

## **Synthesis optimization of photonic crystals based on silicon and vanadium dioxides**

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### **Abstract**

The photonic crystal is the material which structure is characterized by periodic distribution of refraction index in the spatial directions, which have the photonic band gaps in a spectrum of own electromagnetic states. There are numerous approaches of the creation of photonic crystals. In the present the optimal conditions of synthesis of photonic crystals based on silicon dioxide as well as the inverse photonic crystals based on vanadium dioxide are investigated. It is known that the synthesis process is influenced by many different factors. We have studied the dependence of the particle size on the concentration of reagents, as well as on the duration of the reaction. These studies are important for the production of samples of photonic crystals with a definite structure. © Published under licence by IOP Publishing Ltd.

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