

Abstract Submitted
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Imaging and quantification of electrical properties at the nanoscale using Scanning Microwave Impedance Microscopy (sMIM)
STUART FRIEDMAN¹, OSKAR AMSTER², None — Scanning Microwave Impedance Microscopy (sMIM) is a novel mode for AFM-enabling imaging of unique contrast mechanisms and measurement of local permittivity and conductivity at the 10's of nm length scale. We will review the state of the art, including imaging studies of microelectronic devices as well as novel materials and nanostructures, such as graphene and patterned optical crystals and ferro-electrics. In addition to imaging, the technique is suited for a variety of metrology applications where specific physical properties are determined quantitatively. We will present research results on quantitative measurements of dielectric constant (permittivity) and conductivity (e.g. dopant concentration). For samples where properties such as dielectric constant are known the technique can be used to measure film thickness.

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