Applied Physics

Optics Seminar

Photonic Crystal Devices

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This presentation will summarize work done at the University of Southern California on photonic crystal devices. This talk will focus on photonic crystal lasers, and passive waveguide structures. I will discuss both the results from the numerical models of these devices as well as the experimental data.

In this presentation I will report on our work on optically pumped photonic crystal lasers. We have demonstrated both suspended membrane and sapphire-bonded photonic crystal microcavity lasers. These devices are optically pumped at and above room temperature.

I will also report on progress made in understanding the optical characteristics of two-dimensional photonic crystal waveguides. This will include a comparison of the theoretical and experimental results for optical propagation loss and group velocity dispersion in these devices. Results form more complicated device geometries that include waveguide branches and bends such as Mach-Zehnder interferometers made from two-dimensional photonic crystals will also be presented.

Friday, February 20, 2004.

4:00 – 5:00 p.m.

Watson 104

Refreshments at 3:45pm in the Watson lobby