

6. Conclusion

We have demonstrated the tuning of high- Q double-heterostructured silicon photonic crystal nanocavities using laser-assisted local thermal oxidation. Cavity Q decreases from 3.2×10^5 to 1.2×10^5 over the range of oxidation times and laser powers examined. The effects of water absorption and thin oxide growth were also observed. Numerical simulations were used to model the temperature distribution in the silicon photonic crystal membrane and resonance shift of the optical mode due to oxidation.

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