

Abstract Submitted
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A Novel Nanoscale Coaxial Optical Microscope by Converging Array of Subwavelength Waveguides FAN YE, GREGORY MCMAHON, KYLE MARRA, KRZYSZTOF KEMPA, MICHAEL J. NAUGHTON, Boston College — A novel nanoscale coaxial optical microscope (NCOM) is proposed by constructing a converging array of coaxial subwavelength optical waveguides (nanocoax). This new design has potential for deep subdiffraction limit resolution, essentially independent of wavelength of the light source. The coaxial structure also has the capability of modal confinement, which can be utilized to extract phase information in the imaging plane. The transmittance and energy dissipation properties of a single nanocoax are obtained, in the visible light range, by numerical simulation. Optical properties of a converging nanocoax array are also investigated numerically. Finally, progress toward an experimental realization of this novel NCOM is discussed.

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