



Seungmoo Yang

Graduate Student in Physics and Optical Science
University of North Carolina in Charlotte
349 Grigg Hall
9201 University City Blvd.
Charlotte, NC 28223
704 687 8297
syang27@uncc.edu



Abstract

Title: *Whispering gallery resonances in semiconductor micropillars*

In this paper we observe high quality (Q up to 20000) whispering gallery modes (WGMs) with small modal volumes $V \sim 0.3 \mu\text{m}^3$ in 4-5 μm Al(Ga)As/GaAs micropillars by employing an experimental geometry in which both excitation and collection of emission is in a direction normal to the sidewalls of the pillars. The spectral positions of the WGMs peaks are found to be in very good agreement with the results of numerical modeling performed by finite difference time domain techniques. We show that WGMs provide at least two times larger values of the figure of merit for strong coupling applications, Q/\sqrt{V} , compared to “photonic dot” states in pillars with comparable size.

Biography

SEUNGMOO YANG received the M.S. degree in Engineering from Chung-Ang University, Seoul, South Korea in 1998. Since his move to the US in 1999 he has been for several years a graduate student in the groups of Prof. James Lager, University of Minnesota, and Prof. Greg Nordin, Brigham Young University. In 2006 he joined the group of Prof. Vasily Astratov at the University of North Carolina at Charlotte where he is working towards Ph.D. degree in Optical Science and Engineering. His interests include microcavities and coupled resonator optical waveguides, as well as optical waveguide circuits.