Goniometer Contact Angle Measurement
Work Instructions

1. Register use of the Goniometer in the iLabs.
2. If starting the computer: UserID = localadmin and Password = NanoLog74 (both case sensitive)
3. Wipe the stage with IPA before starting and test the surface for level using the bubble level.
4. Take lens cap off camera and turn on light (Schott source), set to 70.
5. Start **DropImage Advanced** (Fig. 1) from main screen. The video window shows the image from the camera, Fig. 2. Use the camera icon to save as bmp or gif file. Restart program to reopen Picture or Video windows.???

Figure 1 Main Screen

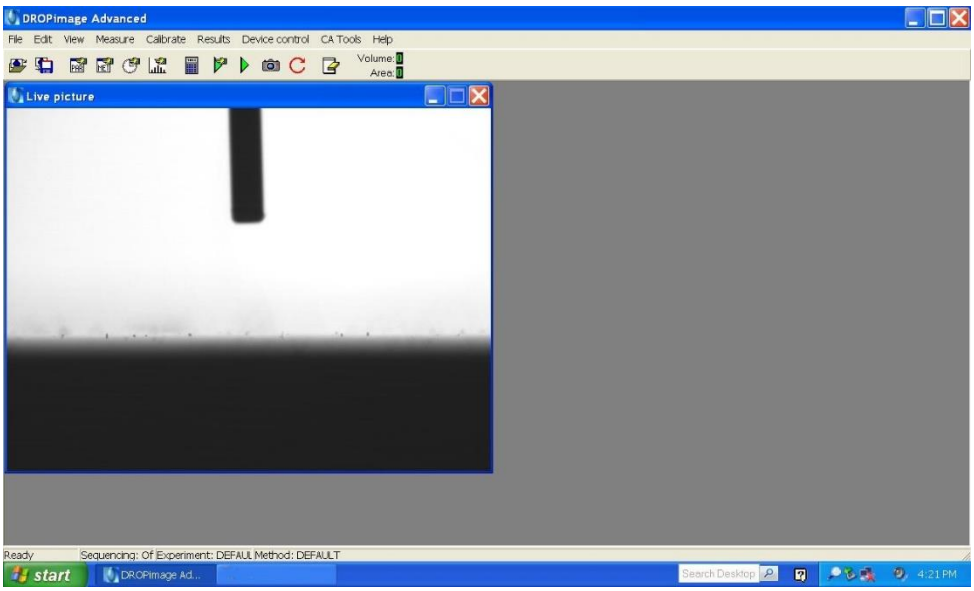

Figure 2 Image from Camera No liquid

5. Place the sample in the middle of the stage, then move it close to the camera and focus the image with the black dial. To measure contact angles, use 5 µl or 3 µl drops (smaller volumes are better for angles<20). Make sure that the drop doesn't touch the stage edge.
6. Go to CA Tools-> Contact Angle. Select the liquid and solid used (mainly for Ra correction purposes).

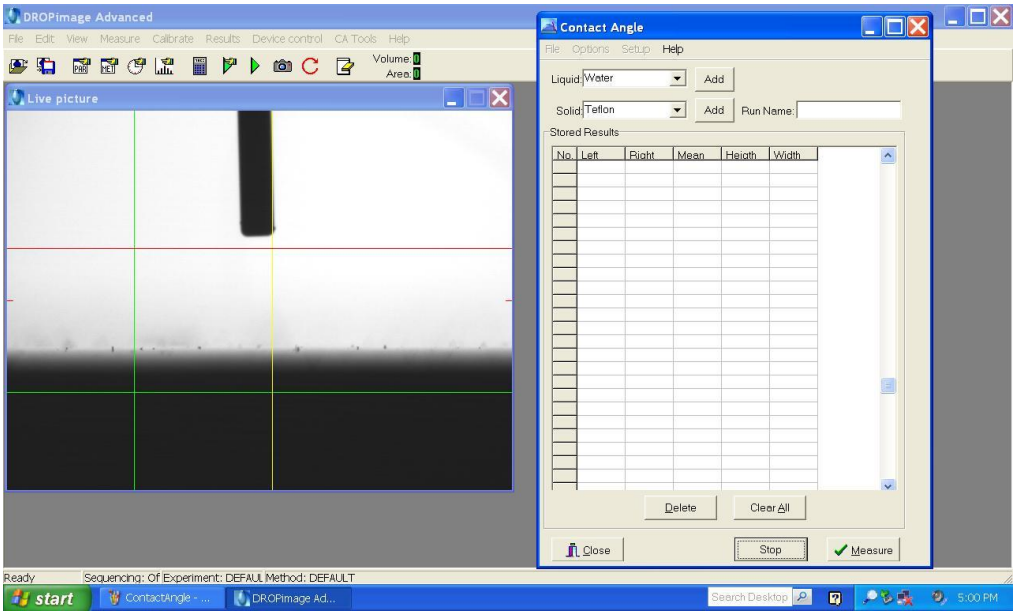

Figure 3 Contact Angle Window with liquid and measurements

7. Hit **Start** in the **Contact Angle** window. Three lines will appear in the picture. Fig. 3
   a. **shift+left click** to align the horizontal green line with the solid-gas interface – sample bottom
   b. **ctrl+left click** to align the horizontal red line with the highest point of the drop (below red tick marks).
   c. Move the vertical green line through the black area of the drop on left side of drop (avoid white circle) with **left click.**
   d. Move the vertical yellow line through the black area of the drop on right side of drop (avoid white circle) with **right click.**
8. Click **Measure** to get contact angles for both sides, Fig. 4. Difference between left and right angle should be ~1 degree (if not, the surface may need to be leveled).
9. To measure another drop hit **Stop** and move the drop into the camera's vision, repeat steps 7 and 8.
10. Each time you press Measure the contact angle is measured on a current image of the drop. Use the settings in the **Contact Angle** window to change this (select measure using saved picture).

11. When finishing measuring, save the values as a text file using Save Experiment Log in the **Contact Angle Window.**

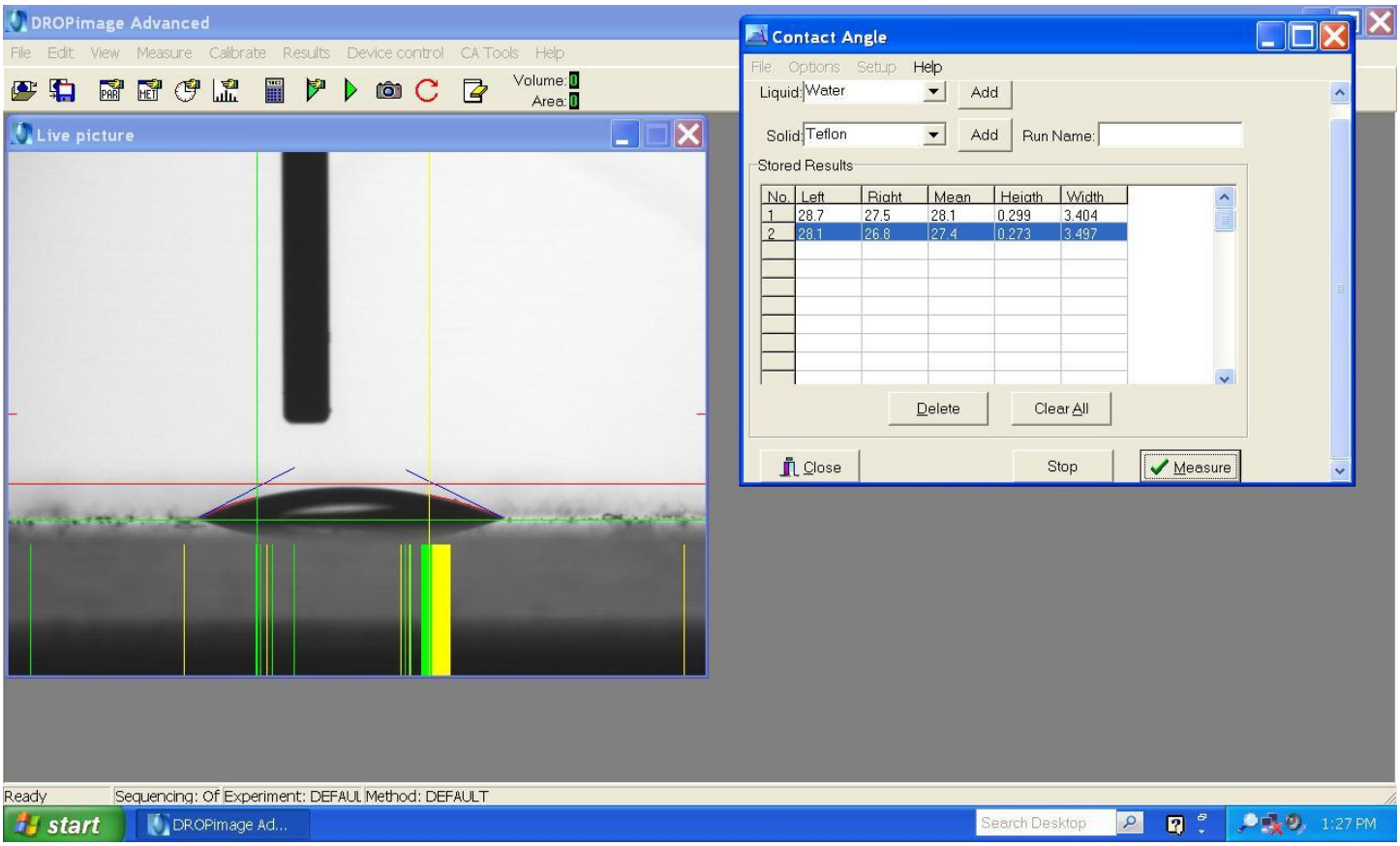

Figure 4 Measurement of Contact Angle