

Abstract Submitted
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The Ultrasonic-Coupled Near-Field Microscope ANDRES LA ROSA, RODOLFO FERNANDEZ, XIOHUA WANG, MICHAEL HOPKINS, KEITH PARKER, RICHARD NORDSTROM, Portland State University, MESOSCOPIC SCALE IMAGING GROUP TEAM, DR. NORDSTROM COLLABORATION — A novel, compact and versatile imaging technique is presented. Fully operated by acoustic sensors, the Ultrasonically-Coupled Near-field Microscope (UCNM) is capable of sensitively monitoring the acoustic waves generated by mesoscopic fluid-like films trapped between two periodically-sliding solid boundaries. Another novelty includes an acoustic-based feedback for controlling the UCNM probe's vertical position, which is exploited for topographic imaging characterization. The UCNM constitutes an alternative way for characterizing surface phenomena (nanotribology, adhesion, wetting) at the nanoscale and presents potential capabilities for imaging sub-surface materials properties.

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