

Command	AFPEAK
PURPOSE	Search for peaks in the current one-dimensional spectrum
PARAMETERS	
NUMBER	Number of most significant peaks to be located. If omitted, but peak locations shall be stored externally, the number of available conditions, windows or points, respectively, is assumed: otherwise an unlimited number of peaks is searched by default.
/FWHM	Expected peak widths (FWHM). The program determines a guess value from the peak structure in the spectrum. This parameter should be specified if the guess value is not optimal.
/SIGNIFICANCE(s)	Lower limit of statistical significance; peaks lying at least s standard deviations outside statistical fluctuations are considered. Replaceable default is $s = 2$.
/INTEGRAL(a)	Lower limit for the overall contents (counts) of the peak region marked by the relative minima between the peaks (without background correction); replaceable default is $a = 0$.
/LIMITS(x_1, x_2)	Two numbers, denoting the x values of the limited region in which the peak search is performed.
/CONDITION	Peak locations (regions delimited by relative minima between the peaks) are stored externally in analyzer conditions.
/WINDOWS	Peak locations (regions delimited by relative minima between the peaks) are stored externally in display windows.
/POINTS	Peak centers are stored externally in display points.
/BEGIN(b)	External storing starts with condition, window or point b . Default is $b = 1$ for conditions or $b = "A"$ for display windows or points.
/REORDER	If specified, peaks are stored and listed in the order of decreasing significances rather than ascending channel numbers. The keyword is ignored if an unlimited number of peaks.
/LIST	The list of limits, counts, positions and significances of located peaks is shown on the terminal.
/NODISPLAY	The located peak limits or positions are not displayed.
/ANALYZER	The spectrum consisting of the peaks only is written to the output analyzer @PEAKS. If the keyword /BACKGROUND is specified in addition, the background contribution is subtracted.
/BACKGROUND	See /ANALYZER
FUNCTION	<p>The displayed data are smoothed internally over the specified width and convoluted with a bipolar function to a spectrum, in which zero crossings correspond with relative minima and maxima of the original spectrum.</p> <p>The net peak area estimated from the convolution function is divided by the square root of the corresponding contents of the smoothed spectrum to define the statistical peak significance. Peaks with a significance smaller than the specified value are ignored; if more peaks than desired are found, only the most significant ones are considered.</p>

REMARKS

A reasonable guess for the full peak width at half maximum (FWHM) is essential. A small value may overestimate statistical fluctuations; if chosen too large, sharp peaks located in a shoulder may be smoothed off. In case, the guess value determined by the program is not optimum, a more appropriate value may be specified.

EXAMPLE

AFP

Find all peaks in the actually displayed spectrum with a FWHM determined automatically and a statistical significance of more than 2 standard deviations and display the peak positions.

AFP / FWHM(6.5) WIN REORDER LI NOD

Find the 26 (maximum number of display windows) most significant peaks with $\text{FWHM} \approx 6.5$ channels in the actually displayed spectrum, sort them by decreasing significances and store the limits into windows A and following without displaying. List the results on the terminal.