

(19)
(12)

(KR)
(A)

(51) 。 Int. Cl.⁷
C09K 11/06

(11)
(43)

10-2004-0055237
2004 06 26

(21)

10-2002-0081871

(22)

2002 12 20

(71)

99

(72)

212 1403

106 1002

110 905

106 906

105 507

가 900

가 900

가 900

(74)

:

(54)

가 가 , 가 가
.
,
.

7

, , , ,

1	1	¹ H - NMR	.
2	1 4		.
3	1 4		.
4	1 4	UV	
5	1 4	PL(photoluminescence)	
6	/ / / / /		.
7	5		.
8	5 8	EL(Electroluminescence)	.

- 11 : 12 : (anode)
- 13 : 14 :
- 15 : 16 : (cathode)
- 17 : PEDT:PSS (500)
- 18 : (700)
- 19 : (LiF) (20) 20 : (Al) (700)

(electroluminescence device: EL device) ,

(hole) ,

(photon) (electron) , (electron) (photon) 가 (op

toelectronic device)

(backlight) , (electroluminescence display) 가 가 가

GaN, ZnS, SiC

p-n , (light emitting diode) , (EL) 200V , 가 가

(Appl. Ph

ys. Letter., 51, p913(1987); Nature, 347, p539(1990)). (electroluminescence, EL)

(hole)

가 , 1987 (Eastmann Kodak) 10V (Tang et al) 1963 (Pope et al) (alumina-q

uinone) π - 가 가 1% , 가 1000cd/m²

가 (Joule) 가

가

1 / / / / (anode; 12)가 (12)

(13), 1 (14), (11) (15) (cathode; 16)가 (13), (14) (15)

(12) (16) 가 (12) (hole) (13)

(14) (16) (15) (14)

(14) (exciton) 가

가

가 , 가

가 , 가

π - (band gap) ' π - (π - con

jugated polymer)' (full color) 가

(Cambridge) R. H. Friend (p-

)(poly(p-phenylenevinylene): PPV) 가 1990 , 가

가

가

(PPV)

(Pth)

3

가

가

가

가

가

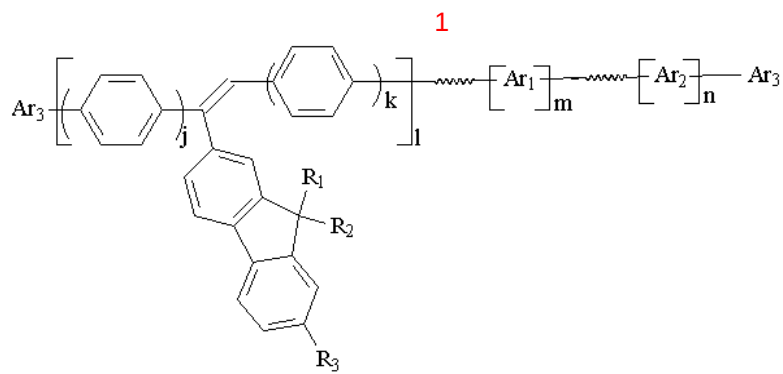
가

가

가

1

:



,

Ar₁

Ar₂

5

40

가

,

Ar₃

;

R₁

R₂

R₃

5

40

40

,

,

가

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j

k

5

40

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l

1

50,000

, m

0 50,000

, n 0 50,000

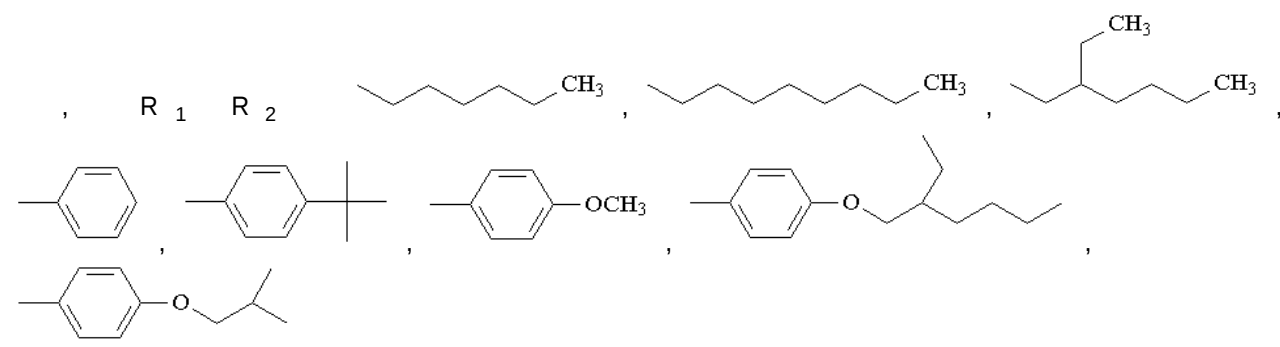
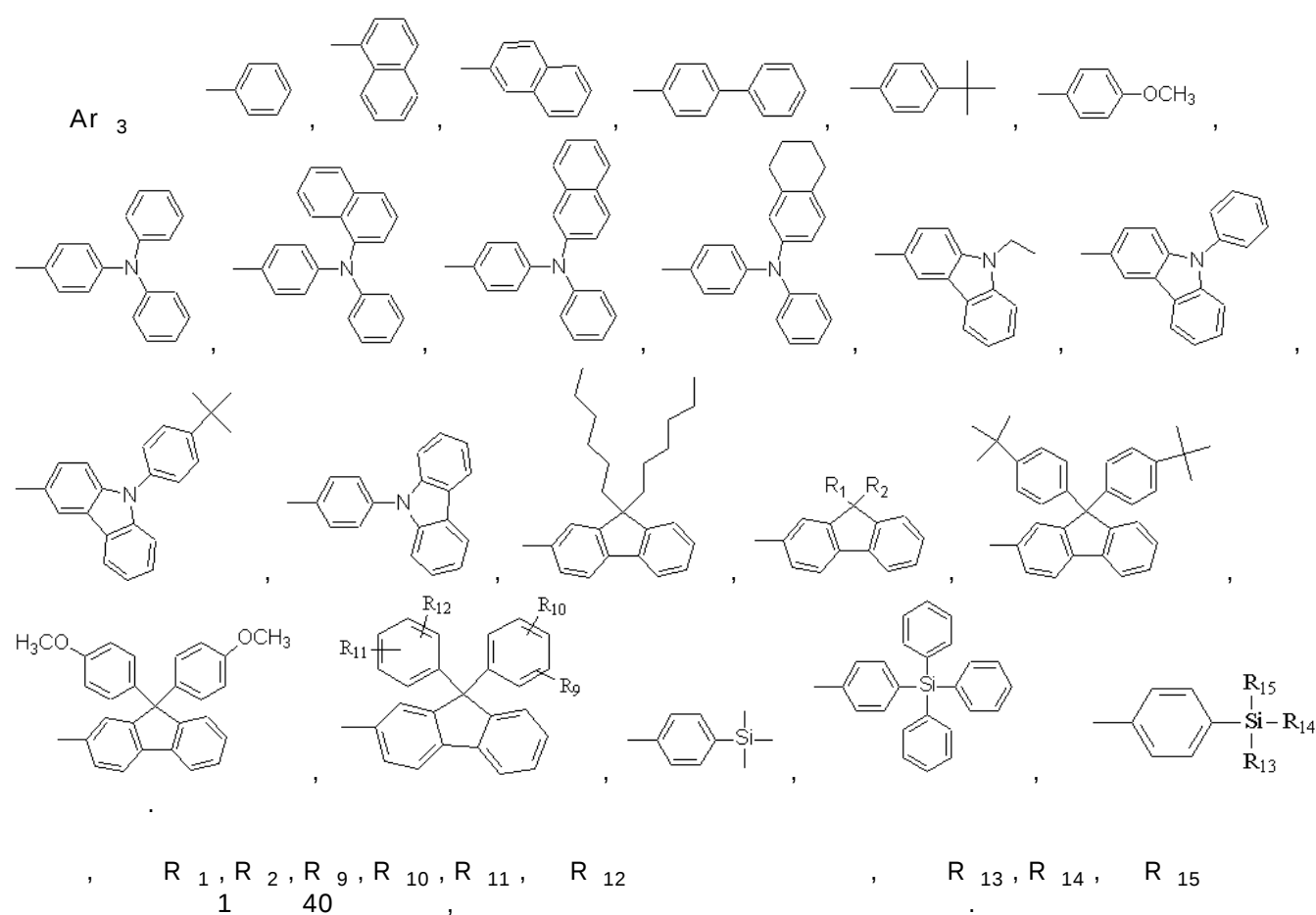
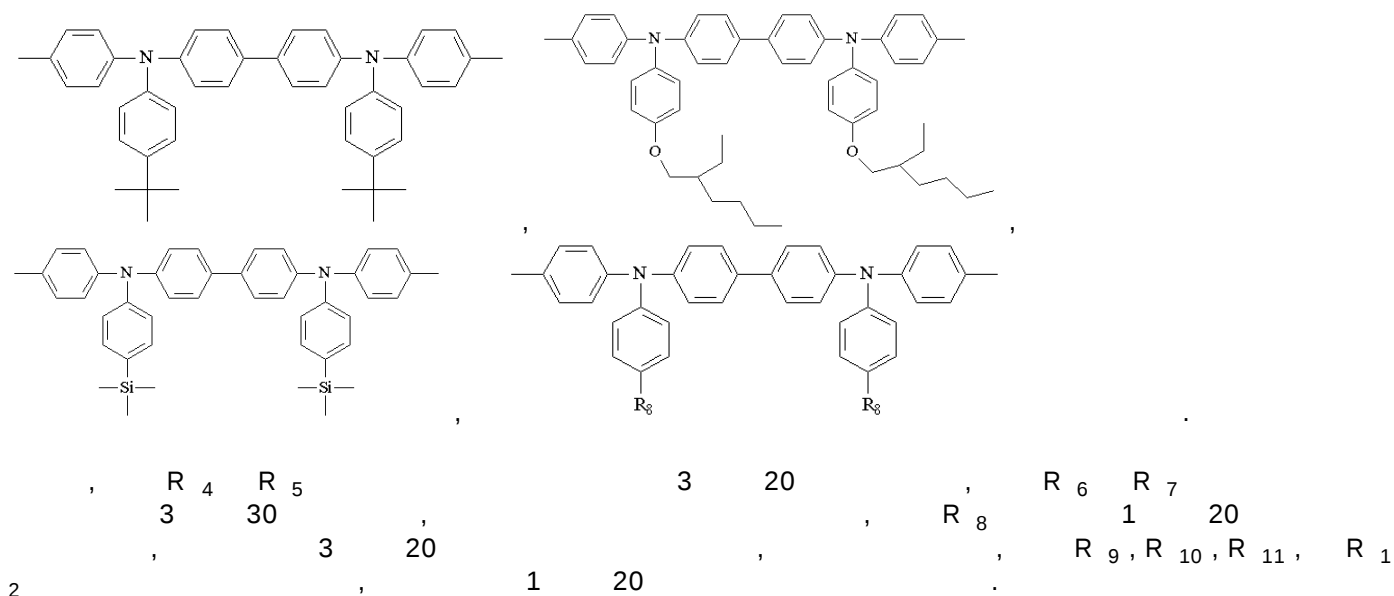
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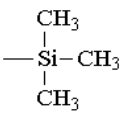
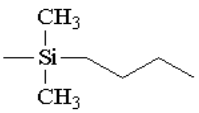
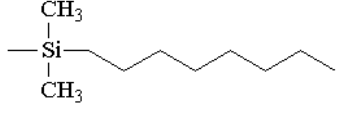
, m

n

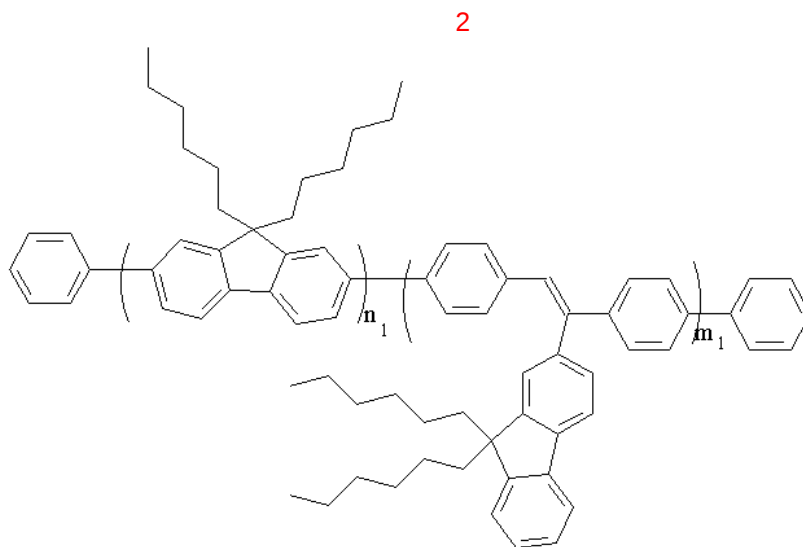
0

.



, R₃ ,  ,  ,  .

1
9-dihexylfluorenyl) , Ar₃가 (phenyl) , R₁ Ar₁ Ar₂가 9,9- (9,
1 , 2 , R₃가 , j k가
:



, n₁ m₁ 1 100,000 .

, , (Wittig)

C-C , , 500 10,000,000 , 1 100 가 .

(hole)

, Ar₁ , Ar₂ Ar₃ 가 가 가

O) (Al), Al:Li (work function)가 (ITO), (Li), (SnO₂), (Mg), (Zn

/ / 가 ,
 / (electron transport layer) .
 , 10 10,000 .
 ,
 1 10,000 10

PEDOT:PSS(Poly(3,4-ethylenedioxy-thiophene) doped with poly(styrenesulfonic acid)), N,N'- (3-)-N,N'-
 - [1,1'-]-4,4'- (TPD) , (aluminum
 trihydroxyquinoline; Alq₃), 1,3,4- PBD(2-(4-biphenyl)-5-phenyl-1,3,4-oxadiazole),
 TPQ(1,3,4- tris[(3-penyl-6-trifluoromethyl)quinoxaline-2-yl]benzene)

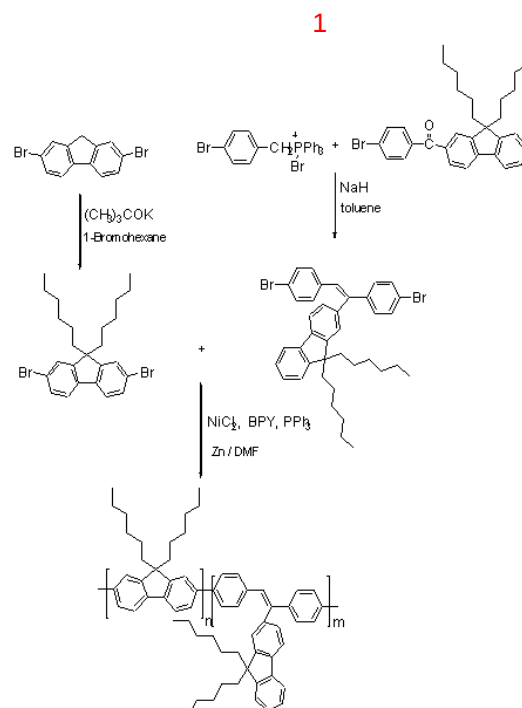
er) . 가 , LiF(lithium fluoride) - (Hole-Blocking Lay
 , - 가

1

2

: 1 ($n_1 : m_1 = 2:1$)

1



(II) 0.0115g, 2,2-15 0.021g, 0.66g, 0.29g DMF 4ml
 , 60 , 9,9- -2,7-
 0.85g, 1,2- (4-90) - α -(2-(9,9-48)) 1.14g 8ml ,
 가 24 . THF (end-capping agent) ,
 0.2ml 1 0.9g $^1\text{H-NMR}$ 2
 1 .
 가
 1 , 2 3 .
 , PL 1 , UV-
 4 5
 2
 2 : 2 ($n_1:m_1=1:1$)
 9,9- -2,7- 1.40g, 1,2- (4-) - α -(2-(9,9-)) 1.88g
 가 4 5 1 2 , 1
 3
 2 : 3 ($n_1:m_1=1:2$)
 9,9- -2,7- 0.90g, 1,2- (4-) - α -(2-(9,9-)) 2.40g
 가 4 5 1 3 , 1
 4
 2 : 4 ($n_1:m_1=1:5$)
 9,9- -2,7- 0.50g, 1,2- (4-) - α -(2-(9,9-)) 3.386
 g 가 4 5 1 4 , 1
 2 3 (Tg) 1 167 ,
 2 144.8 , 3 123 , 4 102 ,
 UV 378nm , PL 4 5
 472-481nm .
 5 8

(Patterning) ITO- (12) (11) PEDOT:PSS (17) 300
 , 100 (Vacuum Oven) 1 , 1
 4 1 700 (18) 100
 19) , (20) 700 LiF(lithium fluoride) (20) 20 (
 , 7 .
 EL 8 .
 , 1 .

[1]

		EL (nm)	(cd/m ²)	(cd/A)	(lm/W)	CIE (x, y)
5	1	47	1610 @7.8V	0.700 @6.0V	0.405 @6.0V	0.17, 0.25
6	2	468	3518 @7.0V	1.110 @4.4V	0.878 @4.4V	0.21, 0.31
7	3	472	2193 @7.8V	0.645 @5.4V	0.414 @5.4V	0.20, 0.31
8	4	464	1696 @6.9V	0.396 @4.8V	0.286 @4.8V	0.17, 0.25

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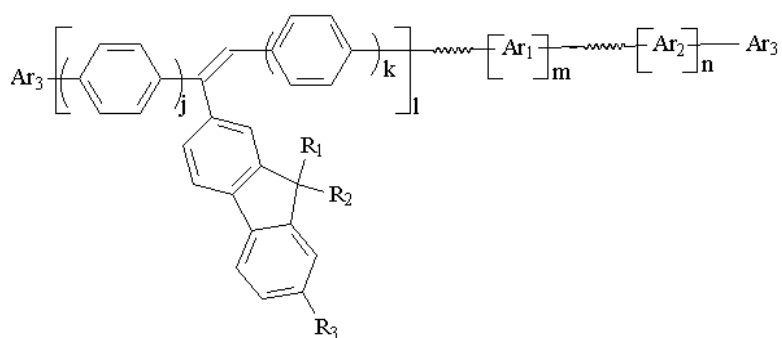
가 (Tg) (exciton)

(57)

1.

1

1



Ar₁ Ar₂ 5 40 가
5 40 , / 가 ;
Ar₃ 5 40 , ,
; R₁ R₂ 5 40 , ,
가 ; R₃ , 5 40 , ,
 , j k 1 3 , l 1 50,000 , m
0 50,000 , n 0 50,000 , , m n 0 .

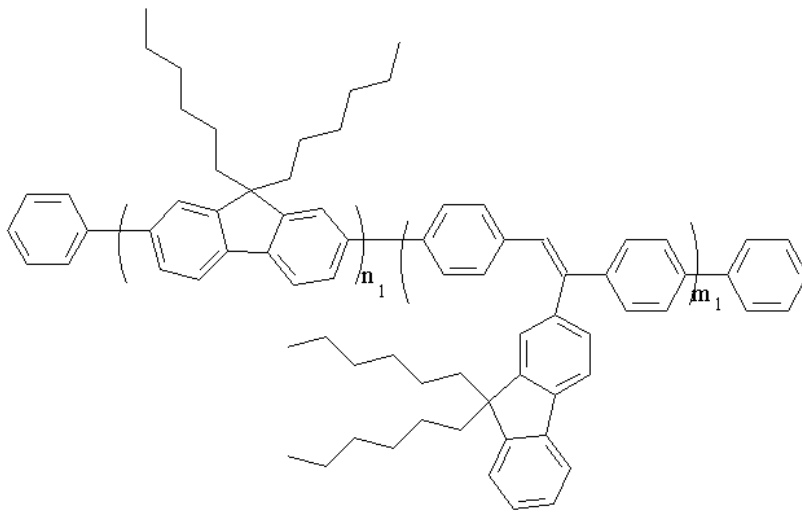
2.

1

,

2

2

, n_1 m_1

1 100,000

3.

1

2

4.

3

,

가

/

/

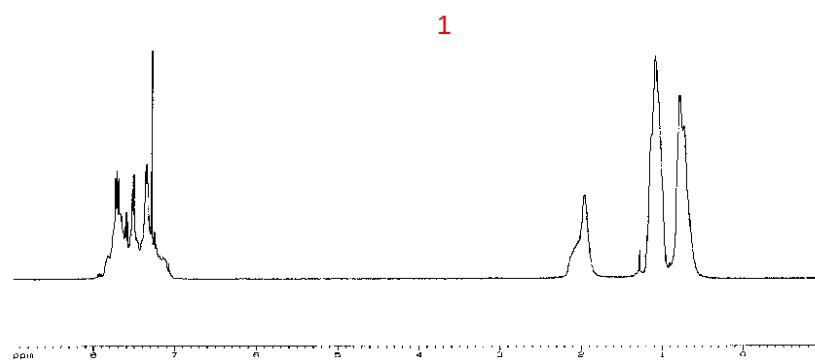
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/

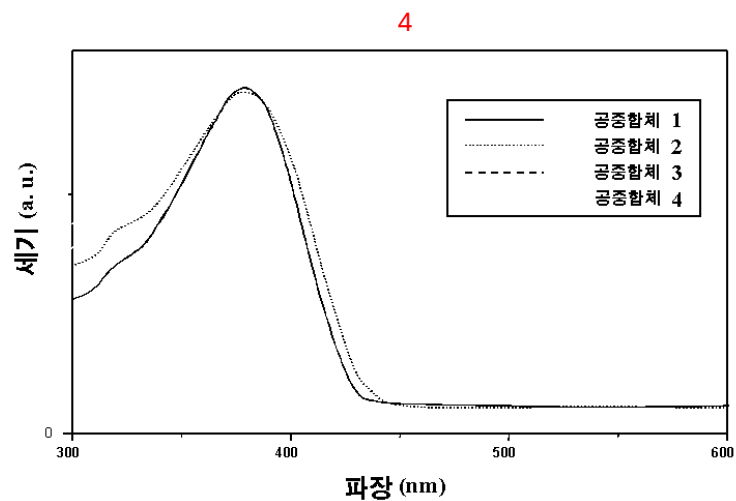
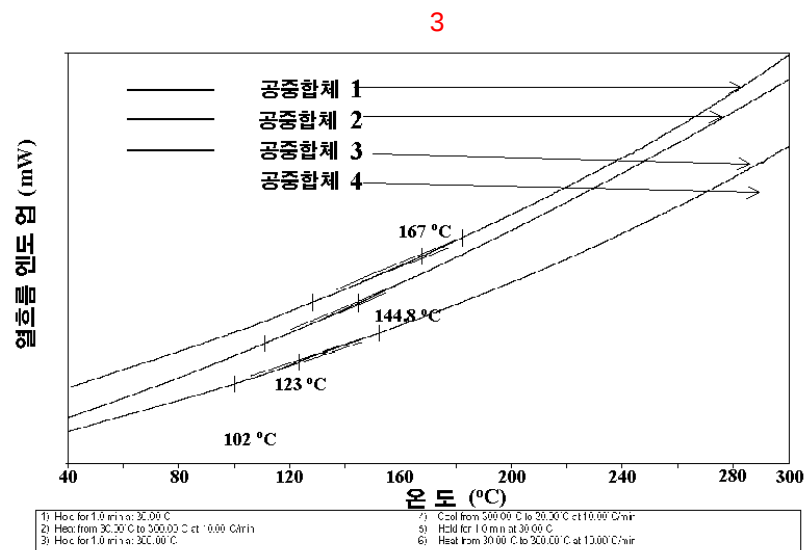
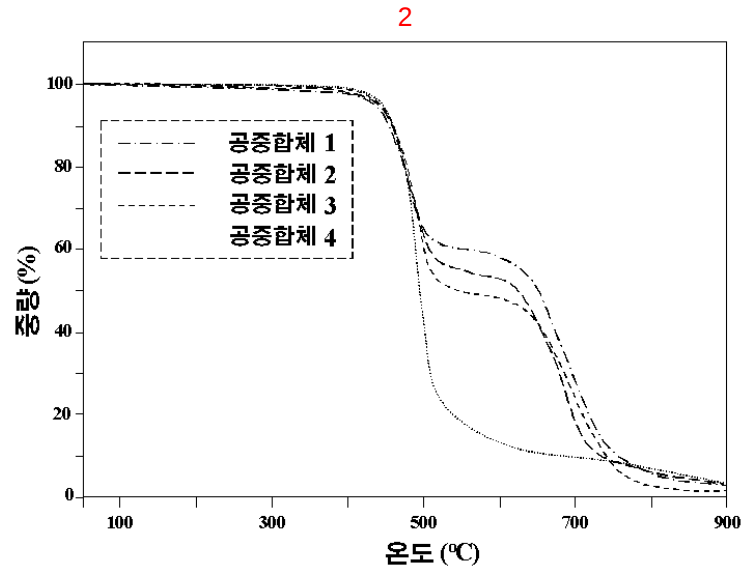
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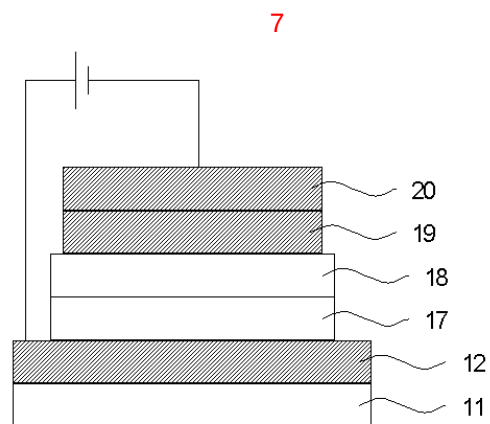
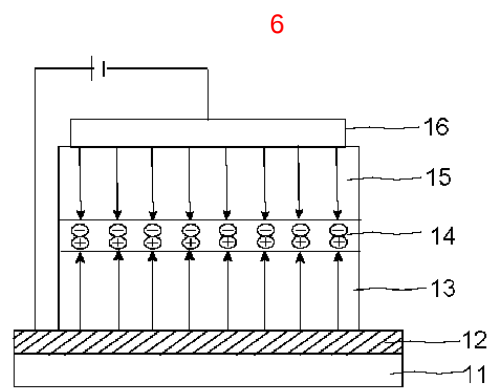
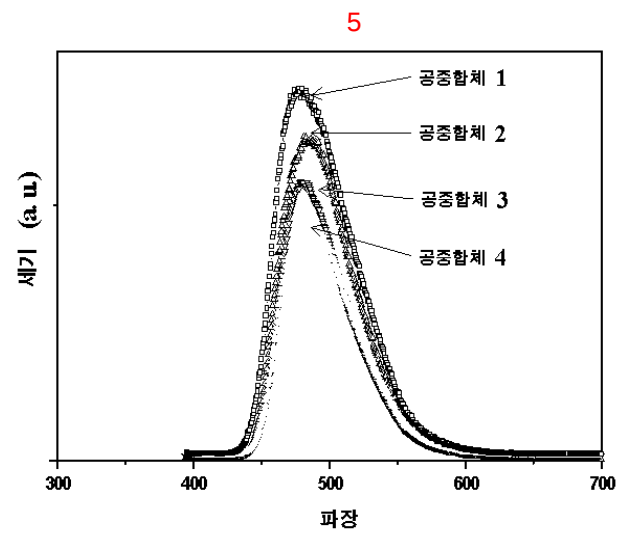
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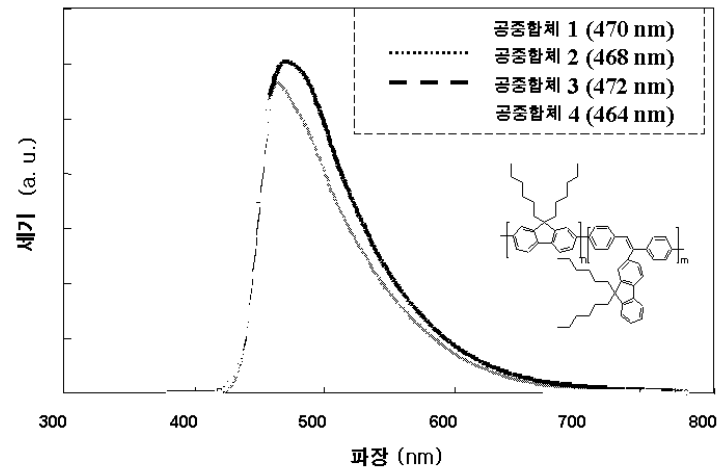


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专利名称(译)	蓝色发光聚合物和使用其的电致发光器件		
公开(公告)号	KR1020040055237A	公开(公告)日	2004-06-26
申请号	KR1020020081871	申请日	2002-12-20
申请(专利权)人(译)	SK株式会社		
当前申请(专利权)人(译)	SK株式会社		
[标]发明人	YOU HONG 유홍 JOO DONGJIN 주동진 JIN JAEKYU 진재규 SHIN DONGCHEOL 신동철 KIM JONGWOOK 김종욱 KWON SOONKI 권순기 JUNG SUNGOUK 정성욱 KIM HYUNGSUN 김형선		
发明人	유홍 주동진 진재규 신동철 김종욱 권순기 정성욱 김형선		
IPC分类号	C09K11/06		
CPC分类号	C09K11/06 C09K2211/1416 C09K2211/1425 H01L51/0039 H01L51/5012 H01L51/5056 H05B33/14 Y10S428/917		
其他公开文献	KR100710986B1		
外部链接	Espacenet		

摘要(译)

目的：提供一种蓝光发射有机电致发光聚合物，其使分子之间的相互作用最小化，容易转移能量，并且具有优异的发光效率，以及使用该电致发光聚合物的电致发光器件。

