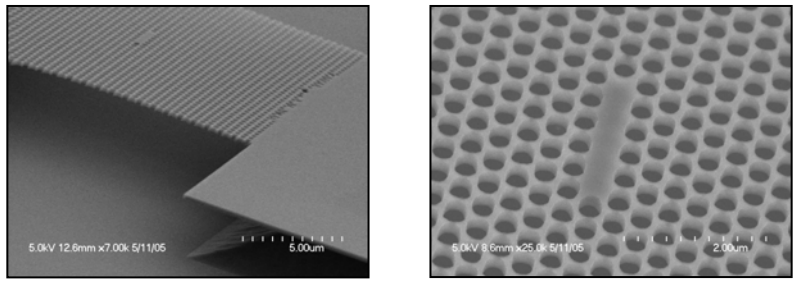
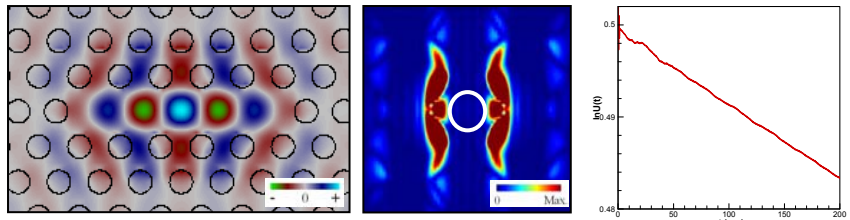
Ultrahigh-*Q* nanocavities

Motivation: Design, nanofabrication and application of ultrahigh-*Q* nanocavities in silicon "air-bridge" photonic crystal slabs.



"Air-bridge" photonic crystal slab and *L5* nanocavities

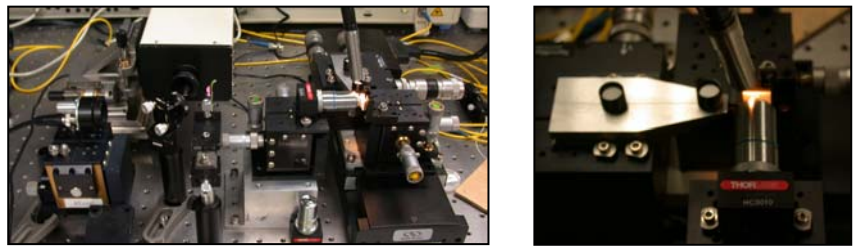


Defect mode, FT spectrum and energy decay for *L5* nanocavities

$$Q = \omega_0 U / P = -\omega_0 U / (dU/dt) = 42{,}000$$

Result and Significance:

* Design and nanofabrication of high-*Q* *L5* nanocavities for enhanced stimulated Raman amplification and lasing in monolithic silicon.
* *Q* calculation with 3D FDTD method.
* *Q* measurements from the radiation spectra of nanocavities.



Q measurements setup

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Publication: Opt. Express 13, 4723-4730 (2005)

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