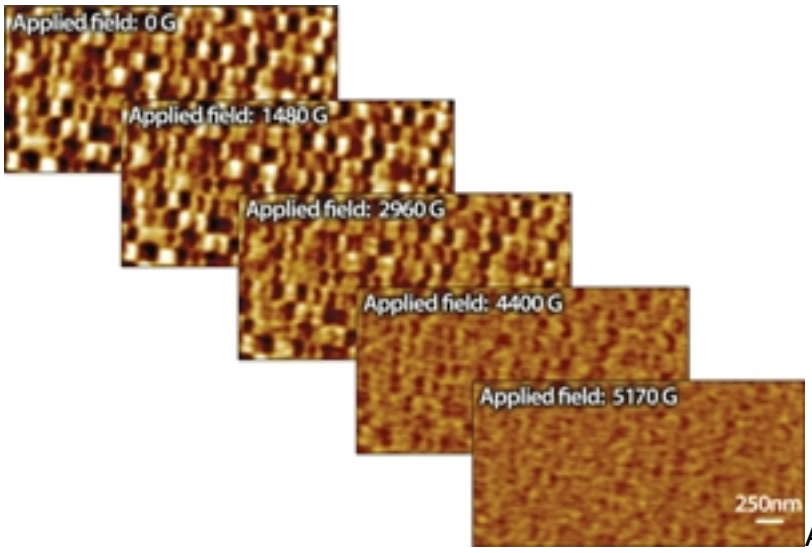
Variable Field Module for Magnetic Atomic Force Microscopy Applications



Asylum Research introduces the new Variable Field Module2 (VFM2) for the MFP-3D Atomic Force Microscopes (AFM). The VFM2 is ideal for researchers who want to apply magnetic fields to their atomic force microscopy experiments and applies continuously adjustable magnetic fields parallel to the sample plane approaching one Tesla with one Gauss resolution. The module is useful for magnetic force microscopy (MFM), conductive AFM (C-AFM), and other applications where the sample's properties are magnetic field dependent.

The VFM2 easily attaches to the MFP-3D AFMs and features adjustable pole tips for optimal choice between maximum required field, sample placement and minimum field gradients. The Module uses a unique design incorporating rare earth magnets to produce the magnetic field. Maintaining a steady field produces no heat, thermal drift, or mechanical vibration. Field intensity is software controllable. An integrated Gaussmeter provides a quantitative measure of the applied magnetic field.

For experiments where combined magnetic field and a high tip-sample voltage bias are required, such as for studies of ferroelectric and piezoelectric materials, the VFM2 High Voltage Kit can be easily attached to the VFM2. The High Voltage Kit allows application of tip biases up to ±220V.

Commented Roger Proksch, President of Asylum Research, “Prior to the introduction of the VFM2, high magnetic field measurements required complicated superconducting or water-cooled magnets, neither of which were particularly friendly to low-noise, high precision AFM measurements. Our team, headed by Maarten Rutgers, has made a startling increase in field strength along with increased measurement precision and ease of use. This is truly a major step forward in ambient AFM.”

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Posted by Janine E. Mooney, Editor

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