

Title (en)
MULTI-WAVELENGTH LASER SYSTEM

Title (de)
MULTIWELLENLÄNGENLASERSYSTEM

Title (fr)
SYSTEME LASER A LONGUEURS D'ONDE MULTIPLES

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Application
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Abstract (en)
[origin: WO0122542A2] The present invention relates to a system and a method providing multi-wavelength emitting optical integrated planar waveguide device with large wavelength span, having tight control over absolute and especially relative positions of the emitted wavelengths, as well as narrow line widths. The neff experienced by a laser mode in a waveguide is at least partly determined by the physical overlap, the confinement factor, between the laser mode and the refractive index profile of the waveguide core. If the waveguides have well defined refractive index profiles, adjusting the transverse dimensions of the waveguide core adjusts the refractive index profile, and thus the confinement factor and neff. According to the present invention, two or more waveguide lasers are formed wherein the reflective members forming the laser cavity have a spectrally dependent reflectivity which depends upon the effective refractive index, neff, experienced by a laser mode at the position of the reflective member. By identical reflective members, such as Bragg gratings, for the different lasers, the wavelength of the lasers can be adjusted by adjusting the relative transverse dimensions, such as the widths, of the lasers. This allows for a precise relative tuning of the lasers, and eliminates uncertainties in the relative grating periods of the Bragg gratings. The dependence of neff upon the width w, neff(w), are preferably large in order to span a large range of wavelength using only a small variation in the width of the waveguides. Thereby different lasers will have approximately the same dimensions.

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