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Abstract for an Invited Paper for the MAR14 Meeting of the American Physical Society

Prospects of Omnidirectional Substrates for Light Trapping

TERI ODOM, Northwestern University

Nanostructured substrates are promising for light trapping in photovoltaic devices because they have the potential to manage and direct light absorption and scattering. Whether these structures should be periodic or randomly arranged is under some debate, although most texturing in inorganic devices has no short or long-range order. This talk will describe how different types of nano-textured substrates can result in broadband absorption over visible and near-infrared ranges. We will discuss different strategies to generate subwavelength features with moiré patterns, high rotational symmetries, and wrinkled features. The potential of these omnidirectional substrates in organic photovoltaics will be described.