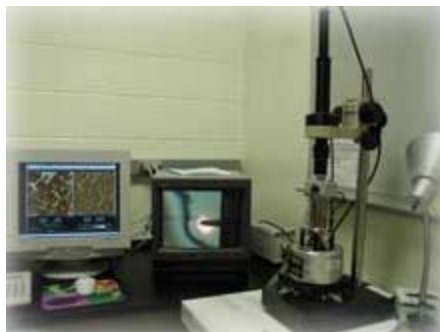


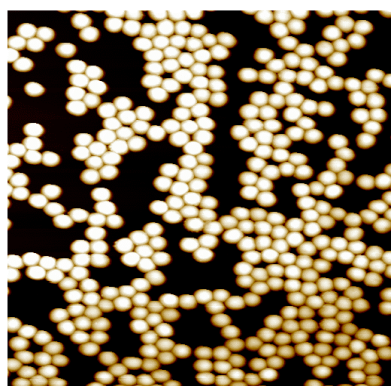
# Digital Instruments Multimode User Manual for Image Analysis



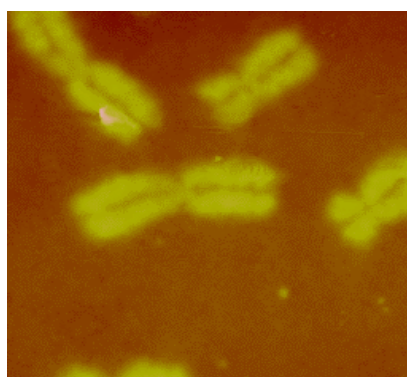
## NI FTI USER FACILITY

**Dr. Gajendra Shekhawat**  
Manager

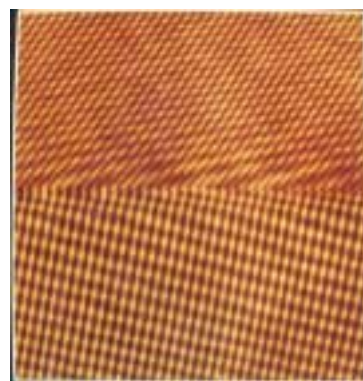
**Prof. Vinayak Dravid**  
Director



**ZnS Q.D. in Air**



**Human Chromosomes  
in Liquid**



**Si/SiO<sub>2</sub> Interface  
in Vacuum**

## Off Line Operation (Image Analysis)

### File Handling

- Once images are captured during Real-time operation, they are viewed and measured with the Off-line commands.
- Each captured image is immediately stored in the Capture directory in Off-line.
- Access to different disk drives is available at the top of the file directory panel. The I:\ Drive is the Capture directory, A:\ is floppy drive, and the C:\ and D:\ are the computer hard drive.
- Users can open their folder in D:/Users and can save their images in them. Images can be taken out either in Zip Disk or CD drive.

### Image Analysis

- View captured images in drive I. There will be either one image (topography) or two images (topography/deflection) depending your channel settings. If you have two images, then go to the menu-→select--→ left image.
- You can view either 2D, 3D or line plot images by clicking on view or icons situated right below the main menu.
- Image contrast, data scale, colors, angle and pitch can be easily changed either in 2D, 3D and line plots. Images can be directly saved either in user folder or Zip drive by clicking on Utility and save as either in tiff, jpeg or ascii format. It will ask for the destination drive. Make sure that you check the reverse button in order to prevent the dark background.

### Flatten

- Flatten may be used to remove image artifacts due to vertical (Z) scanner drift, image bow, skips, and anything else that may have resulted in a vertical offset between scan lines.
- Use 0<sup>th</sup> order flattening as higher order may modifies the images. Go to the main menu and click on Modify-→ Flatten or you can directly click on flatten icon located right under the main menu. After flattening, save the image.
- Flattening an image which consists of a flat plane with “bumps” or “pits” on it will result in the flat area next to the features (along the X direction) to appear lower with respect

to the flatten scan lines without raised or depressed features. An example of this is shown below.

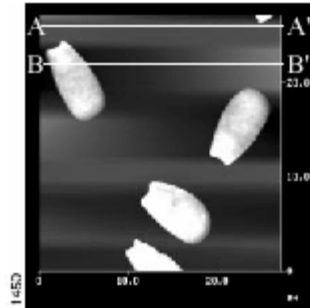
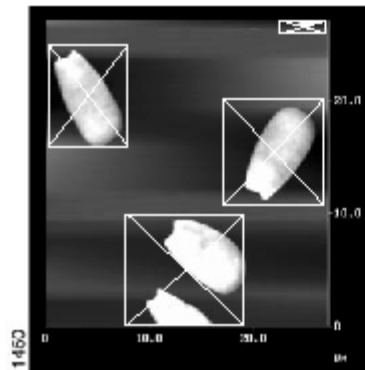


Image after 1st Order  
flatten

- This problem can be remedied by excluding the raised or depressed features from the flatten calculation by drawing boxes around them with the cursor before executing the flatten.



Use boxes to exclude

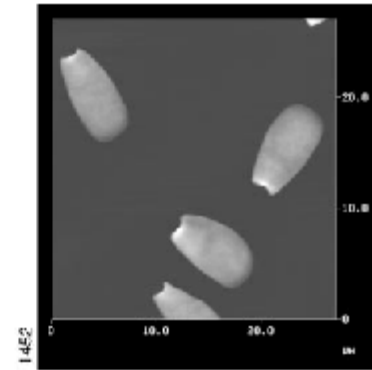


Image after 1st order flatten

## Section

- Depth, height, width, and angular measurements can be easily made with Section. Click on the Analyze-→ section or click on the icon also.
- A cross-sectional line can be drawn across any part of the image, and the vertical profile along that line is displayed. The Cursor menu located at the top of the Display monitor provides the ability to draw a fixed, moving, or averaged cross section.
- Up to three pairs of cursors may be placed on the line section at any point to make horizontal, vertical, and

angular measurements. These measurements are reported in the box at the lower right of the screen. Cursors may be added or deleted with the Marker menu located at the top of the Display monitor.

- The measurements are displayed in the same colors as the corresponding markers.
- Section plot can also be saved by quitting the section menu and then click on Utility→tiff/jpeg and save it.