(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 965 872 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
22.12.1999 Bulletin 1999/51

(51) Int. Cl.[6]: **G02F 1/015**

(21) Application number: **98304870.3**

(22) Date of filing: **19.06.1998**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

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(54) An optically active device

(57) A p-i-n electroabsorption modulator uses GaAs/AlGaAs quantum wells (7a, 7b, 7c, 7d, 7e) to absorb light (25) at a resonant frequency (λ_1). By arranging the wells in such a way that they become optically coupled, light is absorbed through a delocalised absorption mode called a polariton. This results in a resonance (9) with a narrower spectral linewidth ($\Delta\lambda_{\Sigma'}$) than has previously been achieved and is used to increase the switching efficiency of the device. Using this new absorbing mode, the performances of waveguides and non-linear optical switches are also improved.

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