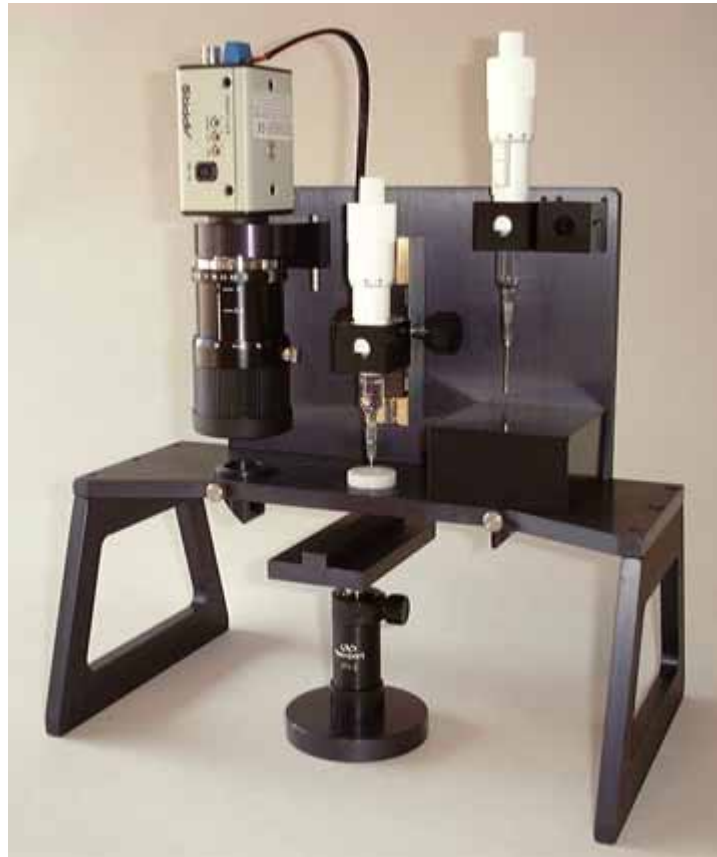


Operation of Goniometer (Contact Angle & Surface Tension Measurement)



Coral name: Goniometer
Model: Firsttenangstroms (FTA32)
Location: Nanofab, Building 215, Metrology Bay
Contact: Lei Chen (x2908)
Alternate contact: Gerard Henein (x5645)

OVERVIEW:

The Firsttenangstroms (FTA32) goniometer provides video-based contact angle and surface tension measurements. Contact angles are measured by fitting a mathematical expression to the shape of the liquid drop and then calculating the slope of the tangent to the liquid drop at the liquid-solid-vapor (LSV) interface line. Computer software liquid drop shape analysis gives the contact angle without operator intervention or judgment.

APPLICATIONS:

Contact angle and surface tension for adhesion, cleanliness, wetting, biocompatibility.

SPECIAL NOTES OR RESTRICTIONS:

- Must be trained and qualified to use the tool.
- Any new liquid other than water must be approved by Nanofab staff.

SAFETY PRECAUTIONS:

- Never touch the lens on the camera
- Handle samples on the stage with gloves and/or tweezers.
- Report any malfunction of the tool to the Nanofab staff.

Operation

- Remove the cover on the lens.
- Turn “ON” the computer if it is “OFF”.
- Double click the “FTA32” icon on the desktop to start the operation.
- Click “OK” to enter the program

User Log-On and Project Files

Owner:	NIST 125
License Number:	1607968
User:	coalmon
Configuration Data	C:\Program Files\Fta32\Default.mdb

Open... Save As... Copy As... Delete...

Show Additional Options OK Cancel

Data Reporting

<input checked="" type="checkbox"/> dynes/cm as IFT Units	<input checked="" type="checkbox"/> Tab as Text Delimiter	<input type="checkbox"/> Report all Errors to User
<input type="checkbox"/> mN/m as IFT Units	<input type="checkbox"/> Comma as Text Delimiter	<input type="checkbox"/> Ask to Save Movies
<input type="checkbox"/> mJ/m ² as IFT Units	<input type="checkbox"/> Compress Movie Disk Files	<input type="checkbox"/> Autolog Movie Data to File
		<input type="checkbox"/> Output XML Data File

Camera and Frame Grabber

Enable Camera V2: RS170 (North American NTSC standard, 60Hz) camera

Flip Image FG4: MuTech MV-510 frame grabber

Computer Controlled Hardware

Enable Control H3: FTA100 series with RS232 control of external devices

Com Port 3 for FTA

Check Hardware Options Present

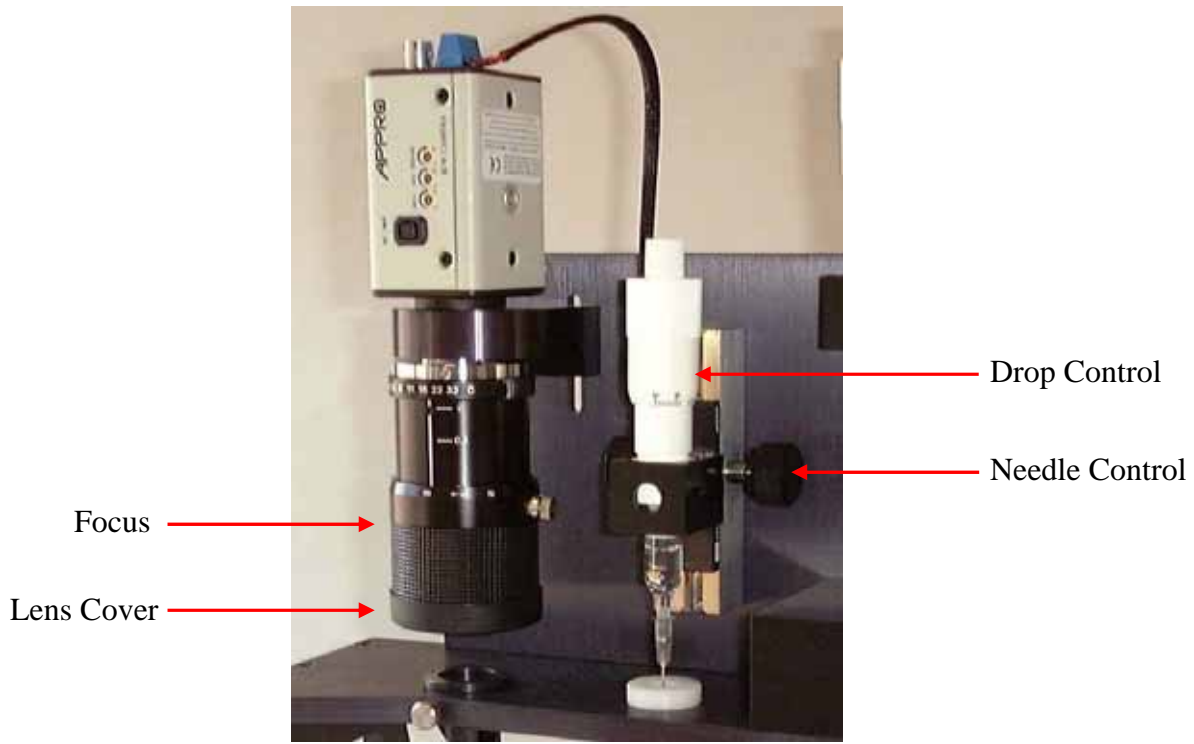
- Kloehn Pump
- Quad Kloehn Pump + Tip Wheel
- Peristaltic Pump

Clear Options

Config File Password

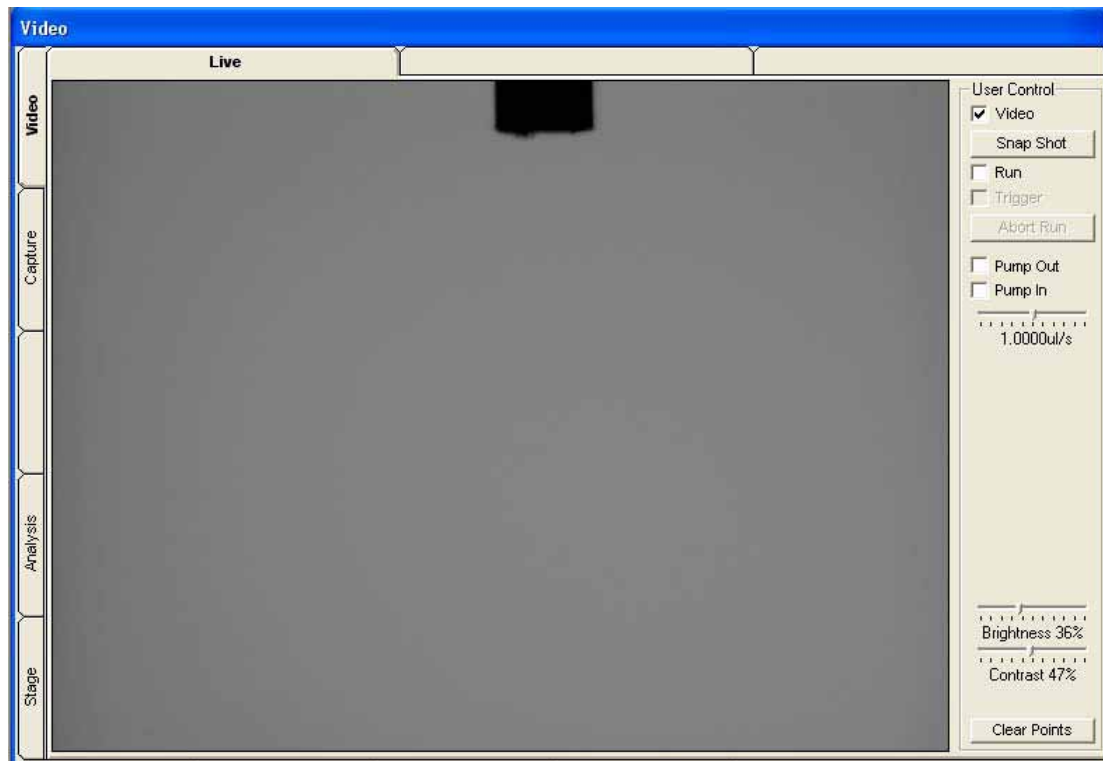
No password set. Enter desired password and then click New PW to save.

New PW Password:

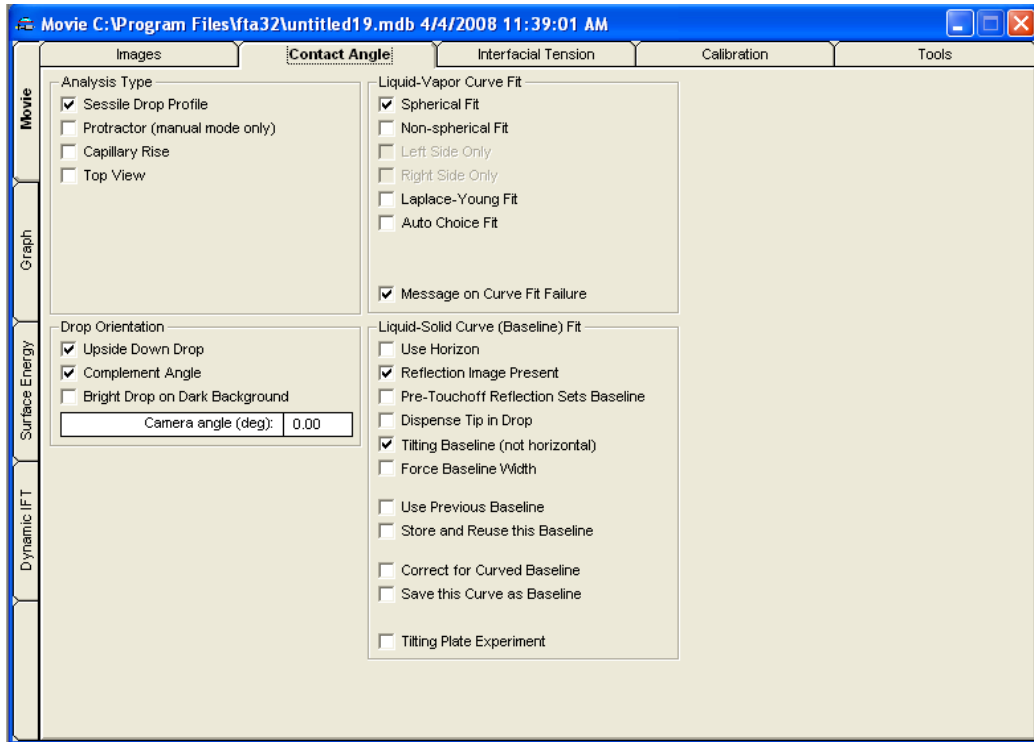


- Choose test fluid and place in syringe. Water is used in most cases because it is safe and forms a high, easily observed, contact angle on most materials. For other liquids, please consult contact engineer for feasibility.
- Lock the syringe in the house tightly.

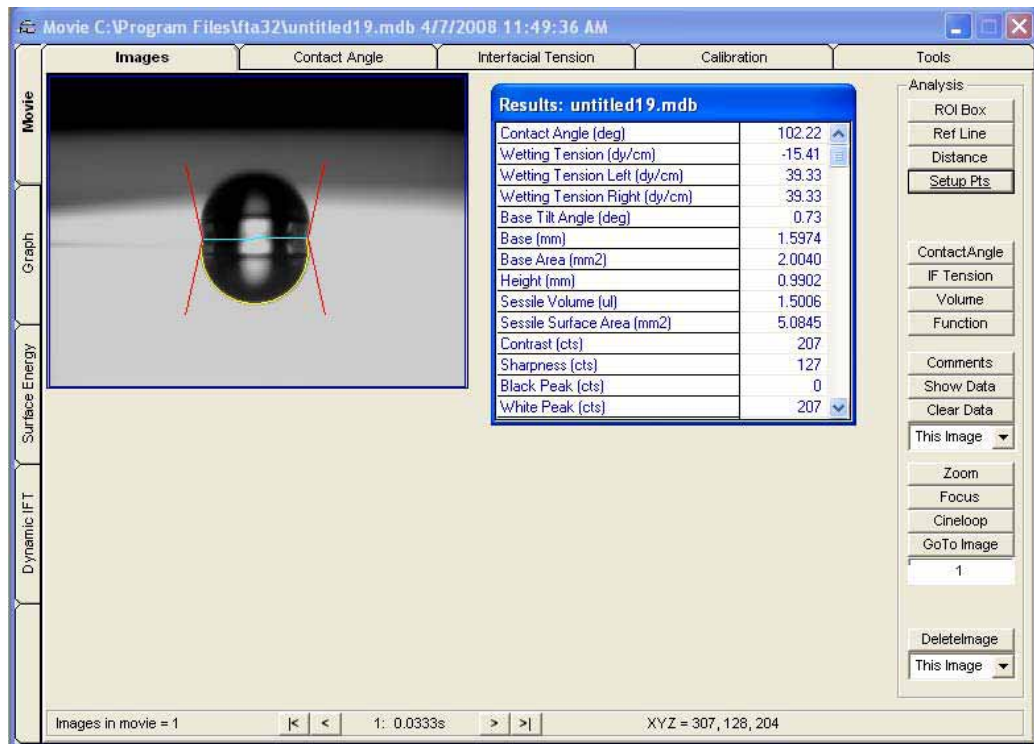
- Click “Video” to show the image (see below).
- Lower the needle to the view window and adjust the focus until clear.



- Load the sample on the holder and adjust the stage height to bring it into the view window.
- Adjust the light and focus on the drop until clear and then click the “Snap Shot”



- Define the contact angle analysis based on your need in the above window
- Click “Contact Angle” to calculate the data (see below)



- Export the image from file menu and save it to the user folder.

END STEPS:

- Raise the syringe back to the normal position.
- Remove any liquid other than water from syringe.
- Close the software.
- Cover the camera lens.
- Leave the computer ON

For any further data analysis information please check the User Manual next to the tool.