

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2011/082432

A. CLASSIFICATION OF SUBJECT MATTER

See the extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: C07F 9, B01J 31, C07B 53, C07C 29, C07C 33, C07C 35, C07C 31, C07C 41, C07C 43, C07C 67, C07C 69, C07D 307

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

ZHEJIANG JIUZHOU+ZHEJIANG JIUZHOU+NANKAI UNIVERSITY, ZHOU Qilin+XIE Jianhua+LIU Xiaoyan+XIE Jianbo+WANG Lixin, catalysis, coordination complex, spiro pyridine, Ir, ligand, complex, spiro, pyridine, phosphino, phosphine, iridium, catalyst, pyridinylamino, structure search according to compound of formula I of claim 1, [1298133-21-7], [1298133-23-9], [1298133-24-0], [1298133-26-2], [1298133-28-4], [1298133-30-8], [1298133-32-0], [1298133-34-2], [1298133-36-4], [1298133-38-6]

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 102040625 A (NANKAI UNIVERSITY), 04 May 2011 (04.05.2011), see claims 1-10, and embodiments 1 and 11	1-20
PX	XIE, Jianhua et al., An Additional Coordination Group Leads to Extremely Efficient Chiral Iridium Catalysts for Asymmetric Hydrogenation of Ketones, ANGEWANDTE CHEMIE, International Edition, 12 July 2011, vol. 50, no. 32, pages 7329-7332, see figures 2-3, and table 1	1-20
A	CN 101671365 A (NANKAI UNIVERSITY), 17 March 2010 (17.03.2010), see the whole document, particularly claims 1-2	1-20

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
“A” document defining the general state of the art which is not considered to be of particular relevance	“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
“E” earlier application or patent but published on or after the international filing date	“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	“&” document member of the same patent family
“O” document referring to an oral disclosure, use, exhibition or other means	
“P” document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
29 January 2012 (29.01.2012)Date of mailing of the international search report
01 March 2012 (01.03.2012)Name and mailing address of the ISA/CN:
State Intellectual Property Office of the P. R. China
No. 6, Xitucheng Road, Jimenqiao
Haidian District, Beijing 100088, China
Facsimile No.: (86-10) 62019451Authorized officer
CHANG, Xiaoyu
Telephone No.: (86-10) **62084403**

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2011/082432

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 102040625 A	04.05.2011	None	
CN 101671365 A	17.03.2010	None	

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C07F 9/58 (2006.01) i

B01J 31/24 (2006.01) i

C07B 53/00 (2006.01) i

C07C 29/145 (2006.01) i

C07C 33/22 (2006.01) i

C07C 33/18 (2006.01) i

C07C 33/46 (2006.01) i

C07C 35/36 (2006.01) i

C07C 35/32 (2006.01) i

C07C 31/135 (2006.01) i

C07C 33/28 (2006.01) i

C07C 41/26 (2006.01) i

C07C 43/23 (2006.01) i

C07C 67/31 (2006.01) i

C07C 69/732 (2006.01) i

C07C 69/734 (2006.01) i

C07C 69/68 (2006.01) i

C07C 69/675 (2006.01) i

C07D 307/83 (2006.01) i