

## **17.2 Classification of electron spectroscopies**

In principle the criterion for identifying a method as an electron spectroscopy is that the use of an energy analyzer or monochromator passing selected energies of electrons forms an essential part of the experiment. The different methods can be grouped according to the underlying physical process involved.

In many cases the technique is essentially the same whether the work is related to isolated atoms, molecules in the gas phase or to condensed phases, solid or liquid. Because electrons are weakly penetrating through matter the electron spectroscopies have particular value for the study of surfaces.

For consistency, all energies, whether for free electrons or photons or for excitation levels of atoms, molecules or surfaces, are expressed in electron volts ( $1 \text{ eV} \approx 1.60219 \times 10^{-19} \text{ J}$ ).