

Dynamical light control in longitudinally modulated segmented waveguide arrays

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We address light propagation in segmented waveguide arrays where the refractive index is longitudinally modulated with an out-of-phase modulation in adjacent waveguides, so that the coupling strength varies along propagation direction. Thus in resonant segments coupling may be inhibited hence light remains localized, while in detuned segments coupling results in complex switching scenarios that may be controlled by stacking several resonant and nonresonant segments. By tuning the modulation frequency and lengths of waveguide segments one may control the distribution of light among the output guides, including localizing all light in the selected output channel.

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