TitanX

Core Status: new users must complete 2 trouble-free training sessions, execute a sample exchange and pass the drivers test to work independently during Core sessions.

Flex Status: Core users must complete 5 trouble-free sessions and pass a driving test to work independently during Flex sessions .

All Titan scheduling is coordinated through Karen Bustillo. Please send an email to kbustillo@lbl.gov by the 15th of the preceding month specifying proposal #, experiment, HT, and possible dates in order of preference. To cancel a session, please email Karen.

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CORE LICENSE (weekdays 9:00-5:00)

Safety

- ☐ Understand emergency shutdown procedures.
- ☐ Point out where emergency contact numbers are posted.
- ☐ Demonstrate proper PPE when handling LN2.

Instrument Preparation

- ☐ Demonstrate how to check LN2 level and fill if necessary.
- ☐ Demonstrate how to check status of EDS detector heaters.
- ☐ Know location of Titan documentation.
- ☐ Show how to check basic vacuum functionality (Gun = 1, Liner = 19-21, Octagon <20).
- ☐ Show how to read extraction voltage, gun lens, microscope mode (TEM, Probe, etc).
- ☐ Explain the functions of TEM User Interface, Digital Micrograph, TIA, ESPRIT, and

Tecnai Remote Server.

Remove specimen holder

- ☐ Demonstrate holder removal procedure, including checking column valve status, stage reset, and stage status confirmation.

Mount specimen and load holder

- ☐ Know types of holders available.
- ☐ Demonstrate specimen mounting procedure
- ☐ Know how to use plasma cleaner.
- ☐ Demonstrate how to insert holder.
- ☐ Understand procedure if insertion needs to be aborted.

Pre-setup

- ☐ Demonstrate how to load a FEG register and an alignment file.

- ☐ Explain strategies to find the beam if not present.

- ☐ Demonstrate procedure to find eucentric height of specimen.

- ☐ Describe alignment procedures for Direct Alignments, condenser and objective

stigmation, and aperture centering.

- ☐ Demonstrate how to use both cameras safely.

- ☐ If applicable, demonstrate how to change to STEM mode and align in STEM mode.

- ☐ If applicable, describe the acquisition parameters for EDS.

- ☐ If applicable, describe use of stage and software for Tomography.

- ☐ Know where to look for information when questions arise; know who to ask.

Troubleshooting

- ☐ Know what to do if octagon pressure does not drop <21 after inserting holder.

- ☐ Know what to do if column valve closes due to an increase in pressure (vacuum "crashes").

- ☐ Know how to close down the software (TIA, DM, Titan UI) and re-open.

Shut down

- ☐ Demonstrate how to leave microscope ready for next user.

- ☐ Demonstrate how to carefully remove holder and remove sample.

- ☐ Know how to use thumb drive in Support PC.

- ☐ Demonstrate use of logbook.

Name _____

Date_____   Proposal #_____

Pass____ Fail____

Titan

FLEX LICENSE (evenings and weekends)

☐ Know how to safely re-boot microscope computer, bring up HT, and enable apertures.

☐ Know how to monitor vacuum recovery from vacuum page. Be able to identify turbo pumps, ion getter pumps, the various valves, and origins of pressure readings. Be able to explain the vacuum recovery process using the vacuum layout diagram.

Name _____

Date_____ Proposal #_____

Pass____ Fail____