

SURFACE MODES OF MULTILAYER STACKS

T. A. Birks, F. D. Lloyd-Lucas and P. St.J. Russell

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Abstract.

A parallel interface between a periodic multilayer structure and a uniform external medium can support surface electromagnetic waves. The energy in such a wave is localised about the boundary, and is excluded from the bulk of the multilayer structure by a Bragg condition. The possibility of quasi-single-mode behaviour, together with the freedom to make k as low as the plane-wave value in the external medium, and the great sensitivity of k to the detailed properties of the edge layer, gives these surface waves many potential applications in optical sensors, modulators, and other devices.