Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Superfocusing the light through the nanosize slit via photonic tornado SEONG SOO CHOI, VINAYA JHA, OM SUWAL, SunMoon University, MYOUNG JIN PARK, Korea Military Academy, NAM KYU PARK, Seoul National University, DAISIK KIM, Seoul National University, NATIONAL RESEARCH LABORATORY TEAM — The macro size pyramidal horn probe such as klystron horn antenna has been used to provide the excellent focusing capabilities in microwave region. In the similar way, the pyramidal probe with the micron size mirror (pyramidal horn probe) has been fabricated with a nano-size aperture with diameter ranging from $\sim$1 nm to $\sim$30 nm. Light transmission through the micro-fabricated pyramidal horn probe has been measured to enhance the light transmission due to resonant effects between the cavity mode and the slit modes in the probe, along with improved directionality of the transmitted beam. The resonant tunneling between two standing waves in the input groove and in the output groove can provide the transmission enhancements. With decreasing slit width, the transmission is found to increasing tremendously.[1] The transmission is measured to be inversely proportional to the area.[2,3] References:[1] R. Gordon, Phys. Rev. B 73, 153405 (2006).[2] R. Harrington, IEEE Trans. Antennas Propagat. Ap-30, 205(1982).[3] Y Leviatan, R. Harrington, J. Maut, IEEE Trans. Antennas Propagat. Ap-30, 1533(1982)

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Date submitted: 21 Dec 2009 Electronic form version 1.4