

图像处理

# 非探针近场光学显微镜的成像实现

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**摘要** 介绍一种非探针近场光学显微镜, 并对它的图像实现过程及处理方法进行了讨论。该装置以阿达玛变换成像理论为基础, 用纳米多孔编码板代替光纤探针获得了较高的光学信噪比。成像研究表明, 该装置可对近场消逝波分量进行有效探测并能实现超衍射极限成像, 为近场光学探测研究提供了一种新的思路。

**关键词** [非探针](#) [近场光学](#) [图像处理](#) [阿达玛变换](#) [消逝波](#)

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## The Imaging Realization of Non-Probe Near-Field Optical Microscope

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**Abstract** The non probe near field optical microscope is introduced in this paper, and the processing method and realization of the images are discussed. Based on the theory of Hadamard Transform imaging, the non probe near field optical microscope, which replaces the fiber probe with the nanometer multi aperture encoding mask, has a high optical signal to noise ratio. The research shows that the non probe near field optical microscope can detect the evanescent near field wave effectively and the image with a super diffraction limiting resolution can be obtained. All this will provide a new method for the research of the near field optics.

**Key words** [non-probe](#) [near-field optics](#) [image processing](#) [Hadamard Transform](#) [evanescent wave](#)

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