Supporting Information: Quantifying light coupling to guided modes in semiconductor slabs with arbitrary scattering patterns

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Real Space Design and PSD of patterns

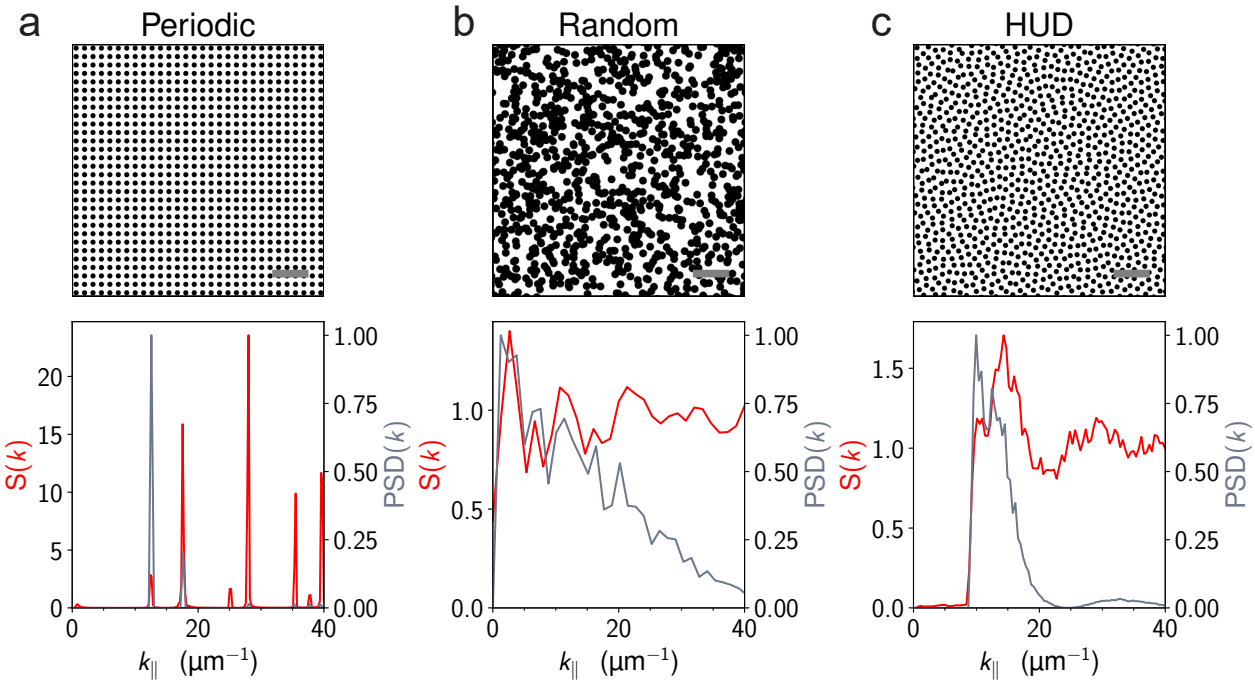

Figure 1: Real space images and PSD of the investigated patterns.
a periodic, b random, c hyperuniform-disordered pillars. Top row: Real space images, scale bar 1 µm in a,b and 5 µm in c. Bottom row: Normalized power spectral density calculated from real-space images above.

Fig. 1 shows distinct power spectral densities for three different configurations. The PSD of periodic (a) features sharp peaks at the momentum values corresponding to the diffraction orders, while the PSD in case of a random pattern (b) is continuous across the frequency spectrum with diminishing intensity. The correlated-disordered, or hyperuniform distribution of disks in (c) shares features with both periodic and random: A continuous intensity delimited within a certain range of momentum values with no intensity below a threshold momentum value $\sim 8\,\mu$m.