

Abstract Submitted
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Dual Mode AFM/Ellipsometer Imaging¹ JIANGHUA BAI², JOHN FREEOUF, ANDRES LA ROSA, Portland State University — We have constructed an apertureless NSOM system which combines a null ellipsometer with an AFM. The polarized laser beam of the ellipsometer shines on both the sample and the AFM tip, while the tip is scanned across the sample surface. The AFM tip is mounted on a crystal tuning fork (TF) oscillating at its nominal resonant frequency. The reflected light passes through a compensator and analyzer and is collected by a photomultiplier tube. Both 1st and 3rd orders of the reflected light have been measured to determine the optical properties of the sample. We have measured the response of the TF and modeled its behavior in the overall system response. We shall discuss the operation of the AFM system and the optical response observed for operation with the AFM in both “sweeping” mode and “tapping” mode. We shall show results for various samples, including “hard” samples such as silicon on sapphire, and “soft” samples such as polymers on glass slides.

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