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On-line Scanned Probe Microscopy Transparently Integrated with DualBeam SEM/FIB Systems ANDREY IGNATOV, ANATOLY KOMISSAR, Nanonics Imaging Ltd., AARON LEWIS, Hebrew University of Jerusalem, Dept. of Applied Physics & Benin School of Engineering & Computer Science — A multifunctional scanning probe microscope (SPM) will be described that transparently integrates with a DualBeam SEM/FIB System. This is done without perturbing any of the capabilities of the Dual Beam in terms of detectors, gas injectors, analyzers etc while allowing for a completely exposed probe tip to be imaged online even with immersion objectives at working distances as short as 4 mm. In addition, the completely free motion of the rotation axis of the stage is maintained with the probe tip at the eucentric point, this makes it possible to orient the sample in any direction on any structure The X and Y scan range of the atomic force microscopic (AFM) imaging achieves 35 microns with rough motion over 10 millimeters. This permits the SPM to tilt into position perpendicular to the SEM or FIB or under an angle for rapid and accurate placement of the probe tip at or on structures such as biopolymeric materials that are nanometric in X, Y and Z extent. Thus, not only can a structure's nanometric height be accurately profiled but this can be accomplished with the on-line excellence of SEM for X, Y metrology. Furthermore, electron and ion beam sensitive samples can be imaged and characterized by AFM at high resolution.

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