

High resolution TEM image by JEM-1400Flash

Product used : JEM-1400Flash (HR)

The optical system of the JEM-1400Flash can image at an ultra-high resolution of 0.14 nm while having a magnification range (minimum magnification: 10 times) that can image the entire sample mesh ($\phi 2$ mm) with a bottom mount camera. The objective lens is de-excited at an extremely low magnification so that the entire sample mesh can be observed. On the other hand, at high magnification, the objective lens is excited and the image plane created below the objective lens is magnified by the imaging lens, so that a maximum magnification of 1.5 million times can be obtained (Fig. 1). At this time, since the objective aperture is inserted in the back focal plane of the objective lens, a high-contrast image can be obtained. In order to obtain a low-magnification image of several hundred times with the objective lens excited, the objective mini (OM) lens is excited and the image plane is reduced (Fig. 2). In this case as well, the objective aperture that determines the contrast is inserted in the back focal plane, so the same contrast can be obtained from low to high magnification. The JEM-1400Flash can change the magnification smoothly from extremely low magnification to a maximum magnification of 1.5 million times without image rotation, and it is always possible to observe with high contrast. A high-resolution TEM image taken with JEM-1400Flash, which has an optical system that can easily obtain low-magnification images and high-magnification images, is shown (Fig. 3).

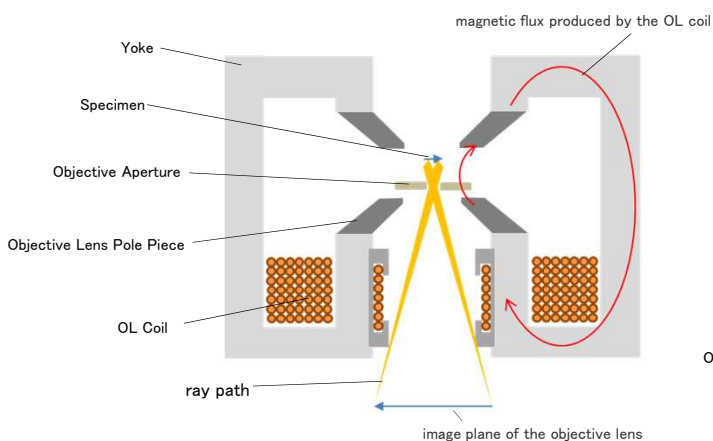


Fig. 1 When exciting the objective lens to create a high magnification

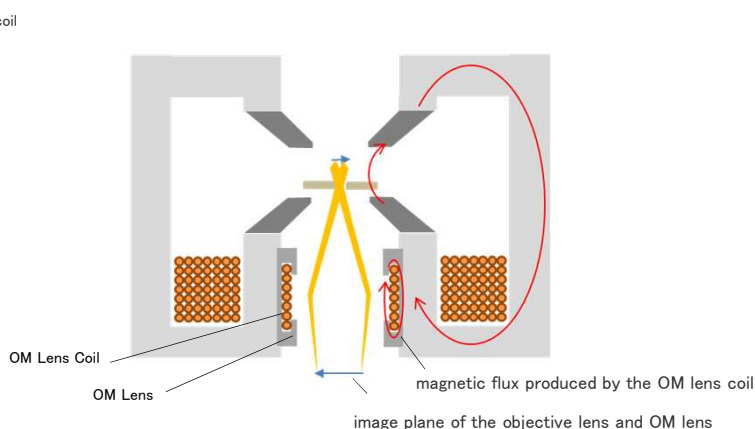
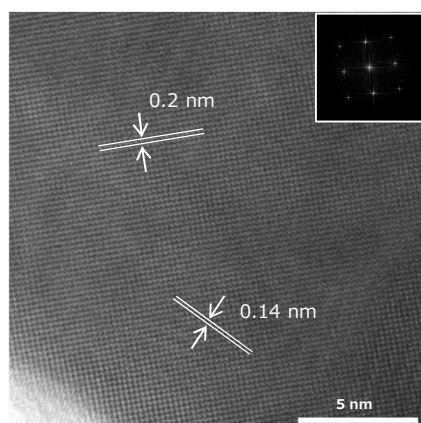
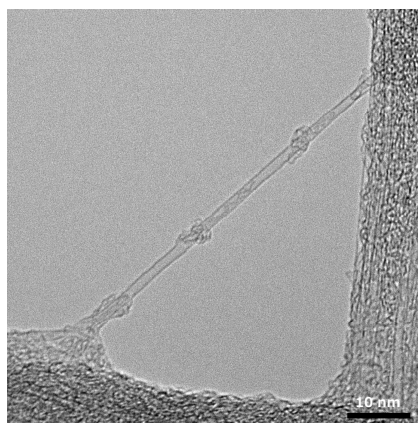


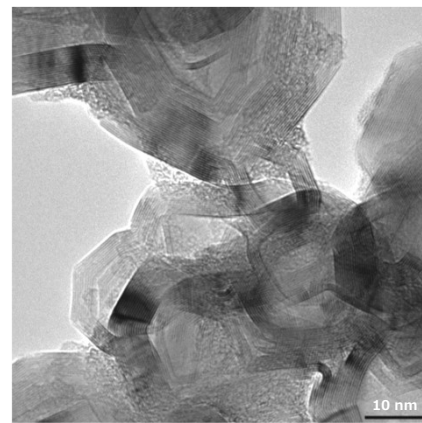
Fig. 2 When exciting an OM lens to create a low magnification



Sample : Au single crystal
Accelerating voltage: 120 kV



Sample : Single layer carbon nanotube
Accelerating voltage: 120 kV



Sample : Graphite
Accelerating voltage: 120 kV

Fig. 3 High-resolution image taken with JEM-1400Flash (HR)

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