17.1 Introduction

Surface analytical techniques include a large number of analytical processes based on different principles. However, electron spectroscopies have a prominent role among the experimental techniques used for examination and investigation of the composition and structure of the surface or surface layer of solid substances. It is worth mentioning that some electron spectroscopic methods may also be used for investigation of gaseous substances (e.g. PES, ELS, AES etc.).

The full classification, and the definitions and designations of the different types of electron spectroscopic techniques are included in this chapter. Thereafter other techniques are listed which are based on different principles, but are relevant to surface analysis. In the further subsections the terms used in practical surface analytical investigations, calibration and a suggested system for generation of acronyms for the names of the individual experimental techniques are presented.