

Abstract Submitted
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Scanning Field Emission Microscopy SAMUEL TOBLER, Arizona State University Physics Dept, PETER BENNETT — We describe a “new” scanning probe method that is useful for imaging rough or insulating surfaces in vacuum. A conventional STM is operated in feedback mode with high bias voltage (up to 100V) and field-emission current (few nA). The large tip-sample distance (up to 50nm) makes imaging more robust than for tunneling, while retaining good lateral and vertical resolution (a few nm). This is demonstrated with images of atomic steps on Si(111) under a native oxide film. A simple electrostatic model for the imaging is presented.

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