

# **Non-exhibition of the Bragg Phenomenon from Temporally Periodic Physical Vapor Deposition on Rough Surfaces.**

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**Abstract:** Temporally periodic physical vapor deposition (TP-PVD) is commonly used to fabricate Bragg mirrors on planar surfaces. A Bragg mirror is a dielectric slab that is periodically nonhomogeneous in the thickness direction. Due to the periodically nonhomogeneous electromagnetic constitution, Bragg mirrors tend to exhibit the Bragg phenomenon as a high-reflectance spectral regime that depends on the direction of propagation and the polarization state of the incident light. Using TP-PVD in two different formats, we have found that the Bragg phenomenon can be nullified in certain thin-film applications by means of roughening the deposition surface on the scale of the wavelength.