



(12) **CORRECTED EUROPEAN PATENT APPLICATION**

(15) Correction information:  
**Corrected version no 1 (W1 A1)**  
**Corrections, see**  
**Bibliography INID code(s) 71**

(51) Int Cl.:  
**G02B 21/00 (2006.01)**

(48) Corrigendum issued on:  
**28.12.2011 Bulletin 2011/52**

(43) Date of publication:  
**16.06.2010 Bulletin 2010/24**

(21) Application number: **09405217.2**

(22) Date of filing: **08.12.2009**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR**  
**HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL**  
**PT RO SE SI SK SM TR**

(30) Priority: **09.12.2008 US 120942 P**

(71) Applicant: **Spectral Applied Research Inc.**  
**Ontario L4B 3L8 (CA)**

(72) Inventor: **Berman, Richard**  
**Richmond Hill, Ontario L4B 3L8 (CA)**

(74) Representative: **Rüfenacht, Philipp Michael et al**  
**Keller & Partner**  
**Patentanwälte AG**  
**Schmiedenplatz 5**  
**Postfach**  
**3000 Bern 7 (CH)**

(54) **Multi-mode fiber optically coupling a radiation source module to a multi-focal confocal microscope**

(57) A multi-mode optical fiber (1126) delivers light from a radiation source to a multi-focal confocal microscope (1102) with reasonable efficiency. A core diameter of the multi-mode fiber is selected such that an etendue of light emitted from the fiber is not substantially greater than a total etendue of light passing through a plurality of pinholes in a pinhole array of the multi-focal confocal microscope. The core diameter may be selected taking into account a specific optical geometry of the multi-focal confocal microscope, including pinhole diameter and focal lengths of relevant optical elements. For coherent radiation sources, phase randomization may be included. A multi-mode fiber enables the use of a variety of radiation sources and wavelengths in a multi-focal confocal microscope, since the coupling of the radiation source to the multi-mode fiber is less sensitive to mechanical and temperature influences than coupling the radiation source to a single mode fiber.

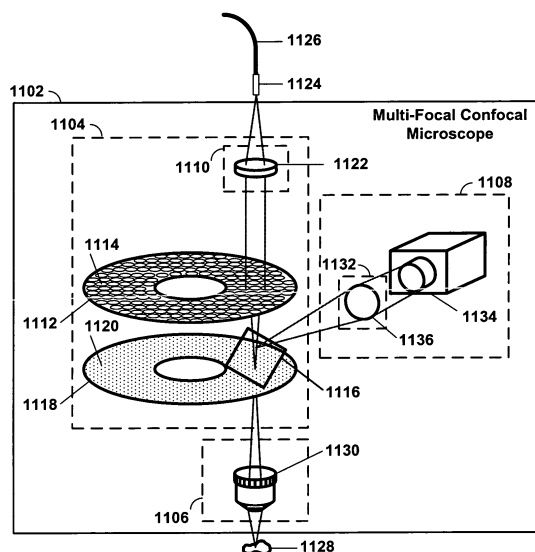


FIG. 11