

## **LOCALIZED NEAR-FIELD RADIATIVE HEAT TRANSFER IN BIOMIMICRY DESIGNS INSPIRED BY NEON TETRA FISH**

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**ABSTRACT.** Inspired by multilayer structure of the Neon tetra tropical fish which is one of the most fascinating multilayer systems ever reported in nature, we investigate the localized effects of coupling of surface phonon polaritons in phononic multilayer geometries. Our findings suggest that near-field radiative heat flux can be enhanced by orders of magnitude when compared against the blackbody predictions in the proposed structures. These biomimicry structures which give rise to structural colours and their iridescent characteristics, may find potential in design, modelling and manufacturing of spectrally selective thermal and electronic sensors when used in the proposed platform as presented in this work.