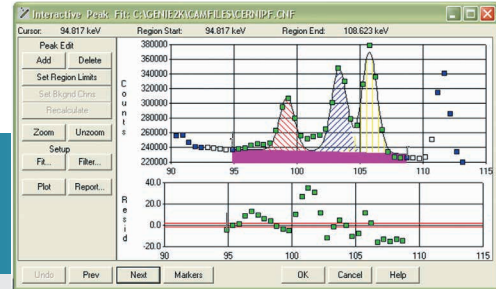


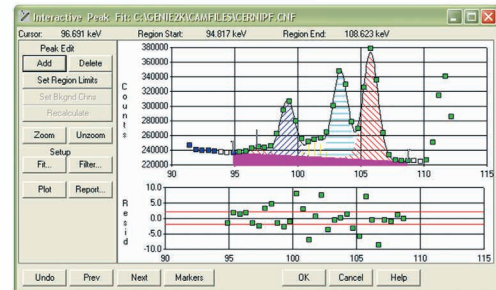


Genie™ 2000

Interactive Peak Fit



Before Interactive Peak Fit



After Interactive Peak Fit



Nuclear



Healthcare



Homeland
Security
& Defense



Labs and
Education



Industrial and
Manufacturing

KEY FEATURES

- View results of peak locate/peak analysis
- Evaluate quality of peak fit using graphical residual plots
- Add or delete peaks manually to modify and improve peak results
Modify width of peak fit regions, fit algorithms and background functions
- Plot results graphically or generate a text report

DESCRIPTION

The Genie 2000 Interactive Peak Fit Option provides the spectroscopist with a tool to review the results of automatic peak search programs and make adjustments in those results as necessary. This capability is particularly useful where complex spectra are encountered. It is also used in any application where an analyst must review either all analysis results or any unusual or anomalous results.

Interactive Peak Fit (IPF) is run directly after the peak locate/peak analysis phases of spectral analysis. It can be invoked with one or more filter functions in effect, limiting the view of IPF to only peak fit areas that match the filter criteria. For example, if complex multiplets are expected only around peaks of a specific nuclide or in a specific energy region, those criteria can be used as filter functions and the IPF will only show those areas. Or, filter criteria could be set so that only multiplets are viewed, or only fit areas exceeding a certain chi-square value, etc. This simplifies integrating IPF into data review procedures for routine sample counting operations.

The IPF display shows peak fit regions satisfying the filter selection, beginning with the lowest energy region. The peak area is shown with shading used to depict the areas for individual peaks. Data points are shown as dots so the user can quickly see the correlation between fit results and data. Background is also shown as a shaded area and color is used to show the boundaries of the fit region and the system defined background channels.

Immediately under the peak display is a residual plot showing the differences between fit and data in terms of sigma deviation. Both the residual plot and the peak display are autoscaling – that is, the plots self scale to show the data clearly irrespective of the magnitude of the data.

The user can alter the peak search results by locating a cursor on the graphical display and pressing “Add” or “Delete” buttons on the screen. This places a mark over the cursor position indicating locations where peaks are to be added or deleted respectively. This operation can be repeated if more than one location is to be affected, then the user can press a “Recalculate” button to recompute the peak region after adding or deleting the specified peaks.

Similarly the user can modify the boundaries of the peak fit region to break a multiplet into smaller components or change the number of background channels used. The user can also change the peak fit algorithm to any of the standard peak fits available in Genie 2000. Each time the user selects “Recalculate” the system recalculates the region with the new information and updates the fit displays. This process can be repeated as many times as desired until the user is satisfied with the results, then he or she can move on to the next region.

At any time, a report showing calculated peak areas and background for the current fit region can be called to the display, so the user can review the fit data in a tabular format. A plot button provides a hard copy graphical output of the fit display.

The Interactive Peak Fit can be run from either the Interactive User Interface environment of the Spectroscopy window or from a batch procedure command. When run as a batch command, command line arguments are used to define the filter functions for initial launch. This allows IPF to be built directly into an application with hard coded filters pointing the reviewer to only specific parts of the spectrum. Another command line switch also allows IPF to be launched in a “review only” mode in which fit results can be reviewed, but not altered.

ORDERING INFORMATION

- S506C Genie 2000 Interactive Peak Fit Software.

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