


Physics
AT QUEENS COLLEGE

Colloquium Notice

Ahmer Naweed

Oklahoma State University, Physics

Coherence phenomena in evanescently-coupled whispering-gallery micro-resonators

In recent years, whispering-gallery modes (WGMs) of micrometer-sized dielectric spheres (microresonators) have been used in a number of applications, including cavity quantum electrodynamics, trace-gas and chemical detection, biosensing, and nonlinear optics. A convenient method for exciting these modes is photon tunneling from an adjacent tapered optical fiber carrying the incident laser light. The most useful WGMs propagate in circular paths near the sphere's equator and their evanescent part allows interaction with the surrounding environment. By bringing an additional sphere nearly in contact with an excited microresonator, evanescent mode coupling between the two spheres is realized. Experiments performed with coupled fused-silica microresonators show that interference between co-resonant modes of the two spheres gives rise to spectral features that are analogous to those observed in an atomic ensemble that is driven under coherent quantum interference conditions.

Monday
April 4, 2005
Starts at 12:15 PM
Coffee at 12:00 PM
Physics Conference Room, SB B326