

Title (en)  
OPTICAL WAVEGUIDE STRUCTURES

Title (de)  
OPTISCHE WELLENLEITERSTRUKTUREN

Title (fr)  
STRUCTURES DE GUIDE D'ONDES OPTIQUE

Publication  
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Application  
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Abstract (en)  
[origin: WO0148521A1] The purely bound electromagnetic modes of propagation (plasmon-polariton waves) supported by waveguide structures comprised of a thin lossy metal film of finite width embedded in an infinite homogeneous dielectric have been characterized at optical wavelengths. One of the fundamental modes supported by the structure evolves with decreasing film thickness and width towards the TEM wave supported by the background (an evolution similar to that exhibited by the Sb mode in symmetric metal film slab waveguides), its losses and phase constant tending asymptotically towards those of the TEM wave. Attenuation values can be well below those of the Sb mode supported by the corresponding metal film slab waveguide. Low mode power attenuation in the neighbourhood of 10 to 0.1 dB/cm is achievable at optical communication wavelengths, with even lower values being possible, thus enabling various devices to be constructed, such as couplers, splitters, modulators, interferometers, switches and periodic structures.

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