art. 21(3))

(48) Date of publication of this corrected version:

23 August 2012

(15) Information about Correction:  
see Notice of 23 August 2012

(54) Title: CONJUGATED POLYMERS AND THEIR USE IN OPTOELECTRONIC DEVICES

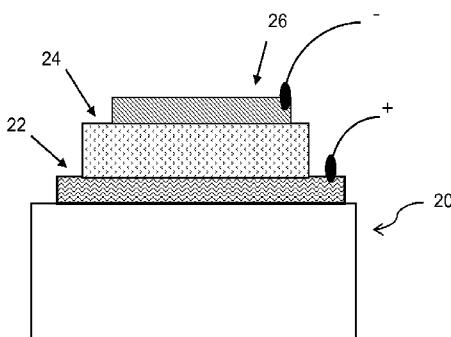


Figure 1

(57) Abstract: Disclosed are certain polymeric compounds and their use as organic semiconductors in organic and hybrid optical, optoelectronic, and/or electronic devices such as photovoltaic cells, light emitting diodes, light emitting transistors, and field effect transistors. The disclosed compounds can provide improved device performance, for example, as measured by power conversion efficiency, fill factor, open circuit voltage, field-effect mobility, on/off current ratios, and/or air stability when used in photovoltaic cells or transistors. The disclosed compounds can have good solubility in common solvents enabling device fabrication via solution processes.

WO 2012/054910 A8