

Abstract Submitted
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Confinement of enhance-transmitted light beam by surface plasma induced on sub-wavelength slits.¹ KUAN-REN CHEN, Physics Department, Institute of Electro-optics, Plasma and Space Science Center, National Cheng Kung University, Taiwan — The enhancement of light transmission through sub-wavelength slit is an interesting and important recent discovery in plasmonic nano-photonics. This is studied with our newly developed two dimensional simulation code of finite-difference time-domain method. The simulations verify the enhanced transmission that far exceeds the diffraction limit and help to understand in depth the resultant beaming of light that will be important in nano-optical applications. The beaming of light is found due to the interference of the first order scattered light with the zeroth order transmitted light and is divergent with a finite angle. By proposing the interference between the zeroth and zeroth orders, we found the light can be confined as an almost divergence-less beam. The dynamics and interesting physics of our new scheme and founding will be discussed.

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Kuan-Ren Chen
Physics Department, Institute of Electro-optics,
Plasma and Science Center,
National Cheng Kung University, Taiwan

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