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“A case study on cladding single crystal sapphire optical fibers”

ABSTRACT:

This talk presents the finite element modeling of a few unique bundled sapphire photonic crystal fiber designs. The structure generally consists of five to six rods of single crystal sapphire fiber symmetrically arranged around a solid single crystal sapphire core. The single crystal sapphire fibers used in this study were approximately 50–70 µm in diameter as this is the present limitation of single crystal sapphire fiber fabrication. The modeling work focuses on the optimization and modal analysis of these photonic crystal fibers using Comsol Multiphysics 4.2. The goal is to reduce the modal volume of these fibers therefore limiting the loss for end use applications like temperature and pressure sensing.

BIO:

Mr. Neal Pfeiffenberger joined Dr. Pickrell’s lab group in August of 2007 and has been focused on the modeling of electromagnetic wave propagation. He is also a part time employee of the DuPont DPT division at their Spruance site in Richmond, VA where his research focuses mainly on the PV-Roof interaction using DuPont products. He has been with Dupont’s Spruance site for almost six years and has worked on fiber electrostatics to polymer rheology. Neal graduated from The Pennsylvania State University in 2007 with a major in Electrical Engineering and a minor in Engineering Leadership and Development. Neal was the 2007 Pennsylvania State University Dr. James M. Slick Engineering Cooperative Education Student of the Year and won the Engineering Cooperative Education and Internship Program Professional Development Award.