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Figure 1.1. TEM micrographs (A-C) and SAD (D) recorded from Fig. 1.1C of gold powder (commercially available as Swarna Bhasma manufactured and supplied by Shree Vaidyanath, Ayurved Bhawan, Nagpur, India). These figures (A-C) clearly show the spherical gold nanoparticles as evident from Fig. D, which is characteristic of fcc gold. This gold powder (in Sanskrit Swarna meaning gold) is commonly used as one of the potent traditional formulations in different Ayurvedic food supplements and medicines.

Figure 1.2. Density of states for metal and semiconductor nanocrystals. In each case, the density of states is discrete at the band edges. The Fermi level is in the center of a band in a metal, and so $kT$ may exceed the electronic energy level spacing even at room temperatures and small sizes. In contrast, in semiconductors, the Fermi level lies between two bands, so that the relevant level spacing remains large even at small sizes. The HOMO–LUMO gap increases in semiconductor crystals of smaller size. [Source: Ref. 10]

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