**Online Electron Microscopy Education Platform**

**-Alignment of Transmission Electron Microscope**

[Each step will include: 1) purpose (text); 2) Importance (text); 3) method (text,); 4) procedure (text, video instruction, operation(define Multifunction Button on the microscope controller); 5) notes]

1. **Gun** 
   1. Gun tilt
   2. Gun tilt pivot point
   3. Gun shift
   4. Spot-size dependent gun shift
2. **Beam HM-TEM** 
   1. Preparation
   2. Minicondenser lens
   3. Beam shift pivot point
   4. Beam tilt pivot point
   5. Dynamic conical dark field pivot point HM (STEM systems only)
   6. Dynamic conical dark field distortion HM (STEM systems only)
   7. Rotation center
   8. Align beam shift
   9. Beam shift calibration
   10. Beam tilt calibration
   11. Dynamic conical dark field beam tilt calibration HM (STEM systems only)
   12. Spot size-intensity calibration
   13. Coma-free amplitude
   14. Coma-free pivot points
   15. Coma-free alignment
3. **Image HM-TEM**
   1. Preparation
   2. Image shift pivot point HM
   3. Diffraction shift pivot point SA
   4. SA objective lens preset
   5. Diffraction shift pivot point Mh
   6. Mh preset and alignment
   7. SA magnifications alignment
   8. Diffraction shift pivot point Mi
   9. Mi preset and alignment
   10. Align diffraction pattern
   11. Align camera lengths
   12. Image shift calibration
   13. Diffraction shift calibration
   14. Beam shift - image shift calibration
   15. Off-axis TV HM image alignment (only if off-axis TV installed)
   16. Off-axis TV diffraction alignment (only if off-axis TV installed)
4. **Beam LM** 
   1. Preparation
   2. Beam shift pivot point
   3. Beam tilt pivot point
   4. Rotation center
   5. Align beam shift
   6. Beam shift calibration
   7. Beam tilt calibration
   8. Spot size-intensity calibration
5. **Image LM** 
   1. Preparation
   2. Image shift pivot point
   3. Diffraction shift pivot point
   4. LM magnifications alignment
   5. Align LAD pattern
   6. Image shift calibration
   7. Diffraction shift calibration
   8. Beam shift - image shift calibration
   9. Off-axis TV LM image alignment (only if off-axis TV installed)
6. **Beam Nanoprobe** 
   1. Preparation
   2. Beam shift pivot point
   3. Beam tilt pivot point
   4. Dynamic conical dark field pivot point Nanoprobe (STEM systems only)
   5. Dynamic conical dark field distortion Nanoprobe (STEM systems only)
   6. Rotation center
   7. Align beam shift
   8. Beam shift calibration
   9. Beam tilt calibration
   10. Dynamic conical dark field beam tilt calibration Nanoprobe (STEM systems only)
   11. Spot size-intensity calibration
7. **Image Nanoprobe** 
   1. SA objective lens preset
   2. Mh objective lens preset
   3. Mi objective lens preset
   4. Align diffraction pattern
   5. Beam shift - image shift calibration Stigmators
   6. Condenser
   7. Condenser stigmator shunt
   8. Objective
   9. Diffraction
8. **HM-STEM** 
   1. Preparation
   2. Objective / Intensity preset
   3. Beam tilt pivot points
   4. Rotation center
   5. Beam shift pivot points
   6. Align diffraction pattern
   7. Detector alignment
   8. Scan distortion adjustment
   9. Default scan rotation
   10. AC shunt
   11. Calibration
9. **LM-STEM** 
   1. Preparation
   2. Intensity preset
   3. Beam shift pivot points
   4. Align diffraction pattern
   5. Detector alignment
   6. Scan distortion adjustment
   7. Default scan rotation
10. EFTEM HM
    1. Preparation
    2. HM Image-shift pivot points
    3. SA Diffraction-shift pivot points
    4. Mh Diffraction-shift pivot points
    5. Mi Diffraction-shift pivot points
    6. Mh Pre-alignment
    7. SA Image-shift pre-alignment
    8. SA Cross-over correction pre-alignment
    9. Mi Image shift pre-alignment
    10. Mi Cross-over correction pre-alignment
    11. Mh Image-shift alignment
    12. SA Image-shift alignment
    13. SA Cross-over correction alignment
    14. Mi Image-shift alignment
    15. Mi Cross-over correction alignment
    16. Camera length pre-alignment
    17. Camera length alignment
11. **EFTEM LM** 
    1. Preparation
    2. Image-shift pivot points
    3. Diffraction-shift pivot points
    4. Image-shift pre-alignment
    5. Image-shift alignment
12. **EFTEM Nanoprobe** 
    1. SA preset