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(12) (A)

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C09K 11/06 (43) 2005 01 24

(21) 10-2003-0048356
(22) 2003 07 15

(71) 557-6

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956-2 APT306-1404

APT112-302

524-8 126 604

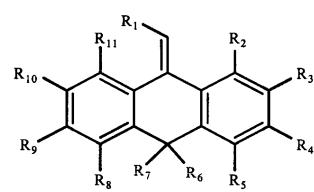
6-201

49-38

(74) :

(54)

가 , 가 , 1
 , 2 , , 1 2 1



, R₁ 6 80 2 10
, H, CN, COOR, OR, NR₂, SR, 4 24 , , R₂ R₁₁
, R , , , , 4 24 ,

1

, , , , ,

1

.

2

.

가 (Organic Light-Emitting Device: OLED) .

EL(Electroluminescence device) (Liquid Crystal Display; LCD), (Plasma Display Panel; PDP), (Field Emission Display; FED) 가 , EL 가 , 가 , 가 , 가 ITO 가 Mg 가 , , 6,455,720 2,2-() (2,2-(Diaryl) vinylphosphine) , 2002-0070333 J.Am.Chem. Soc. 2000. 122, pp. 5695 -5109 (Shujun Wang, Warren J. Oldham Jr., Raymond A. Hudack, Jr. Guillermo C. Bazan) () 가 , .

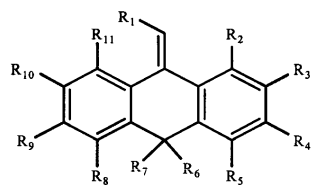
가

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가

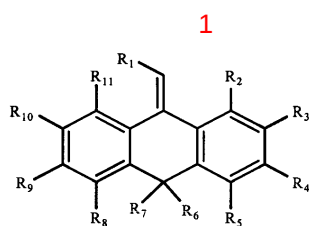
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$$2 \quad 1 \quad , \quad 2 \quad , \quad 1 \quad , \quad 1$$


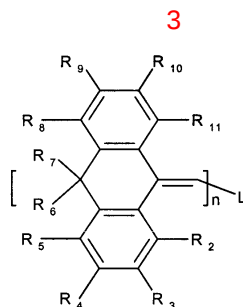
, R₁ 6 80 , H, CN, COOR, OR, NR₂, SR, 2 10
 , R₂ 24 R₁₁ , , , R , ,
 , 4 24 , 4 24 ,

1 가 .

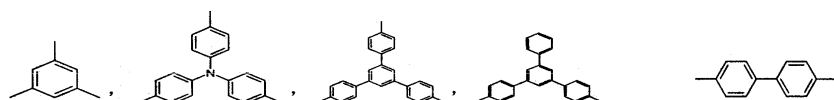


R_1 , 6, 80, 6, 30, 6, 24
 $H, CN, COOR, OR, NR_2, SR,$ 2, 10, R_2 , R_{11} , (aryl), (h
 eteroaryl), (fused ring), 4, 24, R, 1, 4
 , 4, 24, (aryl), (heteroar
 yl).

R_{17} $2 R_1$ $1 R_1$ $1 R_2$ R_{11} (group) , $2 R_2$
 $1 R_6$ R_7 (spiro) 가 . R_6 R_7 (fluorene) ,

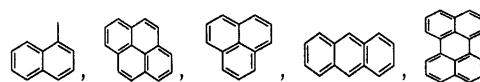


3 , R_2 R_{11} $1 R_2$ R_{11} , n 2
 N, B, C, P, Si , L (dimer) 가 (benzene),



1 $3 R_1$ $1 R_{17}$ 20 , 1 30 1 24
 7 30 20 , 5 30 6 30 , 10
 30 4 40 5 30 .

(fused ring)



2

1

3

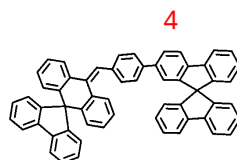
R_1

R_{17}

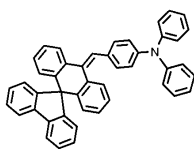
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10

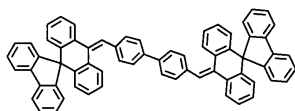
가



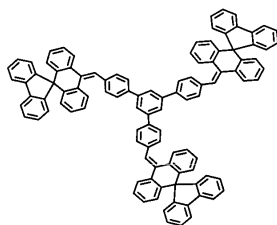
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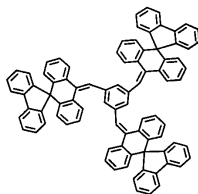
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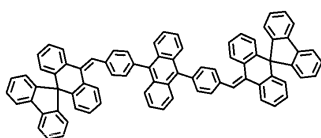
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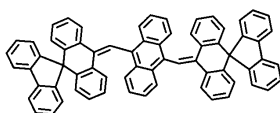
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9

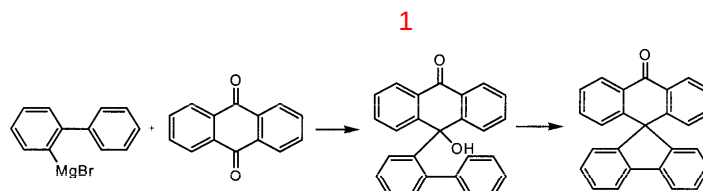


10



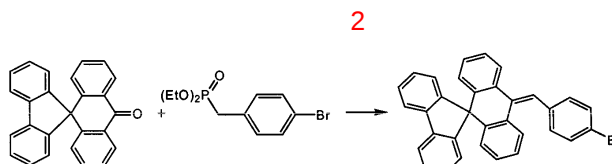
1 10
/ /
가
가
(JSDS July, 1978, 307,
5,840,217), (vinyl) (Wittig reaction: Vogel's Textbook of Practical Organic Chemistry, 4th Ed., Longman (1978) p338 5,366,811)
1 (10) 1 (12) (hole injection electrode, (14)
(12) (14)
(fluorescent dye) / (dopant) (14) 가
2 (16) (electron injection electrode,) 1 (12)
가 (14) 1 2 (12, 16) 가 , 1 2 (12, 16)
(10) 1 (12) (10)
(10) 1 (12)
2) (Indium Tin Oxide; ITO), (Ag) 1 (16)
Al, Mg, Ca LiAl, Mg-Ag
2 2 (12, 16) 가 (14) 1 (21, 22)
(25, 26) 1
(21, 22) (12)
(porphyrinic) (21) 4,356,429
m- MTDATA(4,4',4'- (3-)
(22) NPB (N,N'- -N,N'- (1-)-1,1'-)-4,
, α -NPD (N,N'- -N,N'- (α -)-[1,1'-
4'-), 가
[4,4'-) (25, 26) (16)
(8-) (, Alq3) (26)
(21, 22, 25, 26) (14)
(14), (21, 22) (25, 26)
26) 5 500nm 가
(14)
(21, 22) / (25, 26)
/ 1
2
4,539,507 , 5,151,629
(inert)
[1]
가. -9- -(9,10- - -10-) [Spiro-9-fluorene- (9,10-dihydro-anthracen-10-one
): SFHA]

2- (bromobiphenyl) 1 (Grignard reagent) 27.45g
 (107.24 mmol) , 45 1 (reflux) , / (toluene/ether, : 85
 /15) 가가 (Anthraquinone) 24.56g (117.95 mmol) 가
 (filter) (overnight) , , 50ml H₂O 가 /
 (AcOH/AcCl, : 4/1) 100ml 100 3 (MeOH) ,
 -OH (ring) 60% , AcOH/AcCl

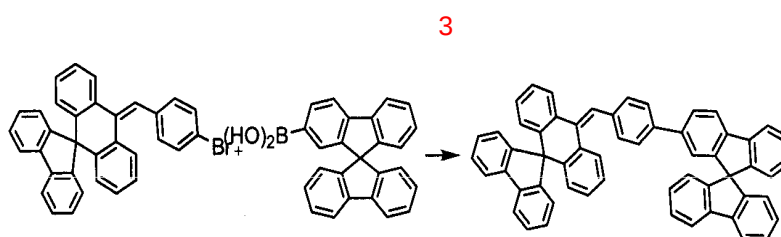


10-(4-)- -9- -(9,10-) [10-(4-Bromo-benzylidene)-Spiro-9-fluorene-(9,10-dihydro-anthracene)]

2 1 SFHA 0.5g (1.45mmol) (4-)-
 ((4-bromo-benzyl)-phosphinic acid diethylester) 0.45g (1.45mmol)
 (THF) 5ml , 0 10ml THF NaH 0.06g (1.45mmol) 15- -5 0.08ml
 가 . 2 , 20ml 가 ,
 3 가 10% (sodium hydrogen sulfite, NaHSO
 3) (brind) 2 가 , MgSO₄ 4 (Methylenechloride/Hexane)
 15%

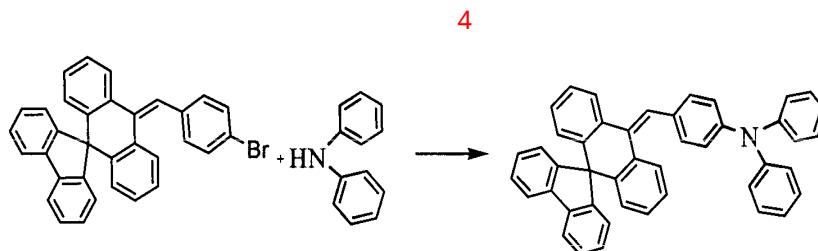


3 10-(4-)- -9- -(9,10-) 0.5g (1.2
 6mmol), Pd(PPh₃)₄ 0.072g, (t-Bu)₃P 0.05g 20ml (DME) 30
 , - (spiro-boronic acid) 0.54g(1.51mmol) , Na₂CO₃ (2M) 0.6ml
 , (overnight) (Ethylacetate/Hexane)
 75%



[2]

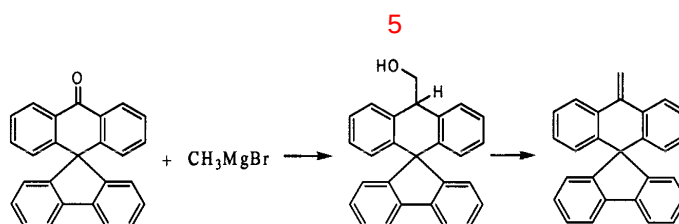
4
(xylene) 0.50g (1.25mmol), 1 10-(4-)- -9- -(9,10-) 0.25g (1.50mmol) $(\text{CH}_3)_3\text{CONa}$ 0.14g (1.5mmol) 20ml
-t- 가 , 5 , 0.02g (0.07mmol) $\text{Pd}(\text{OAc})_2$, 0.056g (0.28mmol)
(Ethylacetate/Hexane) (MC) 60%



[3]

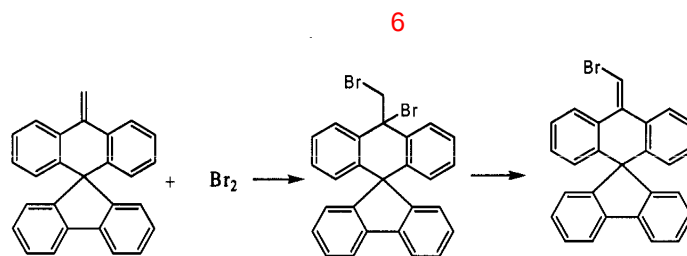
가. -9- -(10- -9-) [Spiro-9- fluorene-(10- methylene-9-hydro-anthracen e)]

FHA 5 1 -9- -(9,10- -10-) (S
50ml 5g (14.51mmol) 50ml THF 35-40 MeMgBr 9.6ml (29.04mmol)가
THF 가(dropwise) , 35-40 15
, THF 10% (ammonium chloride) 30
125g 가 5ml p- - (p-toluene- sulfonic acid monohydrate) 0.0
(MeOH) , 2 , 2% Na_2CO_3 ,
80%



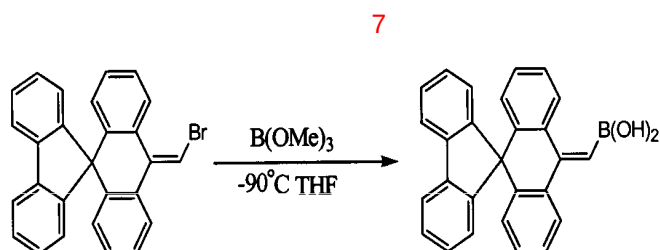
-9- -(10- -9,10-) [Spiro-9- fluorene-(10-bromomethylene-9, 10-dihydro-anthracene)]

10ml 6 CCl_4 , Br_2 0.8g (5mmol) 0 SFHA-ene 1.7g (5mmol) 30ml CCl_4 ,
, 5.6g/ 10 가(dropping) , 0 7
, 5% HCl 50ml 가 , 3 ,
80%

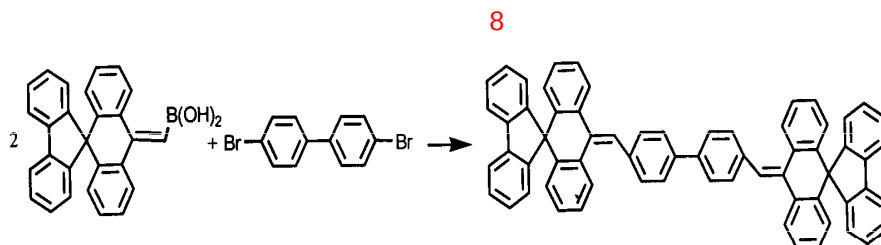


_____ -9- - (10- - -9,10-) [Spiro-9-fluorene-(10-methylene-Boronic acid-9,10-dihydro-anthracene)] _____

40ml THF, -90 5.34ml n-BuLi, -90 30, 20, 2.2ml (21.36mmol) 가(dropwise), 50%(TLC)



20ml DME, 4,4- 1.25g (4mmol), Pd(PPh₃)₄ 0.09g, (t-Bu)₃P 0.07g, Na₂CO₃ (2M) 0.6ml, (overnight), 75%



[4] _____

(ITO)가 ITO m-MTDATA 300 α-NPD 300 1-3 7 10

(host) 300 , 10 LiF Al 1200 (EL), 1

[1]

사용 화합물	EL	효율(cd/A)	최대 휘도(cd/m ²)
실시예 1의 화합물	460nm	7.5	25,000
실시예 2의 화합물	475nm	10	60,000 (실시예 3의 화합물에 5-10중량%로 도핑하여 사용)
실시예 3의 화합물	460nm	11	40,000
화학식 7의 화합물	438nm	7.3	23,000
화학식 8의 화합물	450nm	7.0	22,000
화학식 9의 화합물	465nm	10	35,000
화학식 10의 화합물	460nm	12	50,000

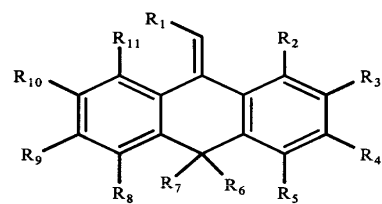
1 , EL 가

가 (Full Color) (Field Effect Transistor), (Photodiode), (Photovoltaic cell, Solar Ce II), (Organic Laser), (Laser Diode)

(57)

1. 1 가

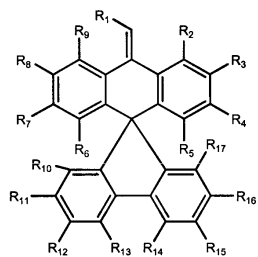
[1]



, R₁ 6 80 2 10 , H, CN, COOR, OR, NR₂, SR, 4 24 R , ,

2. 1 , 2 가

[2]

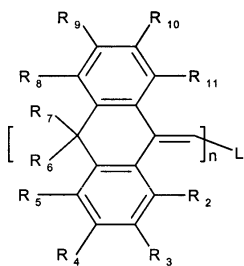


, R₁ 1 R₁ , 2 R₂ R₁₇
1 R₂ R₁₁ .

3.

1 , 3 가 .

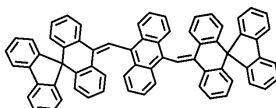
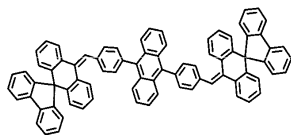
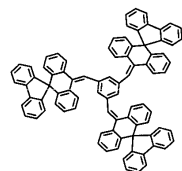
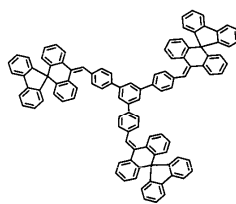
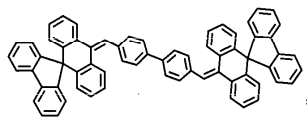
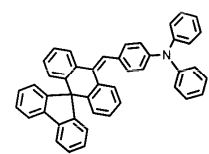
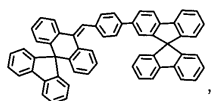
[3]



3 , R₂ R₁₁ 1 R₂ R₁₁ 2
3 , L 가 , n 2
Si N, B, C, P,

4.

1 ,



5.

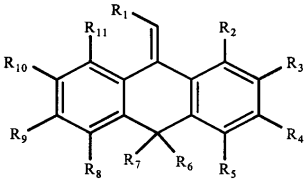
1 , 1 R₁ R₁₁ 1 24 , 1
20 1 30 5 30 10 30 , 6 30 5 30
7 30 , 4 40

6.

1 ;
2 ;

, 1 2

.



, R₁
, R₂ R₁₁
4 24

6 80

, H, CN, COOR, OR, NR₂, SR,
2 10

R

4 24

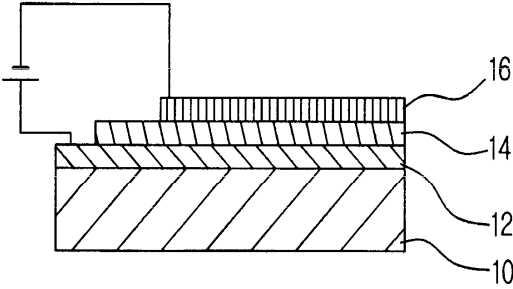
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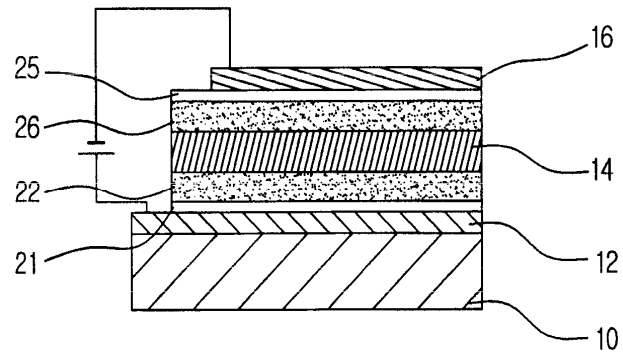
8.

6

1



2



专利名称(译)	蓝色发光有机化合物和含有其的有机发光器件		
公开(公告)号	KR1020050009100A	公开(公告)日	2005-01-24
申请号	KR1020030048356	申请日	2003-07-15
[标]申请(专利权)人(译)	娜我比可隆株式会社		
申请(专利权)人(译)	Neoview的隆有限公司		
当前申请(专利权)人(译)	Neoview的隆有限公司		
[标]发明人	CHOI SUNGGUEN 최성근 KIM KISEOK 김기석 HWANG HAGEUN 향하근 KIM JUNGSOO 김정수 KIM YOUNGSOOK 김영숙 PARK JAEHAN 박재한		
发明人	최성근 김기석 향하근 김정수 김영숙 박재한		
IPC分类号	C09K11/06		
CPC分类号	C09K11/06 C09K2211/1011 H01L51/0052 H01L51/5012 H05B33/14 Y10S428/917		
代理人(译)	李相HUN		
其他公开文献	KR100565554B1		
外部链接	Espacenet		

摘要(译)

本发明公开了具有优异的热稳定性和沉积可加工性的发蓝光的发光化合物，其发出高清晰度的蓝色和包括其的有机发光装置。发蓝色的有机化合物具有以下化学式。并且有机发光装置包括第二电极和具有第一电极的蓝色发光有机化合物，并且低功函数具有高功函数。并且包括位于第一和第二电极之间的至少一个有机化合物层。这里，R₁是H，它是碳数为6至80的芳基或碳数为2至10的链烯基，R是CN，COOR，OR的烷基，NR₂，SR，碳数4~24，芳基，杂芳基，杂环基或稠环基是氢，卤素，烷基，链烯基，芳香族化合物或碳原子数4~24的芳基，和杂芳基或杂环基。蓝色，发光化合物，葱，有机发光器件，耐热性，稳定性。

