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Demonstration of high-Q TE-TM photonic crystal nanobeam cavities

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We experimentally demonstrate high Quality factor dual-polarized TE-TM photonic crystal nanobeam cavities. The free-standing nanobeams are fabricated in a 500 nm thick silicon layer, and are probed using both tapered optical fiber and free-space resonant scattering set-ups. We measure Q-factors greater than 10^4 for both TM and TE modes, and observe large fiber transmission drops (0.3 -- 0.4) at the TM mode resonances.

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