

Tamm plasmon mode in a quasicrystal symmetry structure

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In last few years there is growing interest to Tamm plasmon (TP) supporting structures. Tamm plasmon is a novel electromagnetic state localized at the interface between the metal and the Bragg reflector was predicted and experimentally demonstrated recently [1]. Unlike conventional surface plasmon TP modes are forming in both TE and TM polarizations inside the light-cone and demonstrating lower losses due absorption in metal [2]. The concept of TP open new ways for utilization of plasmonic parts in potential applications and devises [3]. Photonic quasicrystals (QC) have peculiar optical properties due high order of symmetry [4].

In our research we considered complex TP based structure with photonic QC layer sequence instead of usual distributed Bragg reflector (fig.1). Theoretical analysis of system resonance properties was analysed by numerical and analytical approaches. Results show new aspects in emission properties of such structures that can be used in high efficiency light emission systems.

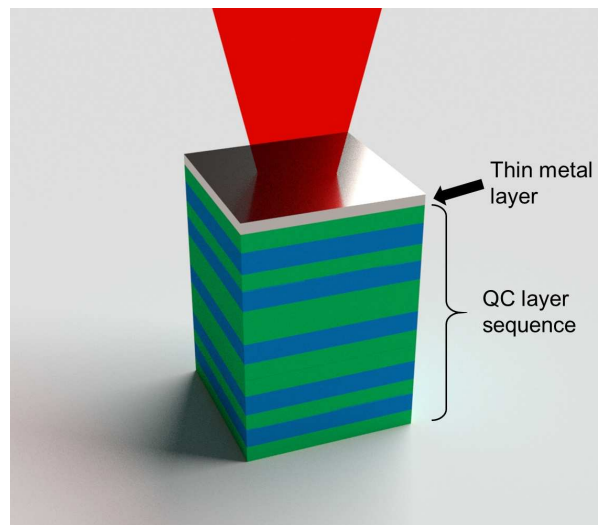


Figure 1: Scheme of Tamm plasmon structure based on quasicrystal sequence.

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