

# **INFLUENCE ON THE EMISSIVITY OF THE DIRECTION OF EMISSION AND ROUGHNESS PARAMETERS OF SYMMETRIC TRIANGULAR SURFACES**

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**ABSTRACT.** In this paper we study the diffraction of light by symmetric triangular surfaces of gold with a finite conductivity. We investigate the influence on the spectral directional emissivity of the period and the height of the surface, and of the direction of emission. Emissivity is calculated using a rigorous coupled wave analyses. We identify three different regimes. The first is the geometric optics regime for which interpretation, based on geometric optics, is valid. The second one is the homogenization regime, for which the grating is equivalent to a superposition of homogeneous layers, which are characterized by effective index. The third one is the intermediate regime. In transverse magnetic polarization case it corresponds to the excitation of the surface plasmon polaritons. So, the emissivity is exalted. Here, the influence of the angle of emission on this resonance regime is specially carried out. In this paper, deep micro rough surfaces are also considered, and their radiative behaviour versus the angle of emission is particularly explored.