

Title (en)

COMPOSITE DIFFRACTION GRATINGS FOR SIGNAL PROCESSING AND OPTICAL CONTROL APPLICATIONS

Title (de)

ZUSAMMENGESETZTE BEUGUNGSGITTER FÜR ANWENDUNGEN DER SIGNALVERARBEITUNG UND OPTISCHER REGELUNG

Title (fr)

GRILLES DE DIFFRACTION COMPOSITES POUR TRAITEMENT DE SIGNAUX ET APPLICATIONS DE GUIDES OPTIQUES

Publication

EP 1060427 A4 20060125 (EN)

Application

EP 99901373 A 19990107

Priority

- US 9900425 W 19990107
- US 7068498 P 19980107

Abstract (en)

[origin: WO9935523A1] The present invention provides a composite grating structure that performs a programmed complex-valued, spectral filtering function on an input optical signal. The grating consists of a plurality of subgratings. Each subgrating controls the diffraction of a specific optical subbandwidth of light from an operative input direction to an operative output direction imparting a controllable amplitude and phase change onto the specific subbandwidth of light whose diffraction it controls within the overall operative bandwidth. The set of subgratings comprising the composite grating collectively controls the diffraction of an operative bandwidth of light from an operative input direction to an operative output direction. Each composite grating is programmed through their construction or through their dynamic modification to provide desired spectral filtering functions. While the composite gratings can be employed for general spectral filtering applications, they hold especially attractive potential in the area of optical waveform processing, generation, and detection.

IPC 1-7

G02B 6/34; **G02B 27/46**; **H04J 14/00**

IPC 8 full level

G02B 6/122 (2006.01); **G02B 5/18** (2006.01); **G02B 6/02** (2006.01); **G02B 6/34** (2006.01); **G06K 9/74** (2006.01); **H04J 14/00** (2006.01); **G02B 6/12** (2006.01)

CPC (source: EP KR US)

G02B 5/1819 (2013.01 - EP KR US); **G02B 6/12007** (2013.01 - KR); **G02B 6/29311** (2013.01 - EP KR); **G06V 10/895** (2022.01 - EP KR US); **H04J 14/005** (2013.01 - EP KR); **G02B 2006/12107** (2013.01 - EP KR)

Citation (search report)

- [X] DE 19629530 C1 19971030 - UNIV DRESDEN TECH [DE]
- [PX] WO 9806192 A1 19980212 - UNIV CAMBRIDGE TECH [GB], et al
- [A] US 5216529 A 19930601 - PAEK EUNG G [US], et al
- [X] COHEN A D ET AL: "Dynamic holographic eight-channel spectral equaliser for WDM", WDM COMPONENTS TECHNOLOGY, 1997 DIGEST OF THE IEEE/LEOS SUMMER TOPICAL MEETING, MONTREAL, CANADA, 11 August 1997 (1997-08-11) - 15 August 1997 (1997-08-15), pages 46 - 47, XP010243202, ISBN: 0-7803-3891-X
- [X] PARKER M C ET AL: "DYNAMIC HOLOGRAPHIC SPECTRAL EQUALIZATION FOR WDM", IEEE PHOTONICS TECHNOLOGY LETTERS, IEEE SERVICE CENTER, PISCATAWAY, NJ, US, vol. 9, no. 4, April 1997 (1997-04-01), pages 529 - 531, XP000690483, ISSN: 1041-1135
- [X] PARKER M C ET AL: "Programmable holographic elements for WDM", IEE COLLOQUIUM ON OPTOELECTRONIC INTEGRATION AND SWITCHING, GLASGOW, UK, 13 November 1997 (1997-11-13), pages 10 - 1, XP006506000
- See references of WO 9935523A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

WO 9935523 A1 19990715; **WO 9935523 A8 19990916**; CA 2317784 A1 19990715; EP 1060427 A1 20001220; EP 1060427 A4 20060125; JP 2002501213 A 20020115; KR 20010033934 A 20010425

DOCDB simple family (application)

US 9900425 W 19990107; CA 2317784 A 19990107; EP 99901373 A 19990107; JP 2000527852 A 19990107; KR 20007007516 A 20000707