

(51) International Patent Classification:
C07D 495/12 (2006.01)(21) International Application Number:
PCT/EP2009/057985(22) International Filing Date:
25 June 2009 (25.06.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
08159525.8 2 July 2008 (02.07.2008) EP

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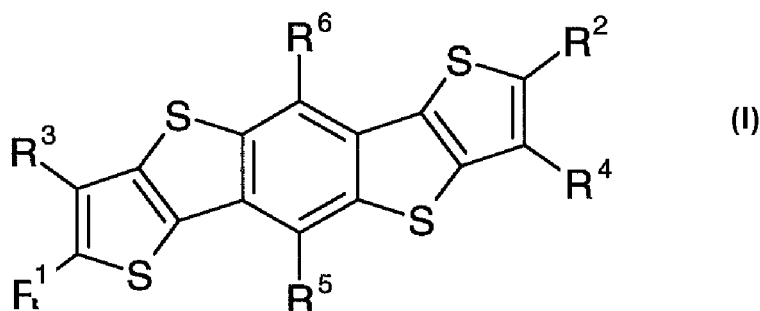
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, 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, 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, MK, 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).

Published:

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

(54) Title: HIGH PERFORMANCE SOLUTION PROCESSABLE SEMINCONDUCTOR BASED ON DITHIENO [2,3-D:2',3'-D']BENZO[1,2-B:4,5-B'] DITHIOPHENE



(57) Abstract: Dithienobenzodithiophenes of general formula (I) in which R¹ to R⁶ are each independently selected from a) H, b) halogen, c) -CN, d) -NO₂, e) -OH, f) a C₁₋₂₀ alkyl group, g) a C₂₋₂₀ alkenyl group, h) a C₂₋₂₀ alkynyl group, i) a C₁₋₂₀ alkoxy group, j) a C₁₋₂₀ alkylthio group, k) a C₁₋₂₀ haloalkyl group, l) a -Y-C₃₋₁₀ cycloalkyl group, m) a -Y-C₆₋₁₄ aryl group, n) a -Y-3-12 membered cyclo- heteroalkyl group, or o) a -Y-5-14 membered heteroaryl group, wherein each of the C₁₋₂₀ alkyl group, the C₂₋₂₀ alkenyl group, the C₂₋₂₀ alkynyl group, the C₃₋₁₀ cycloalkyl group, the C₆₋₁₄ aryl group, the 3-12 membered cyclo- heteroalkyl group, and the 5-14 membered heteroaryl group is optionally substituted with 1-4 R⁷ groups, wherein R¹ and R³ and R² and R⁴ may also together form an aliphatic cyclic moiety, Y is independently selected from divalent a C₁₋₆ alkyl group, a divalent C₁₋₆ haloalkyl group, or a covalent bond; and m is independently selected from 0, 1, or 2. The invention also relates to the use of the dithienobenzodithiophenes according to any of claims 1 to 4 as semiconductors or charge transport materials, as thin-film transistors (TFTs), or in semiconductor components for organic light-emitting diodes (OLEDs), for photovoltaic components or in sensors, as an electrode material in batteries, as optical waveguides or for electrophotography applications.



WO 2010/000670 A1