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Modeling transmission light in photonic band gap of one-dimensional photonic-plasmonic crystals with buffer layer

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Abstract

© Published under licence by IOP Publishing Ltd. The optical transmission wasn't researched completely for the hybrid plasmonic-photonic crystal with buffer dielectric layer between photonic crystal (PC) and layer of gold. In this article we consider the dependence of wavelength of the Tamm plasmon on refraction index of the buffer layer. Wavelength of the transmission peak in the photonic band gap increases at the increasing refractive index of buffer layer between metal and PC. Intensity of the transmission peak in the photonic band gap decreases at the increasing refractive index of buffer layer in metal-PC interface. So we can change distribution of energy inside hybrid photonic-plasmonic mode. This results have a promise application in developing lasers and sensors.

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