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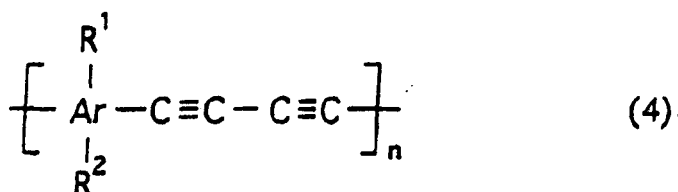
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(54) **Organic luminous material and organic light-emitting device**

(57) An organic luminous material having the general formula



where Ar denotes an arylene group, R¹ and R² denote substituents which can be the same or different and n denotes the degree of polymerisation.

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EUROPEAN SEARCH REPORT

Application Number
EP 06 01 9655

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	TAO X T ET AL: "Novel main-chain poly-carbazoles as hole and electron transport materials in polymer light-emitting diodes" APPLIED PHYSICS LETTERS, AIP, AMERICAN INSTITUTE OF PHYSICS, MELVILLE, NY, US, vol. 71, no. 14, 1997, pages 1921-1923, XP002339411 ISSN: 0003-6951 * the whole document *	1-13	INV. C09K11/06 C08F38/00 C08G61/02 H01L51/00
X	DE 43 39 646 A1 (BASF AG [DE]) 24 May 1995 (1995-05-24) * the whole document *	4-13	
X	REMMERS M ET AL: "THE OPTICAL, ELECTRONIC, AND ELECTROLUMINESCENT PROPERTIES OF NOVELPOLY(P-PHENYLENE)-RELATED POLYMERS" MACROMOLECULES, AMERICAN CHEMICAL SOCIETY. EASTON, US, vol. 29, no. 23, 4 November 1996 (1996-11-04), pages 7432-7445, XP000631108 ISSN: 0024-9297 * the whole document *	4-13	TECHNICAL FIELDS SEARCHED (IPC) C09K C08F C08G H01L
X	TASCH S ET AL: "Efficient white light-emitting diodes realized with new processable blends of conjugated polymers" APPLIED PHYSICS LETTERS, AIP, AMERICAN INSTITUTE OF PHYSICS, MELVILLE, NY, US, vol. 71, no. 20, 1997, pages 2883-2885, XP002339412 ISSN: 0003-6951 * the whole document *	4-13	
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 11 January 2007	Examiner Doslik, Natasa
CATEGORY OF CITED DOCUMENTS 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		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	

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EUROPEAN SEARCH REPORT

Application Number
EP 06 01 9655

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	YANG M ET AL: "Characterization and fluorescence properties of thiophene-modified pi-conjugated nickel poly-yne polymers" POLYMER, ELSEVIER SCIENCE PUBLISHERS B.V, GB, vol. 40, no. 11, May 1999 (1999-05), pages 3203-3209, XP004157673 ISSN: 0032-3861 * the whole document * -----	4-13	
A	HOLZER W ET AL: "Excitation intensity-dependent fluorescence behaviour of some luminescent polymers" POLYMER, ELSEVIER SCIENCE PUBLISHERS B.V, GB, vol. 39, no. 16, July 1998 (1998-07), pages 3651-3656, XP004120980 ISSN: 0032-3861 * the whole document * -----	4-13	
A	HATTORI T ET AL: "Photoinduced absorption and luminescence in polydiacetylenes" JOURNAL OF PHYSICS C: SOLID STATE PHYSICS, INSTITUTE OF PHYSICS PUBLISHING, BRISTOL, GB, vol. 17, 1984, pages L881-L888, XP002339413 ISSN: 0022-3719 * the whole document * -----	4-13	
		TECHNICAL FIELDS SEARCHED (IPC)	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 11 January 2007	Examiner Doslik, Natasa
CATEGORY OF CITED DOCUMENTS 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 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			

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EPO FORM 1503 03/82 (P04C01)

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

see annex



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-3

An organic luminous material made of polymer of formula (4) and an organic light-emitting device comprising a lower electrode, a luminous layer made of formula (4) and an upper electrode.

1.1. claims: 4-13

An organic light-emitting device comprising a lower electrode, a luminous layer made of a polymer of formula (1) and an upper electrode.

2. claims: 14-15

An organic luminous material made of a polymer of formula (3).

3. claims: 16-18

An organic luminous material made of a polymer of formula (5).

4. claims: 19-21

An organic luminous material made of a polymer of formula (6).

Please note that all inventions mentioned under item 1, although not necessarily linked by a common inventive concept, could be searched without effort justifying an additional fee.

11-01-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 4339646	A1	24-05-1995	NONE

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	有机发光材料和有机发光器件		
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CPC分类号	C08F38/00 C08G61/02 C09K11/06 C09K2211/1092 C09K2211/1425 H01L51/0035 H01L51/0043 H01L51/5012 Y10S428/917		
优先权	2000128364 2000-04-27 JP 2000288692 2000-09-22 JP 2001125359 2001-04-24 JP		
其他公开文献	EP1741765B1 EP1741765A2		
外部链接	Espacenet		

摘要(译)

具有通式的有机发光材料，其中Ar表示亚芳基，R1和R2表示可以相同或不同的取代基，n表示聚合度。

