1st First Contact Optical Microscopy

- See if there is a difference before / after FC application.
- Judge whether there will be enough defects remaining to enable focusing on the surface.
- Help decide whether to move forward with expensive automated defect binning microscope, or concentrate on other metrology.

Procedure

- Used a sample lableled as "REO Dirty Mirror".
- Both sides coated, have no idea which coating is on which side.
- Keep one side dirty as-found, no cleaning.
- Use FC on the other side. FC put on the day before and allowed to dry.
- Photograph FC side.
- Photograph dirty side.
- Dark Field.

Scale – all pics

0.5 mm



FC not fully peeled-off near edges

0.5 mm



(Bright Field Image)

Dirty Side – Dark Field









FC Peeled Side – Dark Field







Conclusions

- The dirty side is a sea of defects in DF. Easy to focus through either the eyepiece (my eyeball) or camera.
- FC peeled side is obviously much cleaner.
- The FC peeled side is very difficult to focus on through the camera in BF or DF.
- Peeled side easier to focus in BF or DF through the eyepiece (my eyeball).
- Conclude that before we move forward with an automated microscope (\$\$), we will have to give the vendors samples and FC solution to test the samples to see if the system will work.
- It would be nice to send them samples whose coating spectra we actually know, so that we compare apples to apples in the evaluation (need spectral data).