

(19)
(12)(KR)
(A)(51) 。 Int. Cl. ⁷
C09K 11/06(11)
(43)2002 - 0042175
2002 06 05(21) 10 - 2000 - 0071960
(22) 2000 11 30

(71)

99

(72)

140 - 1 ()

140 - 1 ()

140 - 1 ()

가 900

가 900

가 900

가 900

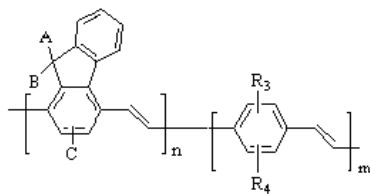
(74)

:

(54)

1 :

1



가, A, B, C, , $-R_2$; R_1 , R_2 ; C_{1-20} (phenoxy); C_{1-20} (alkoxy); C_{1-20} (alkoxy); C_{1-20} (silyl); C_{1-30} (trialkyl); (triaryl) (silylphenyl); C_{1-3} (ω -methoxy poly ethylene oxide); R_3 , R_4 ; $n=1$; C_{1-20} (alkoxy); $n=1$; 100,000, $m=0$ to 50,000, $n=m$.

2

1 / / / / /

2 2

3 3

4 2 ^1H - NMR5 3 ^1H - NMR

6 2

7 3

8 3

9	2	UV	.
10	2	PL(photoluminescence)	.
11	3	UV	PL(photoluminescence)
*	*		
11 :	12 :	(anode)	
13 :		(hole transport layer)	
14 :		(light emitting layer)	
15 :		(electron transport layer)	16 : (cathode)

(electroluminescence device: EL device)

(photon) (electron) , (electron) (photon) 가 . (optoelectronic device) . , (electroluminescence display) 가 (backlight) , 가 가 가 . GaN, ZnS, SiC . p - n , (light emitting diode) , (EL) 200V , 가 , (Appl. Phys. Letter., 51, p913(1987); Nature, 347, p53 9(1990)). (electroluminescence, EL) (hole) , 가 . 1963 (Pope et al) , 1987 (Eastmann Kodak) (Tang et al) - (alumina - quinone) π - 10V 1%, 가 1000cd/m² 가 . , 가 (Joule) 가 . 가 .

1 / / / / /
 . , (11) (anode; 12)가 (12)
 (13), (14), (15) (cathode; 16)
 (13), (14) (15)
 :

(12) (16) 가 (12) (hole) (13)
 (14) . , (16) (15) (14)
 (14) (exciton)
 , 가 .

가
 , 가 ,
 . , 가 ,
 . 가 ,
 π - (band gap) 가 가
 " π - (π - conjugated polymer)" (full color) 가 .
 riend (Cambridge) R. H. F
 PPV) (p -) (poly (p - phenylenevinylene):
 가 1990 가
 PPV , , , 가 1 2 ,
 가 , 가 . , 가 .

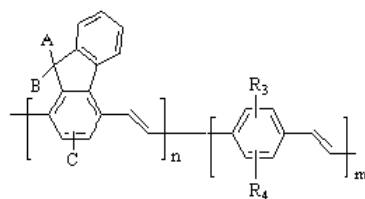
가 (polythiophene), 가
 , 가
 가 가 . , 가 ,
 5,807,974 (Kim et al)
 ; ; C_{1 22} ,
 (alternating) 가 가 . ,
 5,998,045 (Chen et al) ; ; ,
 3 , , 3 가 ,
 , , (- co -) .
 ,
 , 가
 가 가

(fluorene) (vinylene) (alternating)
가

xciton) 가 (e

1

1

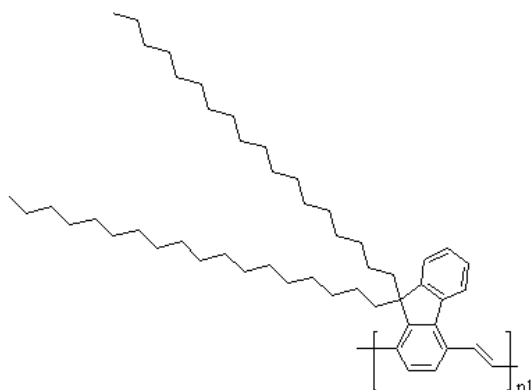


, A, B C
가 (phenoxy) ; C₁₋₂₀
C₁₋₂₀ (silyl) ; C₁₋₃₀
21 ω - (trialkyl) (alkoxy) ; C₁₋₂₀ (alkoxy) ; C₁₋₂₀ ;
100,000 , C₁₋₂₀ C₁₋₂₀ (alkoxy) ; R₃ R₄ ; n 1
, m 0 50,000 , n m .
(ω - methoxy poly ethylene oxide)

1 (π - stacking) (bulky) π -
3 2

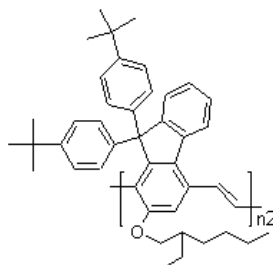
2 ; A B가 1 A B가 (octadecyl) , C가
(2 - ethylhexyloxy) , m 0 (4 - trimethylsilylphenyl) , C가 2 -
3 .

2



, n_1 1 100,000 .

3



, n_2 10 10,000 .

(Suzuki) , , (Grignard) ,
2 3 - t -
500 10,000,000 , 1 100
2 [poly(9,9' - dioctadecyl - 1,4 - fluorenylenevinylene)],
3 [poly(2 - (2" ethylhexyloxy) - 9,9' - bis(4'" - trimethylsilylphenyl) - 1,4 - fluorenylene vinylene)], poly(9,9' - bis(4" - trimethylsilylphenyl) - 1,4 - fluorenylenevinylene), poly(2 - (2" ethylhexyloxy) - 9,9' - bis(4'" - t - butylphenyl) - 1,4 - fluorenylenevinylene) .

1

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

/ / 가 /

10 10,000

10 10,000

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 - phenyl - 6 - trifluoromethyl)quinoxaline - 2 - yl] benzene)

1

2

2 THF(tetrahydrofuran) 2 - - p -
가 (Grignard reagent) , - 70
(triethylborate) 가 8 2,5 - (2,
5 - dimethylbenzene boronic acid)(A) (: 60%).

2 - (2 - bromobenzoic acid) (thionyl chloride) 6
, 가 6 (B) (: 90%).

(B) (A) THF, 2M - K₂CO₃ () (Pd(PPh₃)₄) 가
, 24 (C) (: 90%).

(C) THF (LiAlH₄) 가 3
(D) (: 90%).

(D) (carbon disulfide) , 가 30
(E) (: 10%).

(E) THF 2 n - (n - butyl lithium) 가 1
 , 1 - 2 가 12 (F) (: 80
 %).

(F) (benzene) 2 N - (benzoyl perox
 ide : BPO) 가 . 8 (G) (: 40%).

(G) THF 1M - - t - (THF) 가 .
 2 (: 80%). 2 n₁ 10
 10,000 . ¹H - NMR 4 .¹H - NMR(CD
 Cl₃) : δ 7.1 - 8 (Ar - H and vinylic proton, 8H), δ 0.5 - 1.3 (CH₂ and CH₃, 74H)

6 2 350 가
 .

2
 3

2 - - 5 - - p - (2 - bromo - 5 - ethylhexyloxy - p - xylene) THF
 , (triethylborate) 가 8 - 70
 4N - HCl (I) (: 50%).

1 (B) (I) THF(tetrahydrofuran), 2M - K₂CO₃ (: 90%).
) (Pd(PPh₃)₄) 가 , 24 (J)

4 - - (4 - tert - butylbenzene bromide)
 6 (Grignard reagent) , (J)
 0 - 5 가 3 . - 40
 가 ,
 가 1 (K) (: 40%).

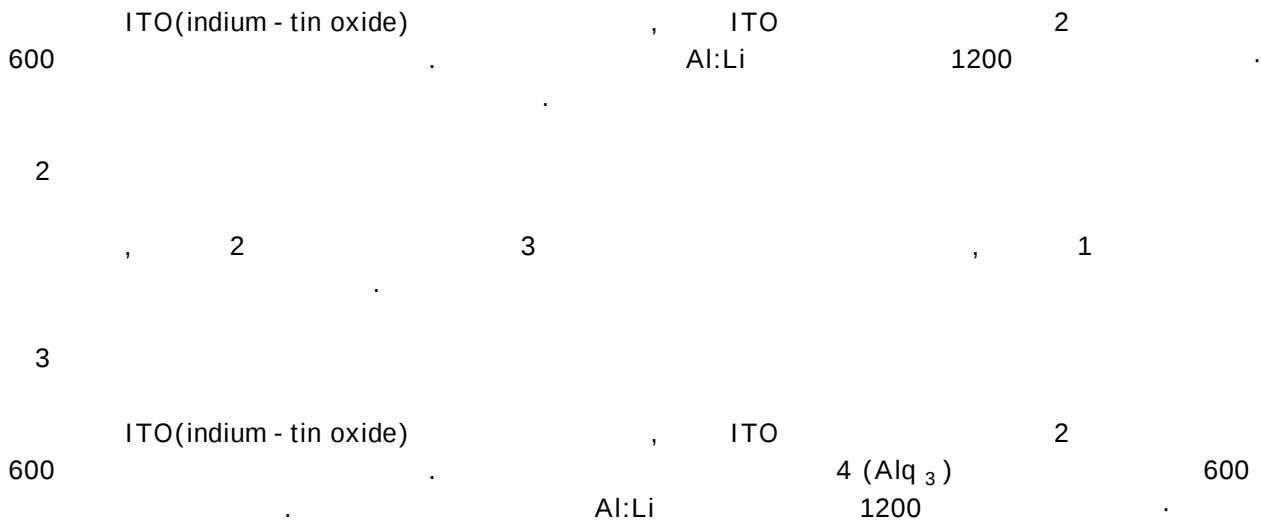
(K) (benzene) N - (benzoyl peroxid
 e : BPO) 가 . 8 (L) (: 40%).

(L) THF , 1M - - t - (THF) 가 .
 3 (: 80%). , 3 n₁ 10 10,
 000 .

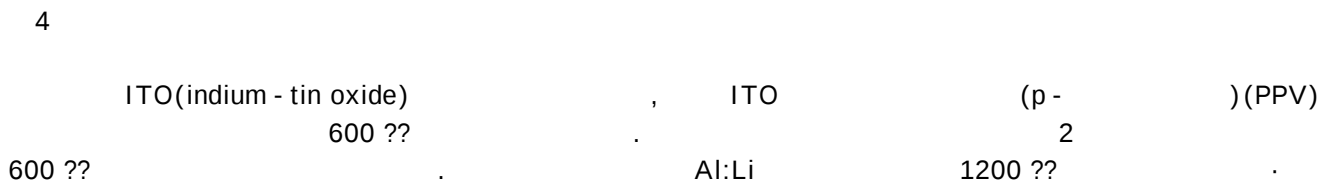
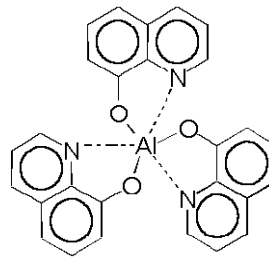
3 ¹H - NMR 4 .¹H - NMR(CDCl₃) : δ
 6.8 - 7.4 (Ar - H and vinylic proton, 15H), δ 3.8 (- CH₂, 2H), δ 0.5 - 1.4 (CH₂ and CH₃, 33H)

7 3 310 가
 . , 8 3 DSC Tg가 200

1

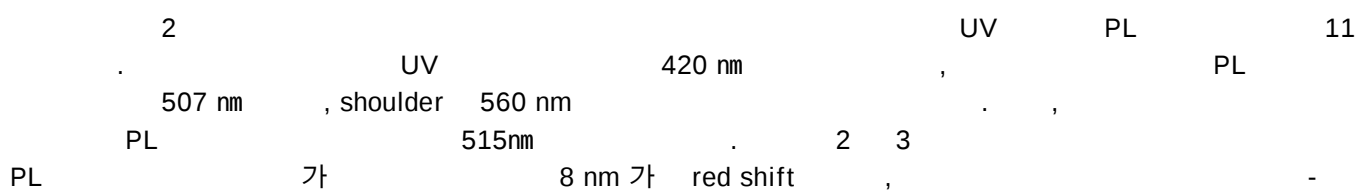


4



5

가



(π - staking)

(eximer)

shoulder

6

1 4

가

1

[1]

		(cd/m ²)	
1	6 V	25,000	
2	5 V	30,000	
3	4 V	35,000	
4	3.5 V	40,000	

가

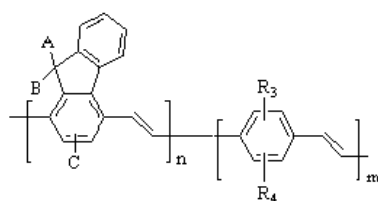
(exciton)

(57)

1.

1

1



가 , A, B C ,  , -R₂ ; R₁ R₂ ; C₁₋₂₀
 (phenoxy) ; C₁₋₂₀ (alkoxy) ; C₁₋₂₀ (alkoxy) ; C₁₋₂₀ ;
 C₁₋₂₀ (silyl) ; C₁₋₃₀ (trialkyl) (triaryl) (silylphenyl) ; C₃
 21 ω - (ω - methoxy poly ethylene oxide) ; R₃ R₄
 100,000 , C₁₋₂₀ C₁₋₂₀ (alkoxy) ; n 1
 , m 0 50,000 , n m .

2.

1 , A B 가 , C가 .

3.

2 , A B가 , C가 .

4.

1 , A, B C 가 .

5.

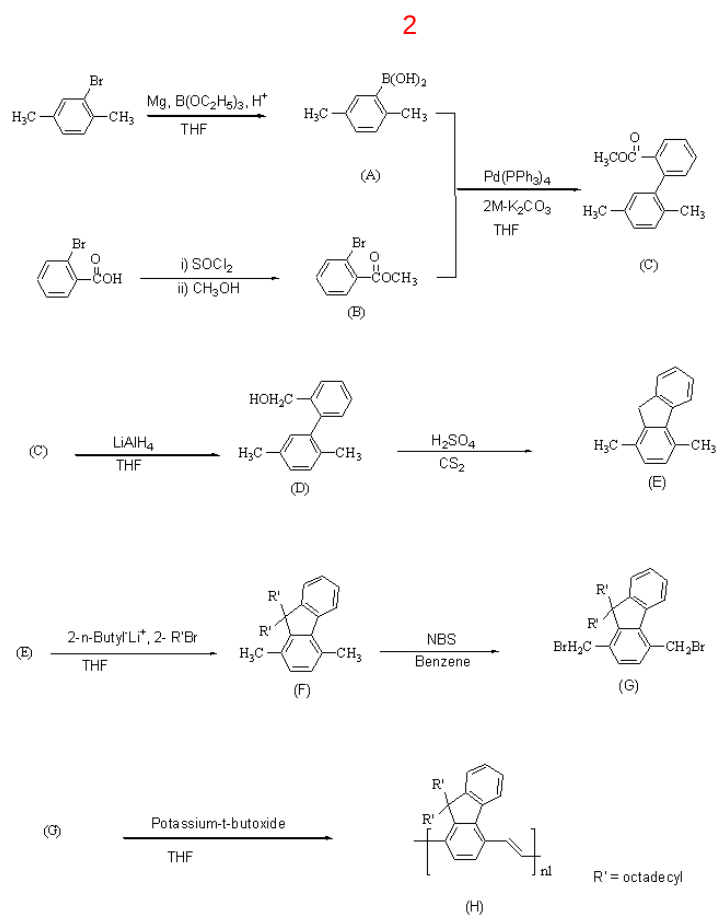
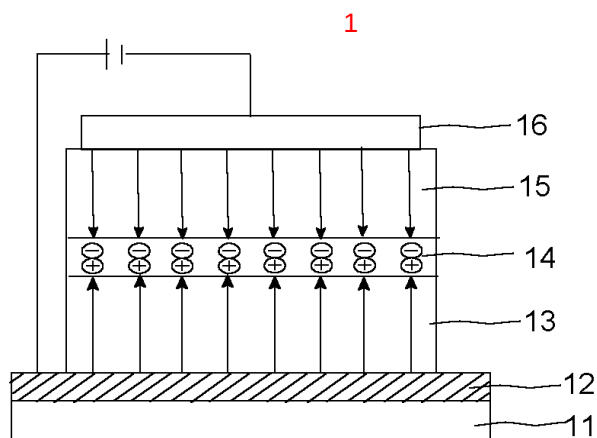
4 , A B가 4 - , C가 2 - .

6.

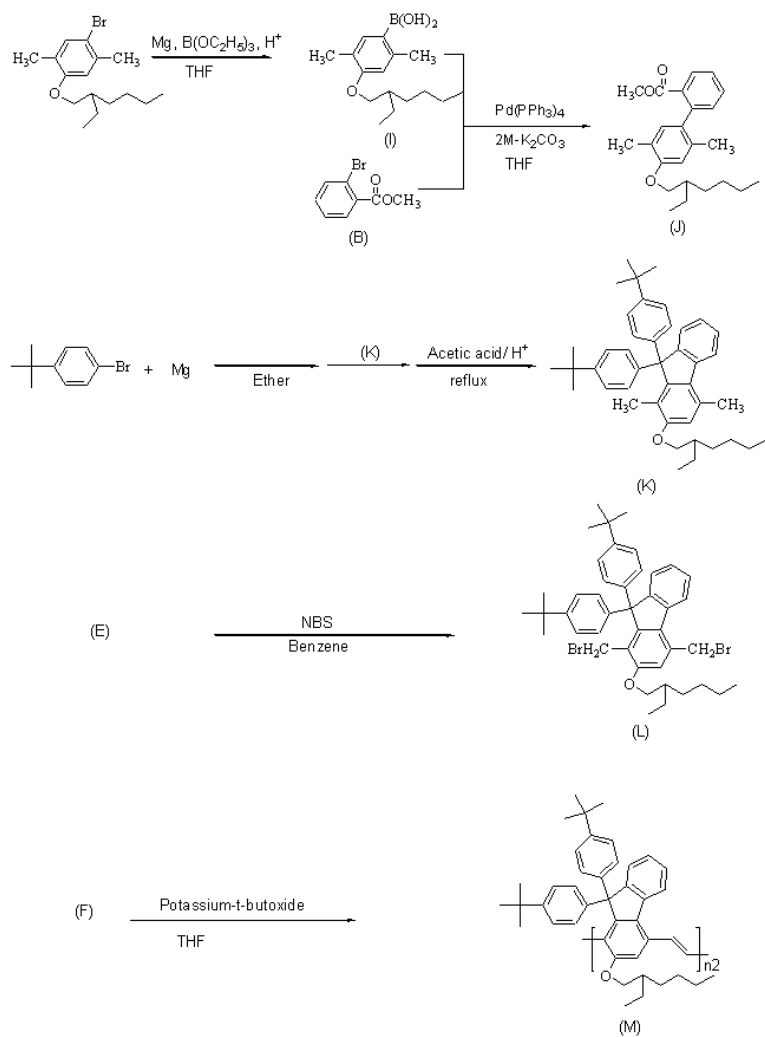
1 5 .

7.

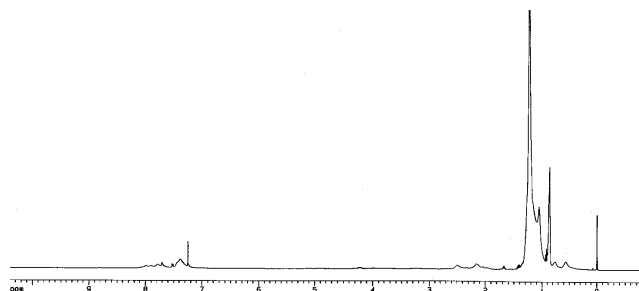
6 , 가 / / , / / / /
 / / / .



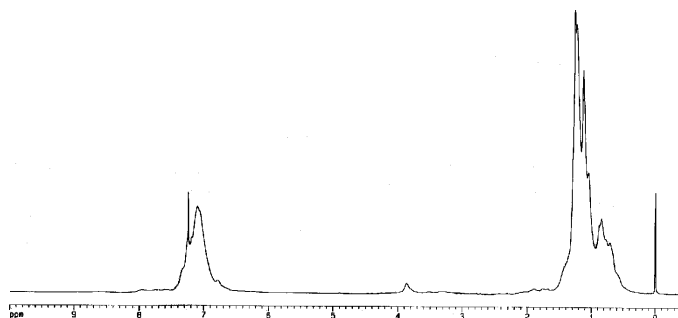
3



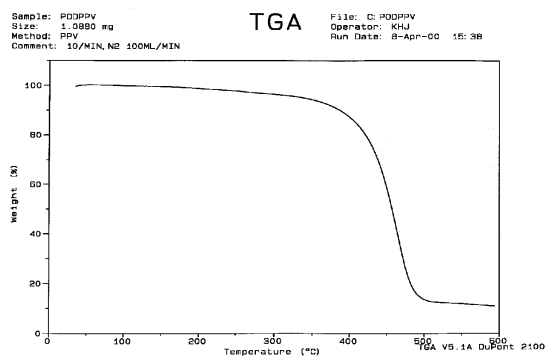
4



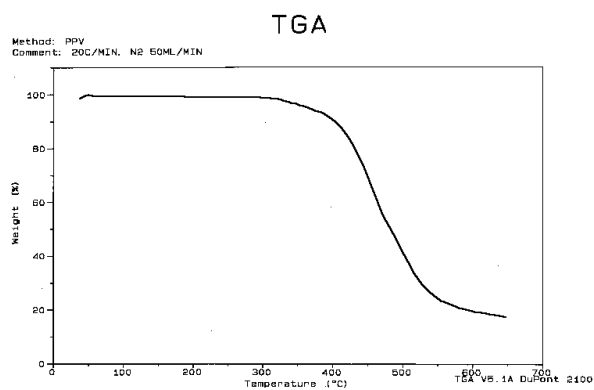
5



6

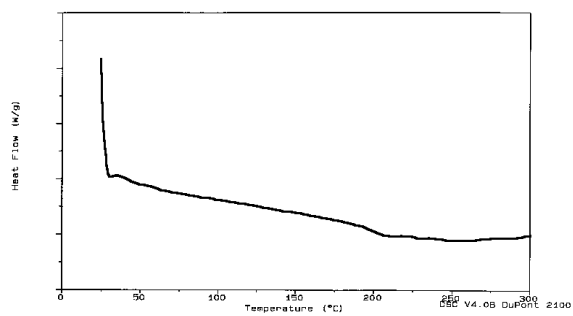


7

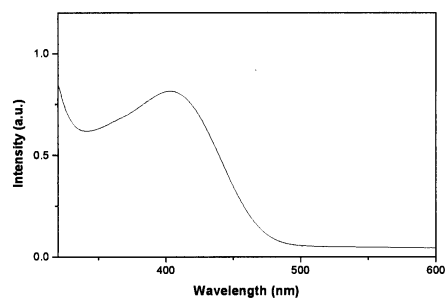


8

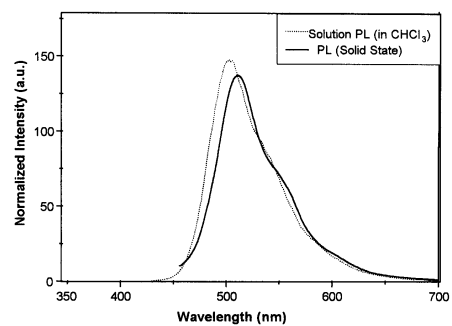
DSC



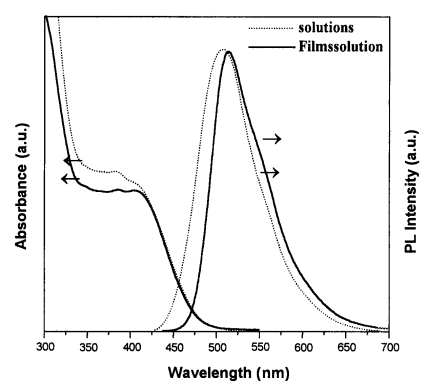
9



10



11



专利名称(译)	基于亚苄基亚乙烯基的发光聚合物和使用其的电致发光装置		
公开(公告)号	KR1020020042175A	公开(公告)日	2002-06-05
申请号	KR1020000071960	申请日	2000-11-30
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	WOO TAEWOO 우태우 YOU HONG 유홍 JOO DONGJIN 주동진 KWON SOONKI 권순기 KIM YUNHI 김윤희 SHIN DONGCHEOL 신동철 KIM HYUNGSUN 김형선		
发明人	우태우 유홍 주동진 권순기 김윤희 신동철 김형선		
IPC分类号	C09K11/06		
CPC分类号	C08G61/02 C09K11/06 C09K2211/1416 H01L51/0038 H01L51/0039 H01L51/5012 H01L51/5068 H01L51/5084 H05B33/14 Y10S428/917		
其他公开文献	KR100619356B1		
外部链接	Espacenet		

摘要(译)

关于本发明的有机电致发光聚合物，取代或未取代的苄和亚乙烯基依次排列在主链中。并且在等式中表示如下化学式1：A，B和C可以由或-R²形成取代的苯氧基：烷氧基称为C 1~20：烷氧基苯基称为C 1~20：烷基称为C 1~20：甲硅烷基称为C 1~20：三烷基称为C 1~30或ω-甲氧基聚氧化乙烯（ω-甲氧基聚环氧乙烷）称为三芳基（三芳基）甲硅烷基苯基（甲硅烷基苯基）和C 3~21。通过解决由于在元件移动和有机成膜材料中产生施加发光聚合物并制造的电致发光元件的传动系的劣化问题的饼堆叠引起的辐射特性劣化问题，提高了发光效率。同时提高了装置的稳定性。苄，发光聚合物，发光器件，乙烯基，发光效率。

