



## TECHNOLOGY

# Frequency and Force Modulation Atomic Force Microscopy

## OVERVIEW

Amplitude-modulation tapping-mode atomic force microscopy (AM-AFM) has developed into an important imaging tool for surface characterization. Despite its technical advances it succumbs to imaging bistability caused by the co-existence of attractive and repulsive imaging regimes, and potential sample damage in the repulsive regime.

Researchers in the Department of Mechanical Engineering propose a new intermittent-contact AFM imaging concept, frequency-and-amplitude-modulation atomic force microscopy (FAM-AFM), which offers the potential to overcome both the issues addressed above. Additionally the reduction in the magnitude of the tip-sample repulsive forces offers a significant opportunity to study new biological and other soft samples which are currently outside the capabilities of AM-AFM. Besides this FAM-AFM also hold the capability to search for potential well of the tip-sample which will be extremely attractive in the study of both hard and soft samples.

Finally, there are various developments that can be applied to FAM-AFM that will bring across several benefits of this technology.

For more information, please contact the Office of Technology Commercialization, University of Maryland College Park, via phone 301-405-2924 or e-mail at [otc@umd.edu](mailto:otc@umd.edu).

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## Additional Information

### INSTITUTION

University of Maryland, College Park

### CATEGORIES

- Sensors/Monitors
- Devices
- Engineering

### EXTERNAL RESOURCES

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