

Abstract Submitted  
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**Ultrasonic Subsurface Nanostructures Detection with Frequency Modulated Height Control** RODOLFO FERNANDEZ RODRIGUEZ, XIAO-HUA WANG, MIKE HOPKINS, KEITH PARKER, Dr. La Rosa's group, Department of Physics, Portland State University, RICHARD NORDSTROM, Department of Mechanical and Materials Engineering, Portland State University, ANDRES LA ROSA, Dr. La Rosa's group, Department of Physics, Portland State University — Subsurface imaging of nanostructures have applications both in the integrated circuits industry to find defects in the fabrication process of electronic components and in the biophysics research for imaging of subcellular structures. An Ultrasonic sensor has been integrated into a tuning-fork (TF) based scanning probe microscope (TF-SPM) to monitor the acoustic vibration of the sample as a result of its interaction with the TF probe. The feedback control of the probe-surface distance is performed by means of the frequency shift of the TF signal. Topography and related acoustic and phase images will be presented.

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