Probe Software

Software for MicroAnalysis

Probe for EPMA

Probe Image

PictureSnapApp

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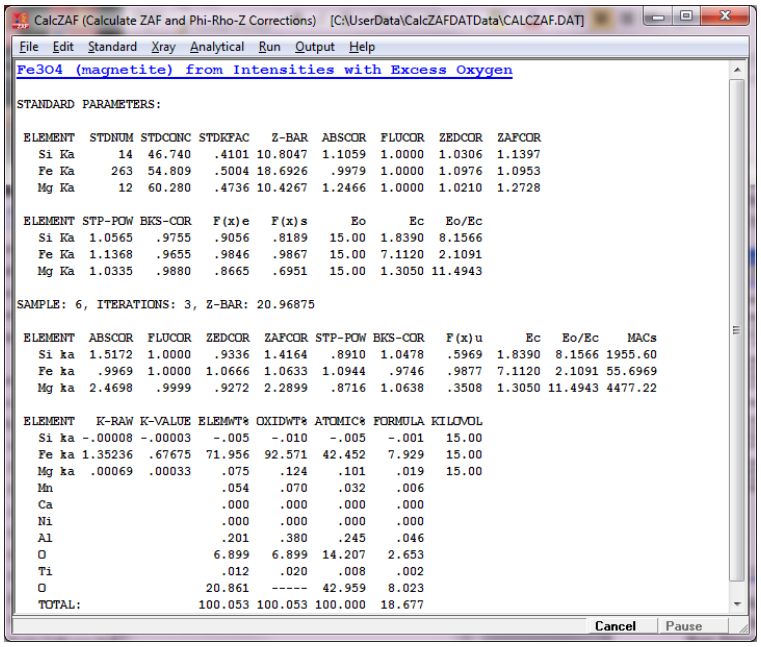
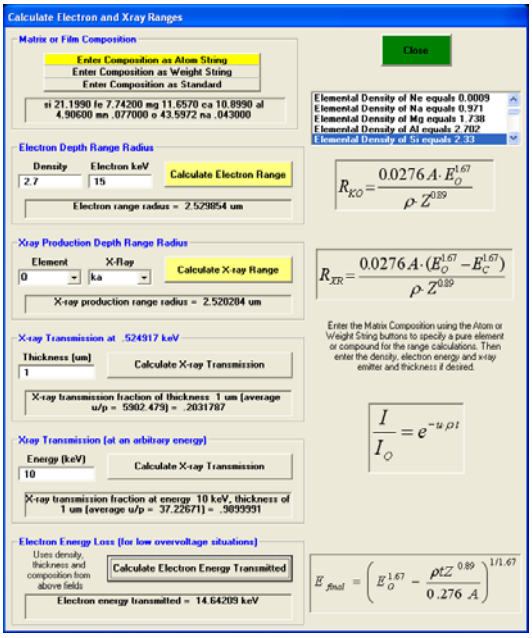
CalcZAF: A Free Utility for EPMA

CalcZAF is a small utility application for EPMA that includes calculation of ZAF and Phi-Rho-Z matrix correction parameters from arbitrary compositions with 10 different analytical models to choose from and compare, and 6 different mass absorption coefficient tables for a total of 60 different quantitative options.



* CalcZAF accepts compositions to calculate intensities or calculates composition from intensities using normalized k-ratios, raw k-ratios or unknown and standard counts.

* CalcZAF calculates binary compositional and empirical intensity datasets for plotting error histograms to evaluate matrix methods.



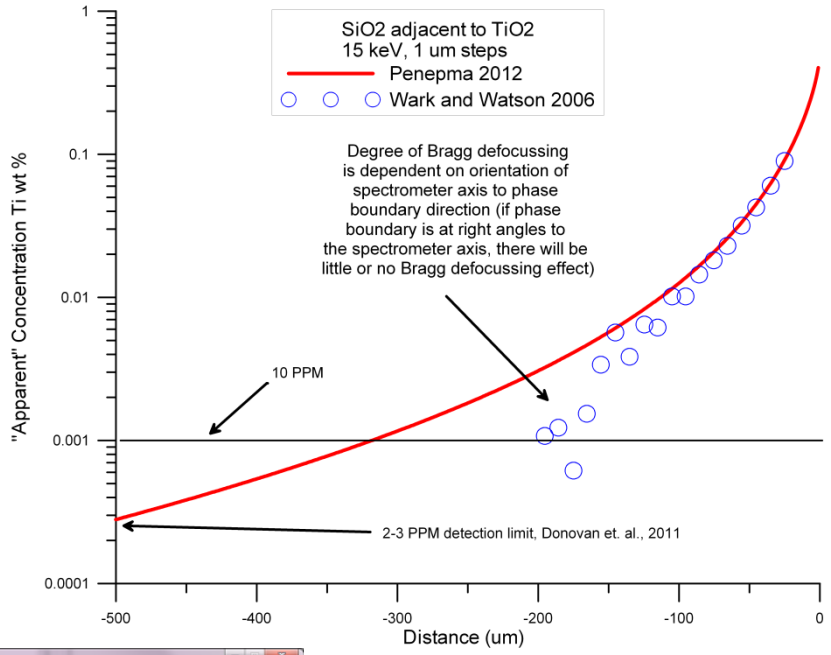
* CalcZAF applies geometric corrections to intensities for particles (cubes, prisms, spheres and fibers) and thin films based on various adjustable parameters.

* CalcZAF includes Standard, a standard composition utility for “what if” calculations and monte-carlo modeling of electron-solid effects including full GUI support for Penepma 2012 and the newly released fast modeling of secondary fluorescence from boundary phases (see next page).

* CalcZAF has powerful tools for calculating detection limits and x-ray and electron transmission ranges in compounds.

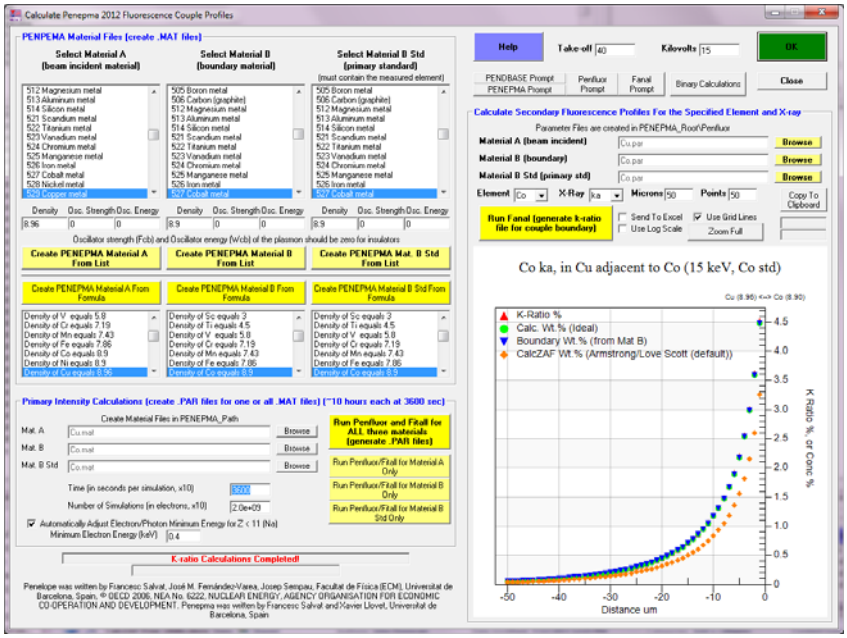
Correction for Secondary Boundary Fluorescence from Nearby Phases

Probe Software announces a new feature for the correction of secondary fluorescence boundary effects from nearby phases for WDS and EDS spectrometers.



These boundary fluorescence effects are generally of concern for trace element analysis, but at distances less than tens of microns from phase boundaries, these artifacts can reach the percent level for some element couples, such as Cu-Co, Ni-Fe, Cr-W, etc.

Correction of these boundary fluorescence effects is possible



through recent work by Francesco Salvat and Xavier Llovet at the University of Barcelona, Spain. Use of sophisticated monte-carlo models for electron-photon transport, followed by implementation of these insights into analytical expressions for fluorescence, means that these time consuming and tedious operations can now be performed in a fraction of the time previously required for high precision quantitative calculations.

Probe Software is in the process of implementing these newly developed calculations in our **Probe for EPMA** software for automatic correction of boundary effects in real-time based on the actual distances and analyzed compositions along with corrections for Bragg defocussing and detector orientation effects.

Right now, these quantitative boundary calculations can be modeled off-line using our new Penepma 2012 GUI which can be downloaded for free from Probe Software's technical area along with the previously mentioned CalcZAF and Standard utilities as linked here:

http://www.probesoftware.com/Technical.htm

Contact John Donovan for more information.
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