

Title (en)
WAVEGUIDES HAVING AXIALLY VARYING STRUCTURE

Title (de)
WELLENLEITER MIT EINER IN AXIALER RICHTUNG VARIABLEN STRUKTUR

Title (fr)
GUIDES D'ONDES POSSEDANT UNE STRUCTURE VARIABLE AXIALEMENT

Publication
EP 1121615 A4 20041201 (EN)

Application
EP 99945028 A 19990810

Priority
• US 9918089 W 19990810
• US 10034998 P 19980915

Abstract (en)
[origin: WO0016141A1] An optical waveguide fiber preform and an optical waveguide fiber drawn therefrom, in which the density and thus the effective refractive indices of the clad layer (42) is caused to change in a pre-selected way axially along the waveguide preform and the associated waveguide fiber. The axial change in density of the clad layer (42) is due to the fraction of the clad volume that is air or a glass of a composition different from that of the base clad glass. The axially variation in clad indices changes the signal mode power distribution, thereby changing key waveguide fiber parameters such as magnitude and sign of dispersion, cut off wavelength and zero dispersion wavelength. The invention includes methods of making the structures having an axially varying clad layer. The invention also contemplates preforms, in which the waveguide fibers drawn therefrom, guide light due to the photonic crystal structure of all of the clad layer length or segments of the clad layer length.

IPC 1-7
G02B 6/22; **G02B 6/16**; **C03B 37/012**; **C03B 37/027**

IPC 8 full level
C03B 37/012 (2006.01); **C03B 37/027** (2006.01); **C03B 37/028** (2006.01); **C03C 13/04** (2006.01); **G02B 6/00** (2006.01); **G02B 6/02** (2006.01); **G02B 6/032** (2006.01)

CPC (source: EP KR)
B82Y 20/00 (2013.01 - EP); **C03B 37/0122** (2013.01 - EP); **C03B 37/01225** (2013.01 - EP); **C03B 37/027** (2013.01 - EP); **G02B 6/00** (2013.01 - KR); **G02B 6/02347** (2013.01 - EP); **G02B 6/02371** (2013.01 - EP); **G02B 6/02376** (2013.01 - EP); **C03B 2203/12** (2013.01 - EP); **C03B 2203/14** (2013.01 - EP); **C03B 2203/18** (2013.01 - EP); **C03B 2203/22** (2013.01 - EP); **C03B 2203/36** (2013.01 - EP); **C03B 2203/42** (2013.01 - EP); **C03B 2205/08** (2013.01 - EP); **C03B 2205/10** (2013.01 - EP)

Citation (search report)
• [X] US 5627921 A 19970506 - LIDGARD ANNE I B [SE], et al
• [X] US 3920312 A 19751118 - SIEGMUND WALTER P
• [X] WO 9730944 A1 19970828 - CORNING INC [US], et al
• [A] US 5802236 A 19980901 - DIGIOVANNI DAVID JOHN [US], et al
• See references of WO 0016141A1

Cited by
EP1147438A4

Designated contracting state (EPC)
DE FR GB IT NL

DOCDB simple family (publication)
WO 0016141 A1 20000323; **WO 0016141 A9 20001109**; AU 5772699 A 20000403; BR 9913724 A 20010529; CA 2341727 A1 20000323; CN 1145813 C 20040414; CN 1317099 A 20011010; EP 1121615 A1 20010808; EP 1121615 A4 20041201; ID 28248 A 20010510; JP 2002525256 A 20020813; JP 2010140045 A 20100624; JP 4495344 B2 20100707; KR 20010088803 A 20010928; TW 455709 B 20010921; ZA 995897 B 20000404

DOCDB simple family (application)
US 9918089 W 19990810; AU 5772699 A 19990810; BR 9913724 A 19990810; CA 2341727 A 19990810; CN 99810798 A 19990810; EP 99945028 A 19990810; ID 20010832 A 19990810; JP 2000570621 A 19990810; JP 2010015147 A 20100127; KR 20017003355 A 20010315; TW 88115947 A 19990913; ZA 995897 A 19990914