ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ
ΤΜΗΜΑ ΕΠΙΣΤΗΜΗΣ ΚΑΙ ΤΕΧΝΟΛΟΓΙΑΣ ΥΛΙΚΩΝ

ΠΑΡΟΥΣΙΑΣΗ ΜΕΤΑΠΤΥΧΙΑΚΟΥ ΔΙΠΛΩΜΑΤΟΣ ΕΙΔΙΚΕΥΣΗΣ

Τίτλος

«Moth-eye structures for light trapping in thin organic solar cells»

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Πανεπιστήμιο Κρήτης

Moth-eye structures are an evolutionary adaptation that reduces the reflectivity of the compound eyes or wings of various species of insects. By index-matching through an effective refractive index gradient, these subwavelegth structures minimize reflectivity over a wide angular range and a broad spectrum. Following a biomimetic approach “moth-eye” nano-structures are used to reduce optical losses in the thin active layers of organic photovoltaics (OPVs).

In this work, we theoretically study various antireflection solutions with application in thin organic solar cells. More specifically, by combining analytical and numerical approaches such as the transfer matrix (TMM) and the finite-difference time-domain (FDTD) methods we focus our study on the reflectivity of, cicada wing inspired, subwavelength structures.