

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Study of the absorption spectra of periodic hole arrays DIMITRIOS KOUKIS, DANIEL ARENAS, SINAN SELCUK, A.F. HEBARD, D.B. TANNER, S.V. SHABANOV — The absorption of light by periodic hole arrays was studied for various open area fractions and wavelengths. We determined the absorption by measurements of the transmittance (T) and reflectance (R) at near normal incidence and setting the absorption as $A = 1-R-T$. The reflectance and transmittance were both measured, using a microscope photometer in the near infrared region and Bruker IFS 113v in the mid-infrared region. Periodic hole arrays are characterized by “extraordinary” transmittance (larger than the predictions of geometrical optics) at frequencies just below the onset of first order diffraction by the periodic array. The absorption maximum occurs at frequencies slightly larger than the transmittance maximum. The absorption results for the various open area fractions will be compared to theoretical predictions.

Dimitrios Koukis

Date submitted: 01 Dec 2007

Electronic form version 1.4