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Plasmon-based Enhanced NSOM Spectroscopy. A.T. CHANG, C.L. NEHL, F. TAM, N.J. HALAS, J.H. HAFNER, K.F. KELLY, Rice University — Surface enhanced Raman spectroscopy is a well established technique for enhancing the Raman signal of a particular sample, allowing for spectroscopy of far lower quantities of the molecule of interest than other procedures allow. This enhancement is mainly caused by the enhancement of the incident electric field by exciting the plasmon resonance of the surface. By attaching metal nanoparticles on an NSOM probe, we demonstrate that the plasmon-based enhancement can come from the probe itself instead of the surface, resulting in a powerful tool for the chemical analysis at the nanometer scale.

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