

Webinar

Biogenic photonic structures assembled from birefringent nanospheres

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During the course of evolution, several aquatic organisms have developed photonic structures which aid in vision. In this talk, I will present our research on a reflective structure assembled from crystalline isoxanthopterin nanospheres, that is found in the eyes of the shrimp *Litopenaeus vannamei*. Our studies revealed how the tailored spatial variation of optical anisotropy within each nanosphere enhances reflectance from the assembly. We have also used our knowledge of the optical scattering resonances of the nanospheres to determine the refractive index of biogenic isoxanthopterin. Following this, I will describe our ongoing studies of biogenic photonic structures and the research that I plan to undertake in the future.

Reference:

1. V. J. Yallapragada and D. Oron, *Opt. Lett.* 44, 5860 (2019).
2. B. A. Palmer, V. J. Yallapragada et al., *Nat. Nanotechnol.* 15, 138–144 (2020).

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4:00 PM