

X-Ray Quant Mapping and Multivariate Statistical Analysis: a changing X ray microanalysis.

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The presentation will describe the momentum that led to significant changes in the way X-ray microanalysis data is processed and displayed. The advent of fast computer processors, better detectors and intelligent software resulted in unprecedented progress in the area. During the first part, X-ray map processing will be explored. Peak to background differences can be enhanced and peak deconvolution can be performed to accurately show the location of elements on the sample surface. Limitations of raw X-ray mapping will be pointed out and discussed. The second part will be devoted to advances in multivariate statistical analysis, which allow complete examination of the sample by automatically reducing the data cube (spectrum acquired in each pixel) to a set of components exhibiting chemical similarities and subsequent definition of associations between extracted map intensities or components. No area (phase) in the image is left unaccounted for. Results and perspectives will be discussed.