

What is new in UNIFIT 2005?

Version 2005 extends the ability of graphical presentation, especially for parameter dependent series of measurements. Four different methods for plotting were integrated:

1. 3D Waterfall 0°,
2. 3D-Waterfall 45°,
3. 3D-Waterfall -45°,
4. 3D-Colour Profile.

It is possible to display the processed spectra, which were acquired with the same parameters and are shown in different windows in one plot. If a peak fit was already performed the resulting sum curve will be shown. The chosen spectra can be inverted by clicking the right mouse button. All 3D plots may be plotted, exported in bitmap format and saved within a project. The monitor resolution influences directly the quality of the bitmap. Therefore the operator should choose the monitor resolution 1024x768 pixels or higher. The chosen window should be maximized before a graphic is exported as bitmap.

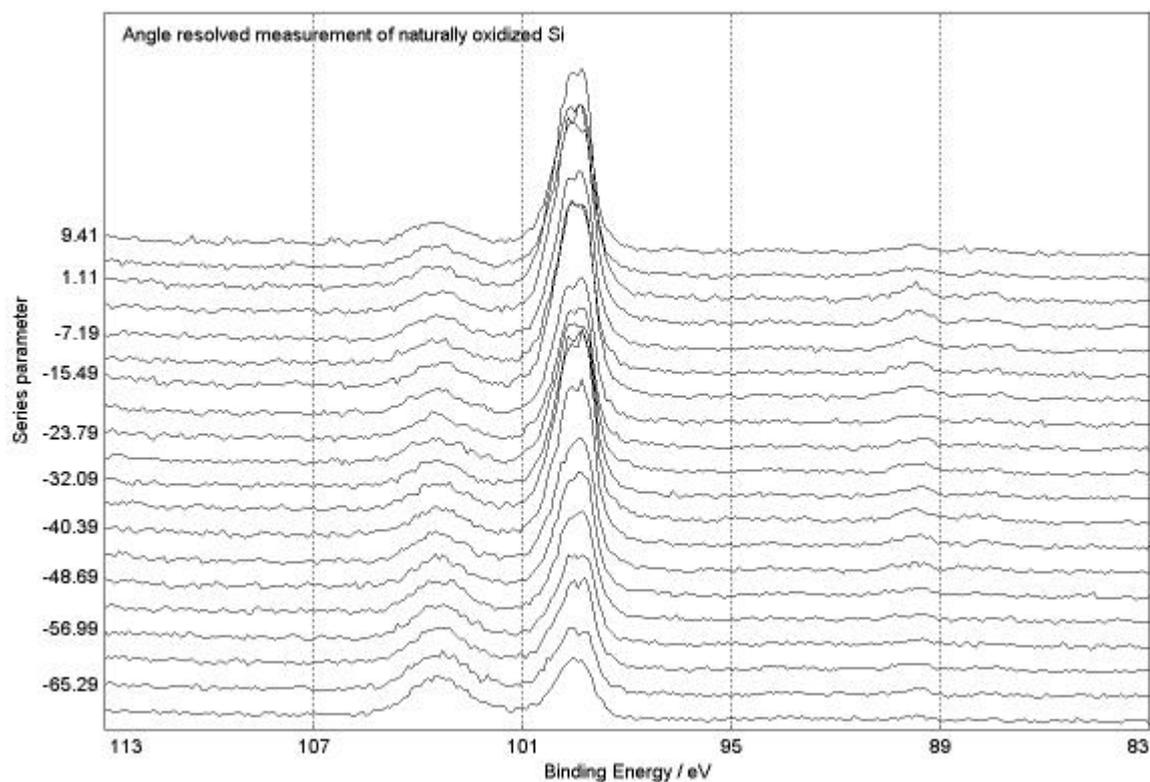


Fig.. 1. 3D Waterfall 0° plot of an angle resolved measurement of a naturally oxidized Si wafer using UNIFIT 2005. The exported bitmap graphic was inserted in this Word document

Up to 99 windows may be chosen. If spectra with different charge are to be combined in one 3D presentation the function [*Modify – Spectrum Manipulation – Energy shift*] should be applied for charge correction. Do not use the function [*Modify – Charge Correction Active Window*].

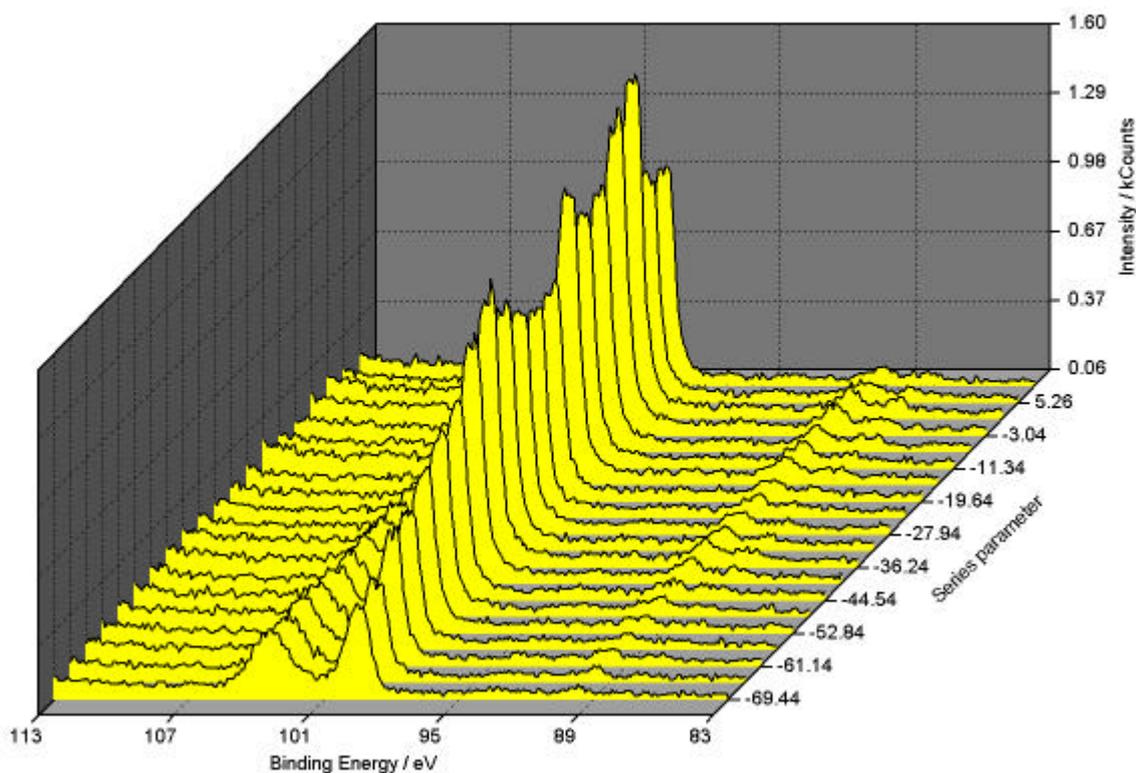


Fig. 2. 3D Wasserfall 45° plot of an ARXPS measurement of naturally oxidized Si created using UNIFIT 2005

The following examples illustrate the simple implementation of graphics created with UNIFIT 2005 in a scientific report without using commercial programs, e.g. Excel or Origin.

The preferences of UNIFIT 2005 were:

- Colour display background: white
- Axis colour display: black
- Text: Arial, 14, black
- Graph colour display - spectrum: black
- Graph style display - spectrum: line

Graph colour display - fill colour 3D plot: yellow

Setting of the resolution using Windows: 1152x864.

Fig. 1 shows an angle resolved measurement (ARXPS) of a naturally oxidized Si wafer using the submenu '3D Waterfall 0°'. The variation of the angle generates no energy shift of the Si 2p line.

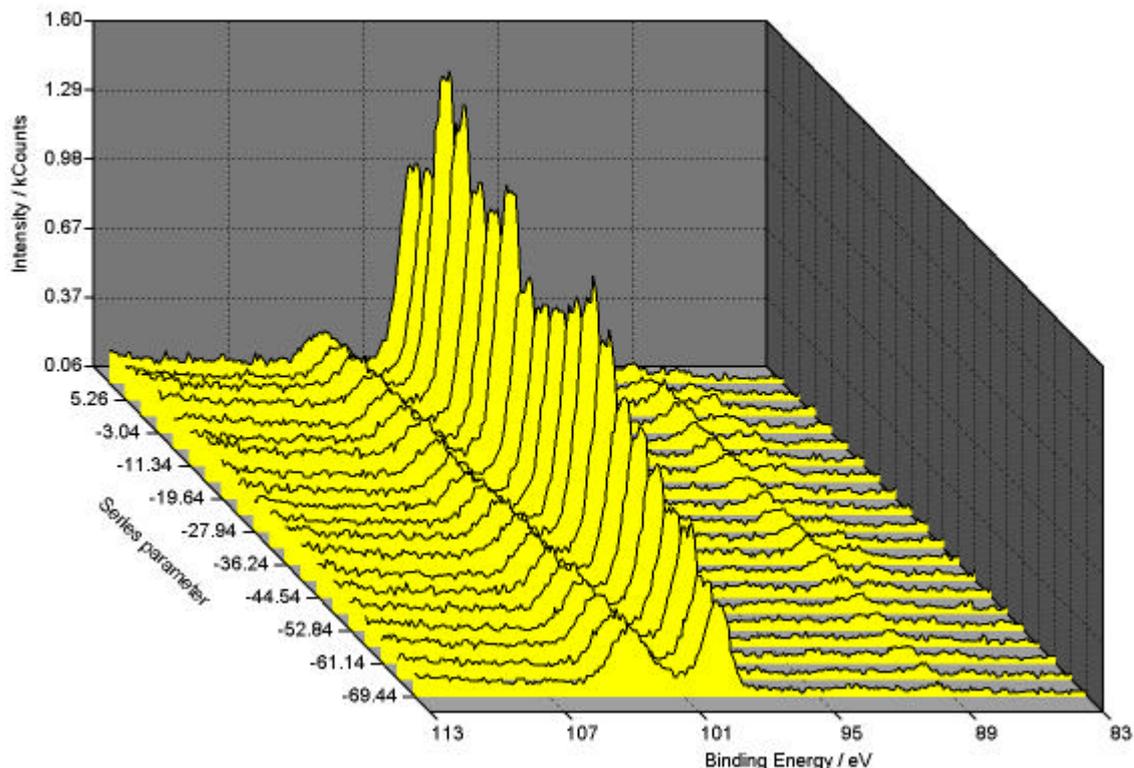


Fig. 3. 3D Waterfall -45° plot of an ARXPS measurement of naturally oxidized Si using UNIFIT 2005

Fig. 2 illustrates the 3D Waterfall 45° plot. Due to forward scattering effects caused by the crystal structure of Si, a variation of the intensity of the Si peak at 99.5 eV with the emission angles is shown clearly. The SiO₂ peak at 103,3 eV is not completely visible. Now it is helpful to plot the same measurement using ,3D Waterfall -45°.

The relative constant behaviour of the intensity of amorphous SiO₂ may be observed in Fig. 3.

During the ARXPS measurement of the Si wafer the lines Si 2p, C 1s and O 1s were recorded.

Fig. 4 illustrates the intensity behaviour of the C 1s peak with respect to the emission angle as 3D Colour plot. Because Carbon is only a thin contamination film of the Si wafer the highest intensity may be found at flat emission angles.

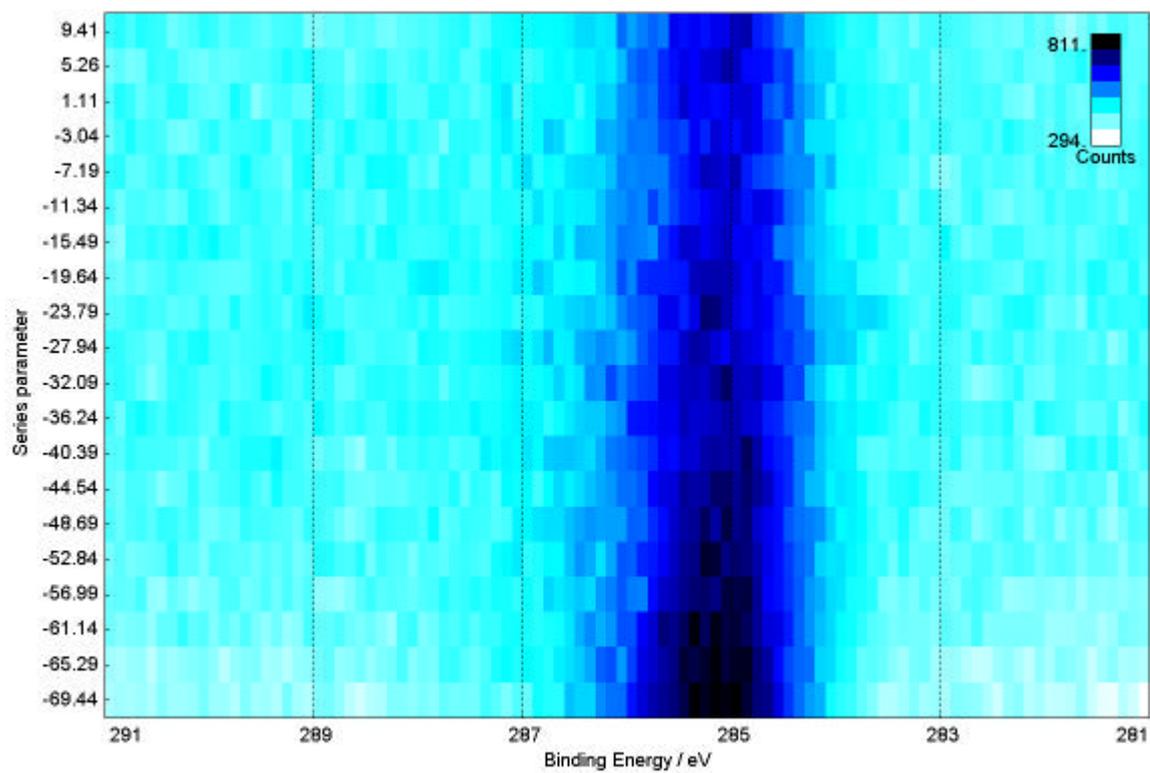


Fig. 4. A 3D Colour plot of the C 1s contamination peak using UNIFIT 2005