

에너지 소자의 성능 향상을 위한 빛 가둠 전략(Light trapping strategies for improving performances of energy devices)

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Recently, light trapping strategies have been received extensive attention to reduce the production cost by decreasing thicknesses of devices or to improve the cell efficiencies by increasing the path length of incident rays within the cells. In this talk, an unconventional lithographic approach will be presented to construct microstructures of conducting materials to trap incident light effectively. From experimental and theoretical comparisons with different geometries, we have concluded that three-dimensional pyramids are the best structures for photocurrent-voltage performance because of the total reflection on their surface. Furthermore, we will propose a low cost process to prepare the three-dimensional structures and bio-inspired approaches for higher efficiencies.