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Quantum optics and applications with cooperative 2D emitter arrays

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The physics of cooperative atoms/radiators in regular 2D arrays is dominated by two properties: first, a strongly frequency-selective reflectivity and second, the ability of confining polariton modes cleanly on the surface. This makes such a system highly sensitive to and controllable by light fields. Applications of these systems include quantum information, metrology, and nonlinear single-photon techniques.