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(A)

(51) . Int. Cl. 7
C09K 11/06

(11)
(43)

10-2004-0106236
2004 12 17

(21) 10-2004-0042587
(22) 2004 06 10

(30) JP-P-2003-00167828 2003 06 12 (JP)

(72) 141-0001 - 가 - 가 6- 7-35 가 가

141-0001 - 가 - 가 6- 7-35 가 가

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141-0001 - 가 - 가 6- 7-35 가 가

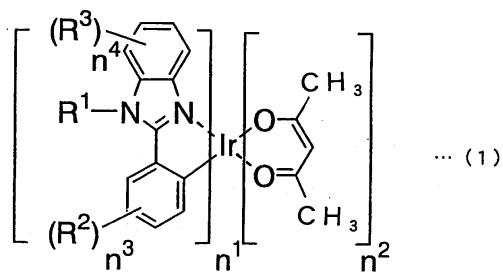
(74)

(54)

EL

El

(1)



3

1 EL

2 EL

3 EL

< >

1 : 2 :

3 : 4 :

5 : 6 :

7 : 8 :

9 : 11 :

12 : 13 :

14 :

가

(含)

(EL)

長) 가

(

가 (失活), (系間) . , 가 () .
 가 (), 가 (EL) . , 가 ().

1 : Thompson et al. : J.Am.Chem.Soc.2001,123,4305.

2 : Thompson et al. : ICEL.2001,p.45

가
EL

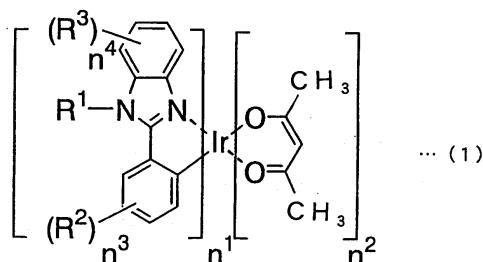
가

2

가

(1)

(5)



$$(\mathbb{R}^1, \dots, \mathbb{R}^n, \mathbb{R}^{n+1}, \mathbb{R}^{n+2})$$

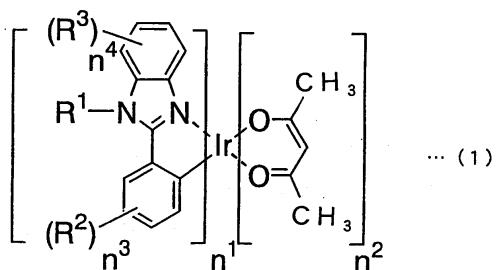
$$[n^{-1} = 2, n^{-2} = 1], [n^{-1} = 3, n^{-2} = 0]$$

가

(1)

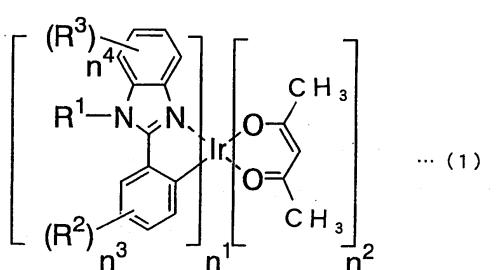
1

(6)



$$(\text{, } R^1 \text{, } n^3, n^4 \text{, } 0 \text{, } 4 \text{, } [n^1=2, n^2=1], [n^1=3, n^2=0])) \quad (1)$$

(7)



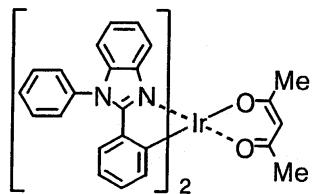
()

(1)

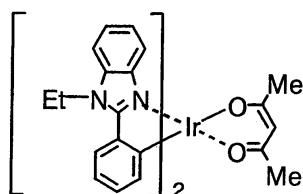
가
,

(8)

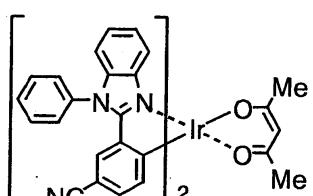
구조식 (2-1)



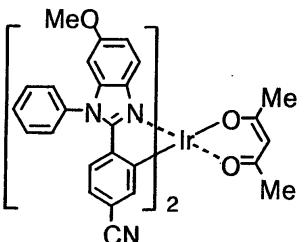
구조식 (2-2)



구조식 (2-3)



구조식 (2-4)



94,47,767.)}, 1,4-
{Lamansky

2-
(Inorg.Chem.2001,40,1704.).}

(1) {Nonoyama
가 ,
n 1
(Bull.Chem.Soc.Jpn.17
가 ,

가

가

, , UV

, , 가

가

3
(12), (13), (14)

(11)

(11)
가 ,
(12) Cr

ITO Ag
가 ,
가 ,

(13) (1)

가

가 . ,
가 .

, ,
가 . ,
가 .

5.9eV , 6.0eV 7.0eV
 5.9 eV
 가 . ,
 가 .

LB , 가 , , , 가 , , , (, 가 , , ,), . , ,

(14) Li, Mg, Ca Ag, Al, In

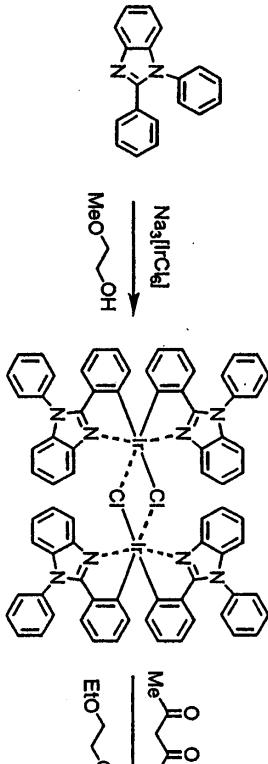
ITO , ITO

1

(2-1)

(9)

구조식 3



4
(Bull.Chem.Soc.Jpn.1794,47,767.)
4

3
Lamansky
(Inorg.Chem.2001,40,1704.)

Nonoyama

, 3 (2.7g, 9.9 mmol),
(4 15) 가
, 13mmol) 2- (:)
(410mg, 15% :
(2-1) (同定)

(1) ^1H NMR (CD_2Cl_2 /ppm) ; 1.9 (s,6H), 5.3 (s,1H), 6.4-6.6 (8H), 7.1-7.2 (2H), 7.2-7.3 (4H), 7.6-7.7 (10H), 7.7-7.8 (2H)

(2) MS (FAB) $[\text{M}]^+ : 829$

(3) Abs (CH_2Cl_2) 410 nm

(4) PL (CH_2Cl_2) 520 nm

2

1

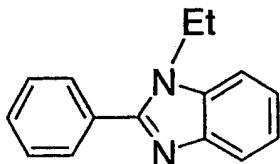
3

,

1

가

(2-2)



(1) ^1H NMR (CD_2Cl_2 /ppm); 1.3 (t,6H), 1.9 (s,6H), 2.3 (q,4H), 5.2 (s,1H), 6.4-6.5 (4H), 7.1-7.2 (2H), 7.3-7.6 (8H), 7.7-7.8 (2H)

(2) MS (FAB) [M] + : 733

(3) Abs (CH₂Cl₂) 410 nm

(4) PL (CH₂Cl₂) 520 nm

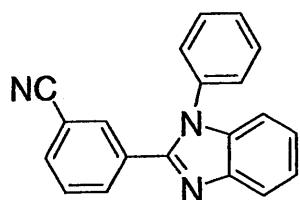
3

$$\begin{array}{cc} 1 & 3 \\ & (2 - 3) \end{array}$$

15% (

1 가
(CAS No. 175712-80-8).
)

(11)



(1) ¹H NMR (CD₂Cl₂/ppm); 1.8 (s, 6H), 5.3 (s, 1H), 6.4-7.2 (8H), 7.2-7.3 (4H), 7.5-7.6 (10H), 7.7-8.0 (4H)

(2) MS (FAB) [M] + : 879

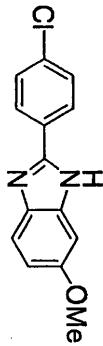
(3) Abs (CH₂Cl₂) 410 nm

(4) PL (CH₂Cl₂) 500 nm

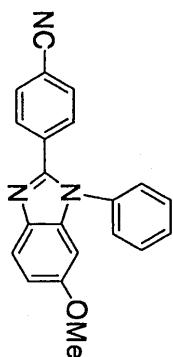
4

(12)

구조식 5



1) CuCN
2) PhI, Cul, CsCO₃
1,10-Phenanthroline



구조식 6

, mmol) 5 (Eur.J.Med.Chem.1996,31,635.) (5.0g, 19mmol) () (8.7g, 98
 (3.9g, 19mmol), 500mL 12 가 , ,
 200mL 가 (19g, 58mmol), () (370mg, 1.9mmol), 1,10- (700mg, 3.9mmol)
 : -) , , 6 , 1.5g (()
 ([M] + : 326)가 , 6 (2-4)
 , . (2-1) , 가

(1) ¹H NMR (CD₂Cl₂ /ppm) ; 1.8 (s,6H), 3.5(s,6H), 5.3 (s,1H), 6.4-7.2 (6H), 7.2-7.3(4H), 7.5-7.6 (10H), 7.7-8.0 (4H)

(2) MS (FAB) [M]⁺ : 889

(3) Abs (CH₂Cl₂) 400 nm

(4) PL (CH₂Cl₂) 480 nm

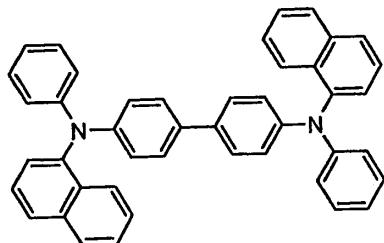
5

, 1 1 (2-1) , 2 , 3 , 4 , 5 , 6 1 , 7 , 8

(9)

ITO
100nm
2.0mm × 2.0mm
CuPc()
10nm
30mm × 30mm
10⁻⁴ Pa
0.1nm/
30nm
- NPD
0.1nm/
- NPD

(13)

 α -NPD:

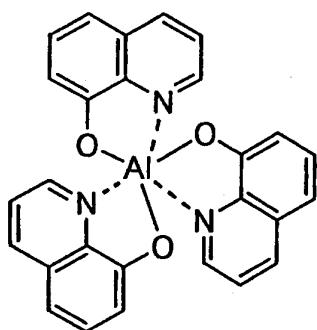
(2-1) CBP() 94:6
40nm

BCP(10nm ; Bathocuproin) BCP
0.1nm/

Alq3{ (8- 30nm) } O.2nm/
Alq3

(14)

Alq3:



Mg Ag 1 nm/ 200nm

5 가 , 505nm 가
가 , 8V 800cd/m² 가

500cd/m² 1 가 , 900
1

6

(2-1)

1

가

100nm

Cr

2 , 1

30mm×30mm

, 2

1

가

(1)

Mg/Ag

11nm

6

가

, , 505nm

가

, 8V 570cd/m²

가

500cd/m²

1

80

가

7

7

(2-2)

1

, 1

5

8

(2-2)

1

, 2

6

9

(2-3)

1

, 1

5

10

(2-3)

1

, 2

6

11

(2-4)

1

, 1

5

12

(2-4)

1

, 2

6

(1)

| 실시예 | 화합물 | 소자구조 | 발광색 | 전압-휘도특성 | 수명 |
|-----|--------------|------|---------------|---|-------|
| 1 | 구조식 (2-1) | 도1 | 505nm (녹색) | 800cd/m ² (8V) (500cd/m ²) | 900hr |
| 2 | | 도2 | 505nm (녹색) | 570cd/m ² (8V) (500cd/m ²) | 780hr |
| 3 | 구조식 (2-2) | 도1 | 505nm (녹색) | 780cd/m ² (8V) (500cd/m ²) | 910hr |
| 4 | | 도2 | 505nm (녹색) | 580cd/m ² (8V) (500cd/m ²) | 800hr |
| 5 | 구조식 (2-3) | 도1 | 500nm (녹색) | 850cd/m ² (8V) (500cd/m ²) | 830hr |
| 6 | | 도2 | 500nm (녹색) | 595cd/m ² (8V) (500cd/m ²) | 710hr |
| 7 | 구조식 (2-4) | 도1 | 480nm (녹색) | 900cd/m ² (8V) (500cd/m ²) | 600hr |
| 8 | | 도2 | 480nm (녹색) | 610cd/m ² (8V) (500cd/m ²) | 540hr |

(1)

가

EL

가

(57)

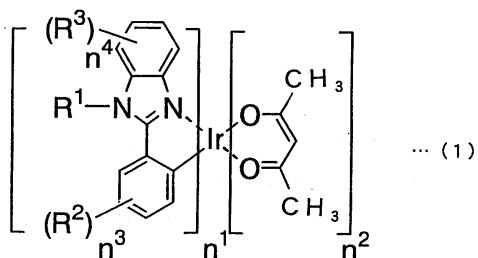
1.

(下記)

(1)

(含)

(1)



(, R¹ (基),
, n³, n⁴)

, n¹, n² [n¹=2, n²=1], [n¹=3, n²=0]
0 4)

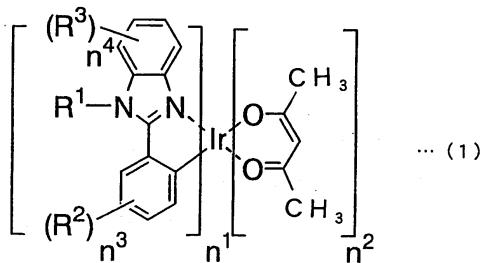
2.

가

(1)

1

(2)

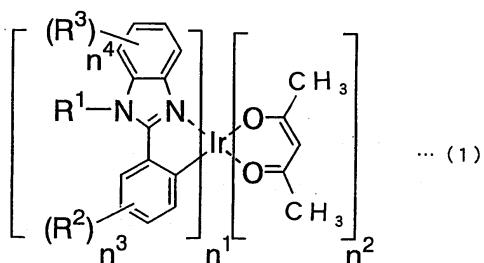


(, R¹ , , , , n¹ , n² , R² , R³
 , n³ , n⁴ 0 4 [n¹ = 2, n² = 1], [n¹ = 3, n² = 0])

3.

(1)

(3)



(, R¹ , , , , n¹ , n² , R² , R³
 , n³ , n⁴ 0 4 [n¹ = 2, n² = 1], [n¹ = 3, n² = 0])

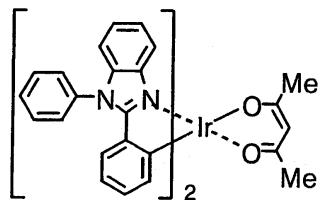
4.

3

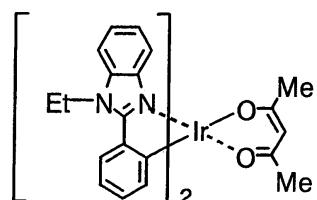
(2-1) (2-4)

(4)

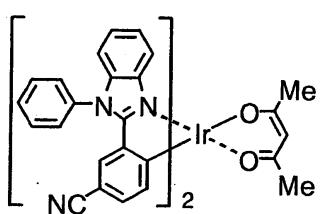
구조식 (2 - 1)



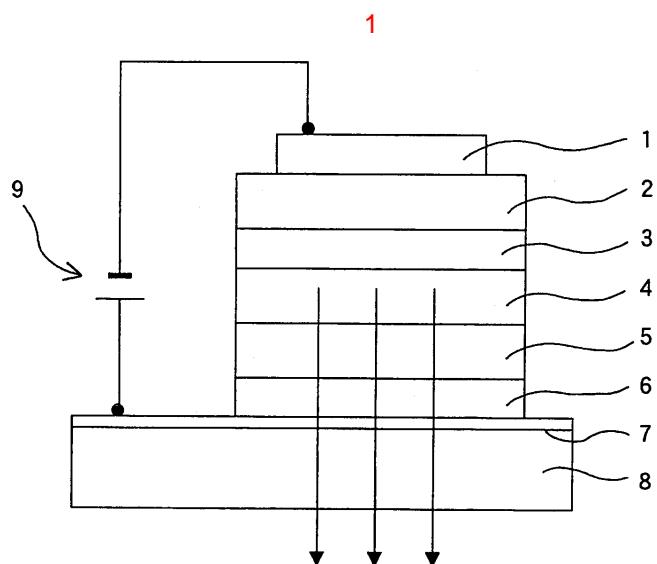
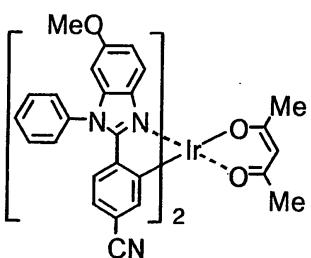
구조식 (2 - 2)



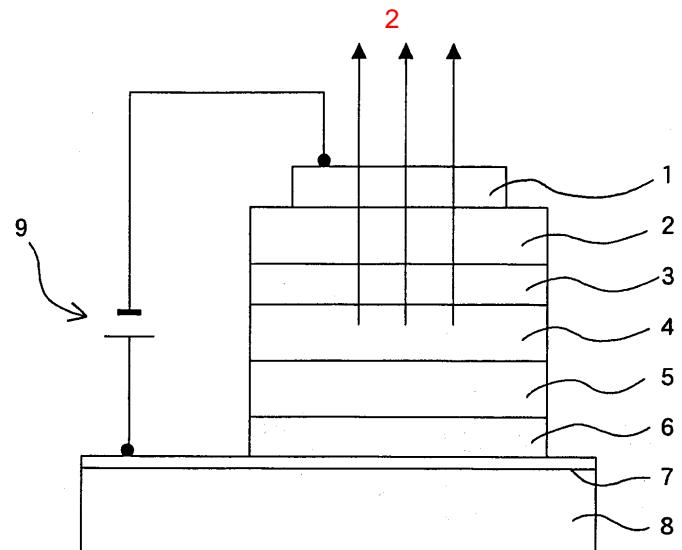
구조식 (2 - 3)



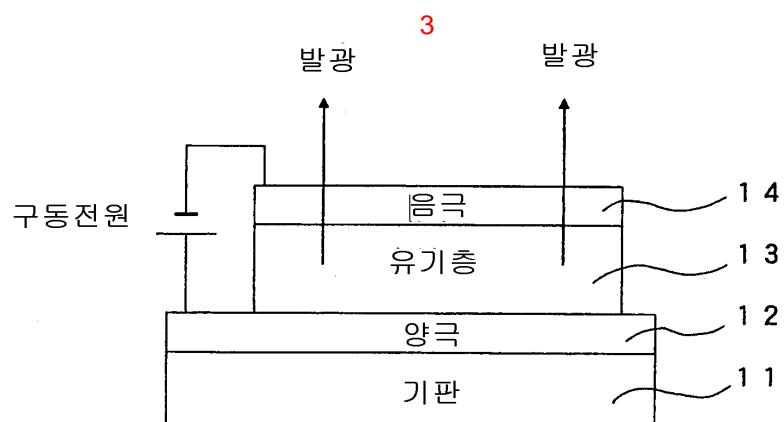
구조식 (2 - 4)



1 음극, 2 전자수송층, 3 정공블로킹층, 4 발광층
5 정공수송층, 6 정공주입층, 7 양극, 8 기판, 9 전원



1 음극, 2 전자수송층, 3 정공블로킹층, 4 발광층
5 정공수송층, 6 정공주입층, 7 양극, 8 기판, 9 전원



| | | | |
|----------------|--|---------|------------|
| 专利名称(译) | 有机电致发光材料，有机电致发光元件和无定形铱络合物 | | |
| 公开(公告)号 | KR1020040106236A | 公开(公告)日 | 2004-12-17 |
| 申请号 | KR1020040042587 | 申请日 | 2004-06-10 |
| [标]申请(专利权)人(译) | 索尼公司 | | |
| 申请(专利权)人(译) | 索尼有限公司 | | |
| 当前申请(专利权)人(译) | 索尼有限公司 | | |
| [标]发明人 | TAKADA ICHINORI 타카다이치노리 ISHIBASHI TADASHI 이시바시타다시 YAMADA JIRO 야마다지로 TAMURA SHINICHIRO 타무라신이치로 | | |
| 发明人 | 타카다이치노리 이시바시타다시 야마다지로 타무라신이치로 | | |
| IPC分类号 | H01L51/50 C07C49/92 H01L51/30 H05B33/14 C07F15/00 C07D235/18 C09K11/06 H01L51/00 | | |
| CPC分类号 | C07F15/0033 H01L51/0059 H05B33/14 C09K11/06 C09K2211/1044 H01L51/0085 H01L51/0081 C09K2211/185 H01L51/5016 | | |
| 代理人(译) | MOON , KYOUNG金 KIM , HAK SOO | | |
| 优先权 | 2003167828 2003-06-12 JP | | |
| 外部链接 | Espacenet | | |

摘要(译)

发明内容本发明的目的是提供一种新的大体积再循环铱络合物化合物，其在绿色至蓝色区域发光，以及使用该铱络合物的高效且持久的有机EL发光装置。作为解决该问题的手段，本发明的EL发光装置包括含有由下列结构式表示的糖-致密铱络合物的有机层13。(公式1) 3

