



The Structural Engineering Strategy for Photonic Material Research and Device Development

<http://www.firstlight.cn> 2007-10-14

A new structural engineering strategy is introduced for optimizing the fabrication of arrayed nanorod materials, optimizing superlattice structures for realizing a strong coupling, and directly developing nanophotonic devices. The strategy can be regarded as “combinatorial” because of the high efficiency in optimizing structures. In this article, this strategy was applied to grow ZnO nanorod arrays, and to develop a new multifunctional photodetector using such nanorod arrays, which is able to simultaneously detect power, energy, and polarization of an incident ultraviolet radiation. The strategy was also used to study the extraordinary dielectric behavior of relaxor ferroelectric lead titanate doped lead magnesium niobate heterophase superlattices in the terahertz frequencies, in order to investigate their dielectric polariton physics and the potential to be integrated with tunable surface resonant plasmonics devices.

[存档文本](#)