

Colloquium Notice

Michael Sumetsky

OFS Laboratories

Localization of light in an optical fiber: cylinder, conical and bottle microresonators

A slightly nonuniform and even an ideally uniform optical fiber can perform as a high Q-factor optical microresonator which hosts different types of strongly localized whispering gallery modes (WGMs). These modes are described theoretically and observed experimentally. First, it is shown that a very long (translationally symmetric) lossy dielectric optical microcylinder possesses localized modes. The Q-factor of these WGMs is only 2.5 times smaller than the Q-factor of WGMs in a spherical microresonator fabricated of the same material. Next, localization of WGMs in a cone with a small half-angle is demonstrated. The cylindrical and conical modes are found to be common in conventional optical fibers. The developed theory of a these modes is in excellent agreement with experiment. Finally, the cylinder and conical modes are compared with bottle WGMs that were investigated previously.

Monday

November 29, 2010

Starts at 12:15 PM

Coffee at 12:00 PM

Physics Conference Room, SB B326