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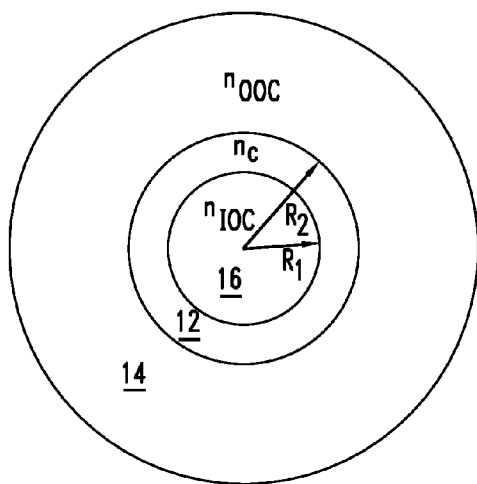
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[Continued on next page]

(54) Title: OPTICAL FIBERS WITH TUBULAR OPTICAL CORES

FIG. 1



(57) Abstract: An embodiment of an apparatus includes an optical fiber for which a complete orthogonal basis of propagating modes at an optical telecommunication frequency includes ones of the propagating modes with different angular momenta. The optical fiber has a tubular optical core and an outer optical cladding in contact with and surrounding the tubular optical core. The tubular optical core has a larger refractive index than the optical cladding. The tubular optical core is configured such that those of the propagating modes whose angular momenta have the lowest magnitude for the propagating modes have substantially the same radial intensity profile.





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**A. CLASSIFICATION OF SUBJECT MATTER****G02B 6/02(2006.01)i**

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)

G02B 6/02; G02B 6/16; G02B 6/22; G02B 6/20; G02B 6/18

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) &amp; Keywords: OPTICAL, FIBER, REFRACTIVE

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 6535678 B1 (RYOZO YAMAUCHI et al.) 18 March 2003 See abstract, col. 14, line 33 - col. 16, line 27 and figure 5	1-2,5-6 3-4,7-10
A	US 2003-0174985 A1 (BENJAMIN JOHN EGGLETON et al.) 18 September 2003 See abstract; claim 1 and figure 2	1-10
A	US 6594429 B1 (CHRISTOPHER ALAN WHITE) 15 July 2003 See abstract; claim 1 and figure 8	1-10
A	JP 09-218318 A (SUMITOMO ELECTRIC IND. LTD.) 19 August 1997 See abstract; claim 1 and figure 1	1-10

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

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

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