ANALYSIS

MESA+ NanoLab

Transmission Electron Microscopy (TEM)

Transmission Electron Microscopy (TEM) is a microscopy technique whereby a beam of electrons is transmitted through an ultra-thin specimen, interacting with the specimen as it passes through. An image is formed from the specimen; the image is magnified and focused onto an imaging device, such as a fluorescent screen, or to detected by a sensor such as a CCD camera.

Application: TEM is used to study the internal structure of a material in order to reveal details down to sub nanometer dimensions. A huge range of materials can be investigated, from metals, to biological specimens such as bacteria and viruses.

sub-micrometer dimensions

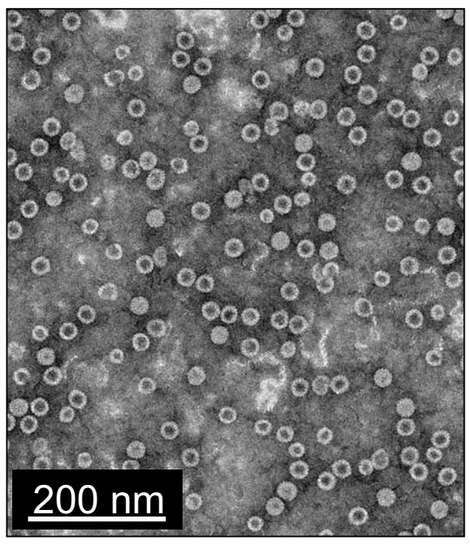


Figure 1

imaging at near-atomic scale

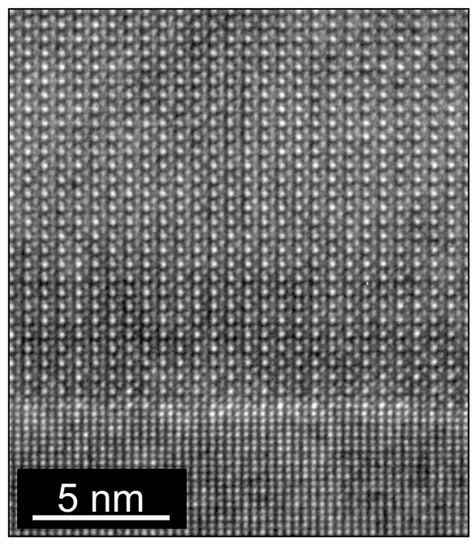
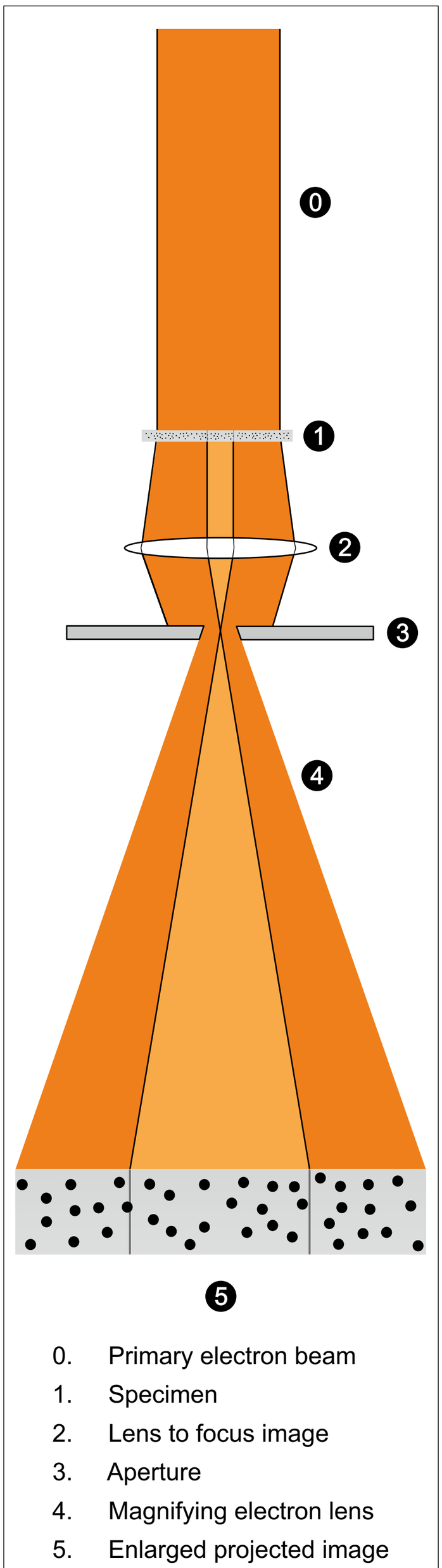


Figure 2

Figure 1: Enlarged projected image of a virus specimen recorded on CCD camera.

Figure 2: Enlarged projected image of a novel material recorded on CCD camera.

Schematic overview



0. Primary electron beam
1. Specimen
2. Lens to focus image
3. Aperture
4. Magnifying electron lens
5. Enlarged projected image