6 Electron microscopy

6.1 Transmission electron microscope (TEM)

Transmission electron microscopy utilizes the wave properties of moving electrons to generate highly resolved images of specimens.

6.1.1 General design

In 1986 the Nobel prize in physics was awarded by one half to Ernst Ruska for his fundamental work in electron optics, and for the design of the first electron microscope (EM), and by one half to Gerd Binnig and Heinrich Rohrer for their design of the scanning tunneling microscope (see Chap. 7). In some aspects, the

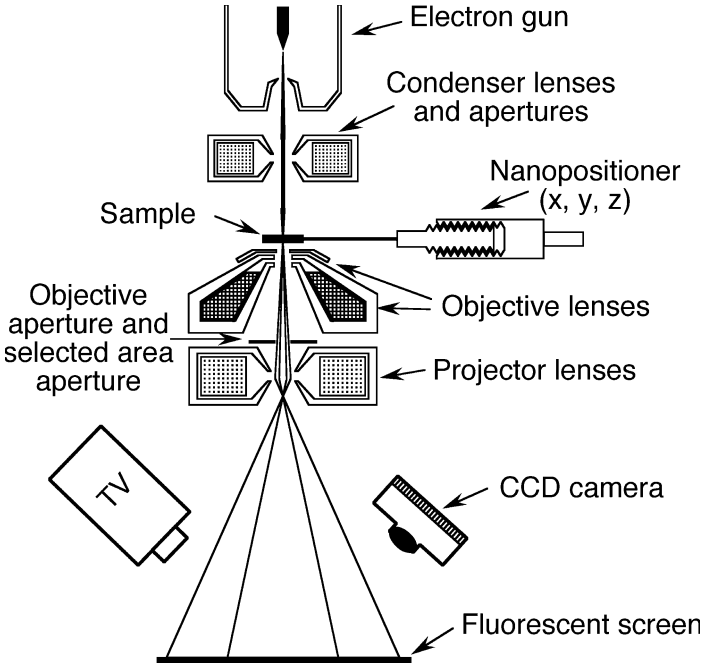

Fig. 6.1 Transmission electron microscope (see text on pp. 107 and 109)

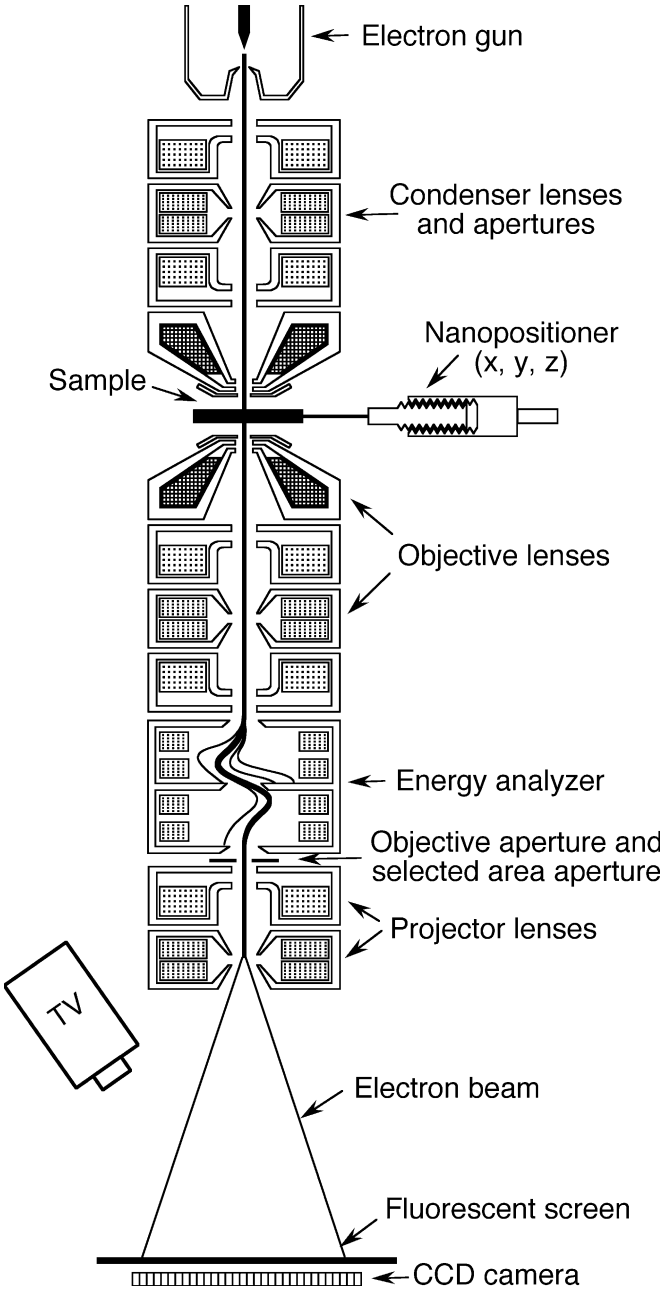

Fig. 6.2 A more complicated design of a transmission electron microscope with an analyzer which can remove inelastically scattered electrons (see, e.g., LEO Elektronenmikroskopie GmbH, Oberkochen, Germany)