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(54) **Organometallic compounds for electroluminescence and organic electroluminescent device using the same**

(57) The present invention relates to electroluminescent compounds represented by Chemical Formula (1) $L-L^1M(Q)_m$ and electroluminescent devices comprising the same as host material.
The electroluminescent compound according to the in-

vention, when used as host material of an OLED, noticeably lowers the operation voltage and enhance the power efficiency.

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PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 63 of the European Patent Convention EP 08 16 3819 shall be considered, for the purposes of subsequent proceedings, as the European search report

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
D,X	JP 2002 305083 A (MITSUBISHI CHEM CORP) 18 October 2002 (2002-10-18) * claims 1-10 * * paragraphs [0034], [0035], [0037], [0047], [0092] * * figure 1 *	1-9	INV. C09K11/06 H05B33/14 C07F3/00
X	----- US 2004/124769 A1 (ISE TOSHIHIRO [JP] ET AL) 1 July 2004 (2004-07-01) * compounds 28,29,30,61,43,49,50,59-61,65, * * claims 1,9 * * paragraphs [0004] - [0012] *	1-20	
A	----- EP 1 820 801 A (PIONEER CORP [JP]; MITSUBISHI CHEM CORP [JP]) 22 August 2007 (2007-08-22) * page 62 *	10	
A	----- US 2007/182321 A1 (KINOSHITA MASARU [JP] ET AL) 9 August 2007 (2007-08-09) * page 6 * ----- -/--	10	
			TECHNICAL FIELDS SEARCHED (IPC)
			C09K H01L H05B
INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.</p> <p>Claims searched completely :</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>Reason for the limitation of the search: see sheet C</p>			
Place of search		Date of completion of the search	Examiner
The Hague		3 December 2009	Ziegler, Jan
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

3
EPO FORM 1503 03.82 (PC/E07)



PARTIAL EUROPEAN SEARCH REPORT

 Application Number
 EP 08 16 3819

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	WO 2006/035997 A (CANON KK [JP]; HASHIMOTO MASASHI [JP]; OKADA SHINJIRO [JP]; TAKIGUCHI) 6 April 2006 (2006-04-06) * page 52 *	10	
P,X	US 2007/254182 A1 (FUKUMATSU TAKAYUKI [JP] ET AL) 1 November 2007 (2007-11-01) * paragraphs [0036] - [0042] * * claim 1 *	1-9	
X	US 2005/236977 A1 (YAMADA NAOKI [JP] ET AL) 27 October 2005 (2005-10-27) * paragraph [0127] *	1-6	
X	JP 2003 192691 A (MITSUBISHI CHEM CORP) 9 July 2003 (2003-07-09) * paragraph [0042] * * compounds H49,H50,H51 *	1-6	TECHNICAL FIELDS SEARCHED (IPC)
X	US 2005/142383 A1 (IGARASHI TATSUYA [JP] ET AL) 30 June 2005 (2005-06-30) * compounds (1-12) *	1-6	
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X	WO 2004/055130 A (FUJI PHOTO FILM CO LTD [JP]; ISE TOSHIHIRO [JP]; IGARASHI TATSUYA [JP]) 1 July 2004 (2004-07-01) * compounds 49,51 * * claim 1 *	1-6	
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PARTIAL EUROPEAN SEARCH REPORT

Application Number
EP 08 16 3819

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	WO 2007/086682 A (GRACEL DISPLAY INC [KR]; KIM BONG OK [KR]; CHIN SUNG-MIN [KR]; JUNG SO) 2 August 2007 (2007-08-02) * paragraphs [0013] - [0021], [0034], [0036] * * claims 1-8 *	1-6	
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			TECHNICAL FIELDS SEARCHED (IPC)

INCOMPLETE SEARCH
SHEET CApplication Number
EP 08 16 3819

Claim(s) searched completely:
1-20

Claim(s) not searched:
-

Reason for the limitation of the search:

The initial phase of the search revealed a very large number of documents relevant to the issue of novelty. So many documents were retrieved that it is impossible to determine which parts of the claims 1-6 may be said to define subject-matter for which protection might legitimately be sought (Article 84 EPC). For these reasons, a meaningful search of the whole claimed subject-matter of claims 1-6 could not be carried out (Rule 63 EPC).

The extent of the search was consequently limited (EPC GL, B-VIII,3).

The search of claims 1-6 was restricted to the supported examples listed in claim 6, namely to the examples which fall under the subject-matter of claim 1.

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 08 16 3819

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.


03-12-2009

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专利名称(译)	用于电致发光的有机金属化合物和使用其的有机电致发光器件		
公开(公告)号	EP2034001A3	公开(公告)日	2010-01-13
申请号	EP2008163819	申请日	2008-09-05
申请(专利权)人(译)	GRACEL显示增量.		
当前申请(专利权)人(译)	GRACEL显示增量.		
[标]发明人	KIM HYUN CHO YOUNG JUN KWON HYUCK JOO KIM BONG OK KIM SUNG MIN YOON SEUNG SOO		
发明人	KIM, HYUN CHO, YOUNG JUN KWON, HYUCK JOO KIM, BONG OK KIM, SUNG MIN YOON, SEUNG SOO		
IPC分类号	C09K11/06 H05B33/14 C07F3/00		
CPC分类号	C09K11/06 C09K2211/1037 C09K2211/186 H01L51/0058 H01L51/006 H01L51/0085 H01L51/0092 H05B33/14 Y02E10/549		
优先权	1020080026187 2008-03-21 KR 1020070091104 2007-09-07 KR 1020070142004 2007-12-31 KR		
其他公开文献	EP2034001A2		
外部链接	Espacenet		

摘要(译)

本发明涉及由化学式 (1) L-L1M (Q) m表示的电致发光化合物和包含其作为主体材料的电致发光器件。当用作OLED的主体材料时，根据本发明的电致发光化合物显著降低了操作电压并提高了功率效率。



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which under Article 55 of the European Patent Convention EP 08 16 3819 shall be considered for the purposes of subsequent proceedings on the European search report.

Application Number

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CL. DOCUMENT TYPE AND THE APPLICABLE CLASSIFICATION
D, X	JP 2002 305083 A (MITSUBISHI CHEM CORP) 18 October 2002 (2002-10-18) * claims 1-10 * * paragraphs [0024], [0035], [0037], [0047], [0052] * * Figure 1 *	1-9	INV. C09K11/06 H05B33/14 C07F3/00
X	US 2004/124769 A1 (ISE TOSHIHIRO [JP] ET AL) 1 July 2004 (2004-07-01) * compounds 29, 29, 30, 61, 43, 49, 50, 59-61, 65, * * claims 1, 9 * * paragraphs [0004] - [0012] *	1-20	
A	EP 1 820 801 A (PIONEER CORP [JP]; MITSUBISHI CHEM CORP [JP]) 22 August 2007 (2007-08-22) * page 62 *	10	
A	US 2007/182321 A1 (KINOSHITA MASARU [JP] ET AL) 9 August 2007 (2007-08-09) * page 6 *	10	

INCOMPLETE SEARCH

The Search Division considers that the present application, in one or more of its claims, does not fully disclose the invention, or that the invention is not fully disclosed in the present application, or that the invention is not fully disclosed in the present application, or that the invention is not fully disclosed in the present application.

Claims searched incompletely:

Claims not searched:

Reason for the limitation of the search:
see sheet C

Place of search: The Hague	Date of completion of the search: 3 December 2009	Searcher: Ziegler, Jan
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CATEGORY OF CITED DOCUMENTS

X particularly relevant if taken alone
Y particularly relevant if combined with another
A document of the same category
D technological development
I intermediate document

T prior art document underlying the invention
E another patent document, EP published on or after the filing date
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