## 479.

Accession number:13148414

Title:Broadband Brewster transmission through 2D metallic gratings

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Source title: Journal of Applied Physics

Abbreviated source title: J. Appl. Phys. (USA)

Volume:112

Issue:9

Publication date:1 Nov. 2012

Pages:094317 (4 pp.)

Language:English

ISSN:0021-8979

CODEN: JAPIAU

Document type:Journal article (JA)

Publisher: American Institute of Physics

Country of publication:USA

Material Identity Number:DK28-2012-032

Abstract:Recently, we have introduced a mechanism to achieve ultrabroadband light funnelling and total transmission through 1D narrow metallic gratings at a specific incidence angle, the so-called plasmonic Brewster angle. This phenomenon is based on impedance matching between the guided modes supported by ultranarrow linear slits and transverse-magnetic waves at oblique incidence. In this paper, we demonstrate that such phenomenon, representing the equivalent of Brewster transmission for plasmonic screens, can also occur in 2D metallic gratings of various structural forms and shapes, and that it may be made insensitive to the azimuthal, or polarization, angle φ. This finding may have relevant implications to realize large funneling, absorption and squeezing of light in perforated metallic screens.

Number of references:22

Inspec controlled terms:diffraction gratings - light polarisation - optical squeezing - plasmonics - terahertz wave spectra

Uncontrolled terms:broadband Brewster transmission - 2D metallic gratings - ultrabroadband light funnelling - 1D narrow metallic gratings - plasmonic Brewster angle - impedance matching guided modes - ultranarrow linear slits - transverse-magnetic waves - structural forms - light squeezing - light absorption - metallic screens

Inspec classification codes:A4280F Gratings, echelles - A7320M Collective excitations (surface states)

Treatment:Experimental (EXP)

Discipline: Physics (A)

DOI:10.1063/1.4764334

Database:Inspec

IPC Code:G02B5/18Copyright 2012, The Institution of Engineering and Technology