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Ultra-high green light transparency coating on 1D photonic crystal structure

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The anti-reflective (AR) coatings have been regarded as one of the promising options to improving an efficiency of light transmission. In this research, we design the ultra-high anti-reflective layer structure. By using the specification properties of 1D photonic crystal, the periodical stack layer of tantalum pentoxide (Ta_2O_5) and molybdenum disulfide (MoS_2) in borosilicate glass (BK7) have been modified with a graphene as a defect layer for the wavelength selective transmission enhancement. The FDTD simulations have shown an extremely transparency for 0.283% of reflection at wavelength 505.613 nm and agreed with analytical results.

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