Interference effects with surface plasmons

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Stellingen

behorende bij het proefschrift
Interference effects with surface plasmons

I

The magnetic field is the most convenient tool for describing effects of surface plasmons on plane and structured metallo-dielectric interfaces.

This thesis, Chapter 1.

II

In plasmon-assisted two-slit experiments interference takes place both on the observation screen and in the slits.

This thesis, Chapter 2.

III

The effect of plasmonic cross-talk can easily be missed by choosing appropriate illumination conditions.

This thesis, Chapter 2.

IV

Ohmic damping in the metal is responsible for the retardation-plate like behavior of a single subwavelength-wide slit in a metal film.

This thesis, Chapter 6.

V

The ten orders of magnitude size difference between a melting iceberg and a nanoparticle changing its phase has welcome implications for nanophotonics: in the nanoworld spring and autumn may take only a few billionths of a second.

All change, please, N.I. Zheludev, Nature Photonics, ***1****, p.551 (2007).*

VI

The ratio of the real and imaginary parts of the surface-plasmon propagation constant provides a useful figure-of-merit for comparing plasmonic materials for use at short wavelengths.

VII

A *hyperlens* is a more convenient device than a *superlens* (perfect lens) for imaging objects with subwavelength resolution.

Negative refraction makes a perfect lens,
J.B. Pendry, PRL ***85****, p.3966 (2000).*
Optical hyperlens: far-field imaging beyond the diffraction limit,
Z. Jacob, L.V. Alekseyev and E. Narimanov, Opt. Exp. ***14****, p.8247 (2006).*

VIII

It is deceptive to ignore the damping of a surface plasmon when describing its properties.

Plasmonics: optics at the nanoscale,
A. Polman and H.A. Atwater, Materials Today, ***8****, p.56 (2005).*

IX

Myriads of fractals are daily produced and thrown out into trash bins.

Mechanically deformed crumpled surfaces,
M.A.F. Gomes, T.I. Ren, I.M. Rodrigues and C.B.S. Furtado,
J.Phys.D ***22****, p.1217 (1989).*
Geometry of Crumpled Paper, D.L. Blair and A. Kudrolli,
PRL ***94****, p.166107 (2005).*

X

Glasses are nowadays made from plastic.

XI

Parties and optical experiments thrive when the lights are dimmed, or out.

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