Guidance for calibrations required for double click to tilt in Velox:

For double-click to tilt to work properly, the displayed diffraction patterns in Velox need to have a spatial scale (scale bar in nm⁻¹) in order to calculate the required tilts. If you see pix in the scale bar of Velox SmartCam display or if values are not correct, you need to perform the following calibrations:

- 1. Diffraction calibrations
- 2. Flucam calibrations

Please see detailed procedure below, if you are not familiar with it:

Diffraction Calibration

(a) In the Peoui "Help" menu, follow the *Diffraction calibration procedure* as shown in Figure 1.

Help	
The Diffraction calibration procedure	^
The calibrations procedure consists of a calibration for the camera lengths of the series. The follow	wing procedure is used:
 If not yet done (also available as a separate procedure), calibration of the beam-tilt azimuth Direct calibration of the <u>diffraction rings</u> of a cross-grating at a camera length selected by s camera size and high tension. Calibration of the beam-tilt azimuth in diffraction mode. Coupled with the beam-tilt azimuth determination of the rotation angle between imaging and diffraction. Calibration of the diffraction shift at that camera length (this does not calibrate a camera length) 	n in imaging mode. oftware on the basis of CCD in imaging, this calibration allows ngth, but the diffraction shift itself,
 Calibration of the remaining camera lengths with the diffraction shift. 	
The procedure will be run in the Nanoprobe mode (except for the beam-tilt azimuth calibrations), for parallel illumination in Microprobe is so large that it often leads to the appearance of severe di pattern. It is important to focus the pattern so the rings become as sharp as possible. The focusing with the lens indicated by the procedure (C2 or Diffraction lens - Intensity or Focus knobs) - pro focused prior, which should have been done in the Image HM-TEM Camera Length alignment provide the software is not suitable for calibration of the LAD (LM) camera lengths nor for the Let to lack of a suitable standard specimen).	because the large illuminated area stortions in the center of the g in Nanoprobe should be done vided the camera lengths are rocedure. wrentz mode camera lengths (due
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- (b) In PEOUI, find "Calibrations" panel.
- (c) Calibrations -> System -> Diffraction -> Start.
- (d) Follow the step-by-step directions as per the suggested procedure on Calibrations tab on the bottom right corner. For reference, look at the screenshots from Figure 2 till 19.













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Flucam Calibration

- (a) Perform the camera calibration
- (b) Calibrations -> Camera -> Calibrate Flucam -> Start
- (c) Follow the step-by-step directions as per the suggested procedure on Calibrations tab on the bottom right corner. For reference, look at the screenshots from Figure 22 till 27.





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		Computed position factor: 0.22049 Computed rotation: 0.37 degrees	1
		Computed scale: 1.40X Computed center shift (in pixels): (-43.07, 1.41)	
		Writing magnification, rotation, and center shift results to registry and IOM database CameraZCamera FluCam execution completed	
Locong			<u> </u>
Computing center shift Center shift computed			<u> </u>
Results stored in registry and IOM da Restoring microscope settings	tabase		
Camera To Camera FluCam finished			
			Completed
			compresso