Fourier modal method analysis of light interactions with binary dielectric gratings

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Scattering of monochromatic light at a two-dimensional binary dielectric grating is analysed by use of Fourier modal method (FMM). The light is linearly polarized and is obliquely incident at an arbitrary angle upon the grating bounded by two semi-infinite different media. The FMM is a straightforward rigorous technique especially suited to obtaining numerically exact solutions of Maxwell's equations for the problems of light diffraction at periodic and aperiodic planar structures. This method shows good convergence with no instabilities and overflows. It can be applied equally well to thin, thick and surface relief gratings. The transmitted and reflected diffraction efficiencies of TE and TM polarized waves have been numerically evaluated and mutually compared. These efficiencies have been plotted for different grating periods and for different fractions of the grating period occupied by the ridge.

Acknowledgements

References

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