

Abstract Submitted
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Bio inspired replication and mimicry of optical structure from nature BEOM-JIN YOON, MATIJA CRNE¹, JUNG OK PARK, MOHAN SRINIVASARAO, CHRISTOPHER J. SUMMERS, School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, GA, 30332 — The optical response from some insects and animals is not from dye or pigment but from their complex structure. The so-called structural color involves interference, diffraction, scattering and photonic crystal effect in various combinations. Structures associated with the structural color have been invasively attended because they have been considered as essentials of optical and photonic devices. The diffraction grating was replicated from beetles by the atomic layer deposition (ALD), and the optical response of resulting structures was characterized. We also present our result on mimicry of the structure of Papilio butterfly. To mimic the structure in the butterfly, we created the basic cup-like structure from polymer films having ordered array of holes, and coated it with an alternating multilayer of the materials. The optical properties of the mimicked structures are also investigated.

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