

SOCIETY OF PHYSICS STUDENTS (SPS) COLLOQUIUM

Photonic Crystal Fibers

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Abstract:

Fiber optic cables have been, and currently are, revolutionizing the way we send signals to communicate with one another. Conventionally, copper wires would be used to send electrical signals via telephone lines or a cable for television, for example. Using fiber optic cables to communicate through these media is not only cheaper, but there is also less signal degradation, higher carrier capacity due to the fact that fiber optic cables are smaller than copper wires, less physical weight, and more flexibility. All of these advantages make fiber optic cables the ideal media via which telecommunication takes place. Fiber optics can take on different forms. Standard fibers utilize total internal reflection with materials of differing indexes of refraction, one as a cladding and the other as a core, to guide light through the fiber. Photonic crystal fibers obtain a difference in indexes of refraction by creating a hybrid material made up of a matrix of materials with different indexes of refraction.

Now, at the pinnacle of all of this progress towards better fiber optics, Photonic Crystal Fibers stand proudly.

In this presentation, I will review the basic, physical principles behind fiber optics, both for the standard fiber and the Photonic Crystal Fiber, with a focus on Photonic Crystal Fibers.

WHERE

SI – 117 (room next to the Physics Computer Lab)

WHEN

12:30 pm
Friday, Feb 24, 2006

Pizza served before the colloquium