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Surface chemical analysis — Vocabulary —

Part 3: Terms used in optical interface analysis

Analyse chimique des surfaces — Vocabulaire —

Partie 3: Termes utilisés dans l'analyse des interfaces optiques

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 201, *Surface chemical analysis*, Subcommittee SC 1, *Terminology*.

A list of all parts in the ISO 18115 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Optical spectroscopies and surface chemical analysis, in general, are important areas which involve interactions between people with different backgrounds and from different fields. Those conducting optical spectroscopy on surfaces can be materials scientists, chemists, physicists or biologists and might have a background that is primarily experimental or primarily theoretical. Those making use of the data and results extend beyond this group into other disciplines.

ISO 18115-1 extend from the techniques of electron spectroscopy and mass spectrometry to general spectrometry terms and X-ray analysis. The terms covered in ISO 18115-2 relate to scanning-probe microscopy.

This document covers terms used in optical spectroscopies. This includes terms related to general terms, properties of light and optical properties of materials. In terms of techniques, there is a focus on terms related to Raman spectroscopy, ellipsometry and nonlinear optical techniques.

The wide range of disciplines and the individualities of national usages have led to different meanings being attributed to particular terms and, again, different terms being used to describe the same concept. To avoid the consequent misunderstandings and to facilitate the exchange of information, it is essential to clarify the concepts, to establish the correct terms for use, and to establish their definitions.

The terms are given in alphabetical order, classified under 3.1 general terms, 3.2 properties of light, 3.3 optical properties of materials, 3.4 ellipsometry terms, 3.5 Raman spectroscopy terms and 3.6 nonlinear optical technique terms. The terms in each clause are not always mutually exclusive and some terms placed in one clause can equally belong in another.

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Surface chemical analysis — Vocabulary —

Part 3:
Terms used in optical interface analysis

1 Scope

This document defines terms for surface chemical analysis in the area of optical interface analysis including ellipsometry, Raman spectroscopy and nonlinear optical techniques as well as general optical terms.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1 General terms

3.1.1
background signal
signal present at a particular position, energy, mass or wavelength due to processes or sources other than those of primary interest

3.1.2
CCD detector
semiconductor device that converts light into an electrical signal

Note 1 to entry: When a photon is absorbed by the detector, a single electron is released. Electrodes covering the chip surface hold these electrons in place in an array of wells, or pixels, such that during exposure to light, a pattern of charge builds up that corresponds to the pattern of light.

3.1.3
compensator
retardation plate of fixed or variable optical path length difference used for introducing a light path difference between two beams or to compensate the optical path length that can cause unwanted dispersion or time-delay

Note 1 to entry: See also *retardation plate/wave plate* (3.1.34).

[SOURCE: ISO 10934:2020, 3.1.27, adapted]

3.1.4
confocal optical microscopy
optical microscopy in which, light is suppressed from out-of-focus planes using one or more pinholes such that only light from a confocal volume is detected

Note 1 to entry: An image of an extended area is formed via scanning.

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