

SPM techniques for ferroelectric materials characterization

In the last decade, Scanning Probe Microscopy techniques like Piezoresponse Force Microscopy (PFM) and Higher Order Harmonic Detection (HOH) have become essential tools for evaluating the electromechanical response, switching behavior (SPFM), and distinction of non-ferroelectric signals in ferroelectric materials. In this talk, the implementation in our Atomic Force Microscope of the PFM, SPFM and HOH techniques assisted with resonance tracking is described. Technical aspects for the implementation of these techniques are reviewed. Results on BiFeO_3 (ferroelectric) and AlN (piezoelectric) films are presented as examples.