

عنوان مقاله:

Ultra-short plasmonic waveguide cross-over component and demultiplexers based on contra-directional coupler utilizing surface plasmon polaritons

محل انتشار:

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نویسنده:

Narges Golmohammadi - K.N. Toosi University of Technology, Faculty of Electrical Engineering

خلاصه مقاله:

To realize the ultra-short optical devices, the metal-dielectric-metal (MDM) and the dielectric-metal-dielectric (DMD) structures that can support surface plasmon polariton (SPP) are suggested and investigated. Contra-directional coupling that can be achieved in these structures are the basis of this proceed. By this contra directional coupling the possibility to design ultra-short plasmonic devices has been greatly fulfilled. In special cases with the help of composite waveguide structures with multiple dielectric cores, waveguide cross-over components which are able to transfer field anti-symmetric and odd mode with high throughput and low crosstalk are obtained. Furthermore under the contra directional coupling condition two kinds of demultiplexers can be achieved. ~70% efficiency is achieved in first kind of demultiplexers which are based on the ring dielectric resonators while ~50% efficiency is achieved by the second kind of simple demultiplexers without any resonators and just by applying the simple slab waveguides in the simple geometries.

کلمات کلیدی:

metal-dielectric-metal, contra-directional coupler, demultiplexer

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