COLEGRAM

THE SPECTRA ANALYSIS SOFTWARE

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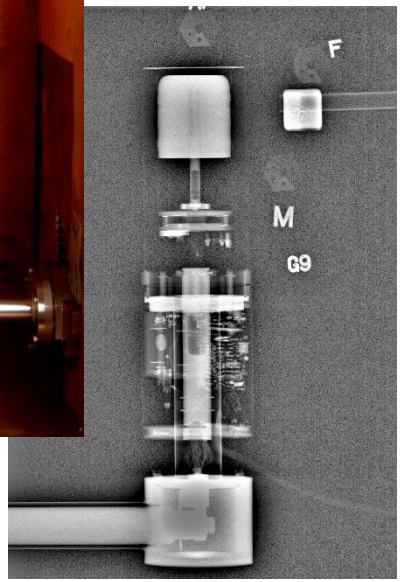
SPECTROMETRY IN RADIONUCLIDE MEASUREMENTS

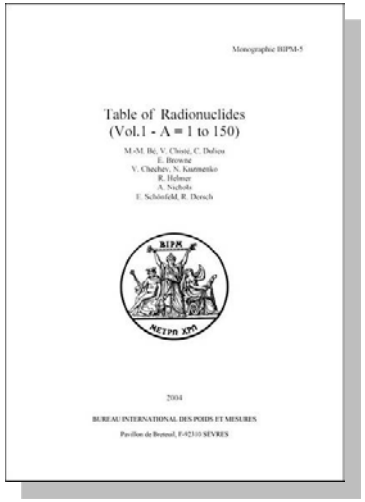
Gamma spectrometry is a secondary technique

Spectrometry includes *photons* but also *alphas* and *bêtas*

It is a necessary technique to distinguish the various energies of emitted particles



Evaluation of decay data



WHAT COLEGRAM CAN DO

- Open several spectrum format files (.Spe, .chn, .Spc, .lzs, .mca, .tka)
- Several display options
- Select multiple ROIs of interest
- Work in separate window for each ROI
- Adjust several types of functions on the selected peaks (28 functions available)
- Recall ROIs & peak functions from another .spm file
- 3 different cost functions (Least-squares, X^2, Poisson) for the Levenberg-Marquardt algorithm
- Constrain fitting parameters to be fixed or boxed
- Calculate the peak areas and associated fitting uncertainties
- Calculate the residues / R^2
- Fit many spectra in batch mode

COLEGRAM WINDOW

Open a spectrum file from various formats (.spe, .chn, .spc, .lzs, .mca, .tka)

Select the fitting method (Least-squares, X², Poisson)

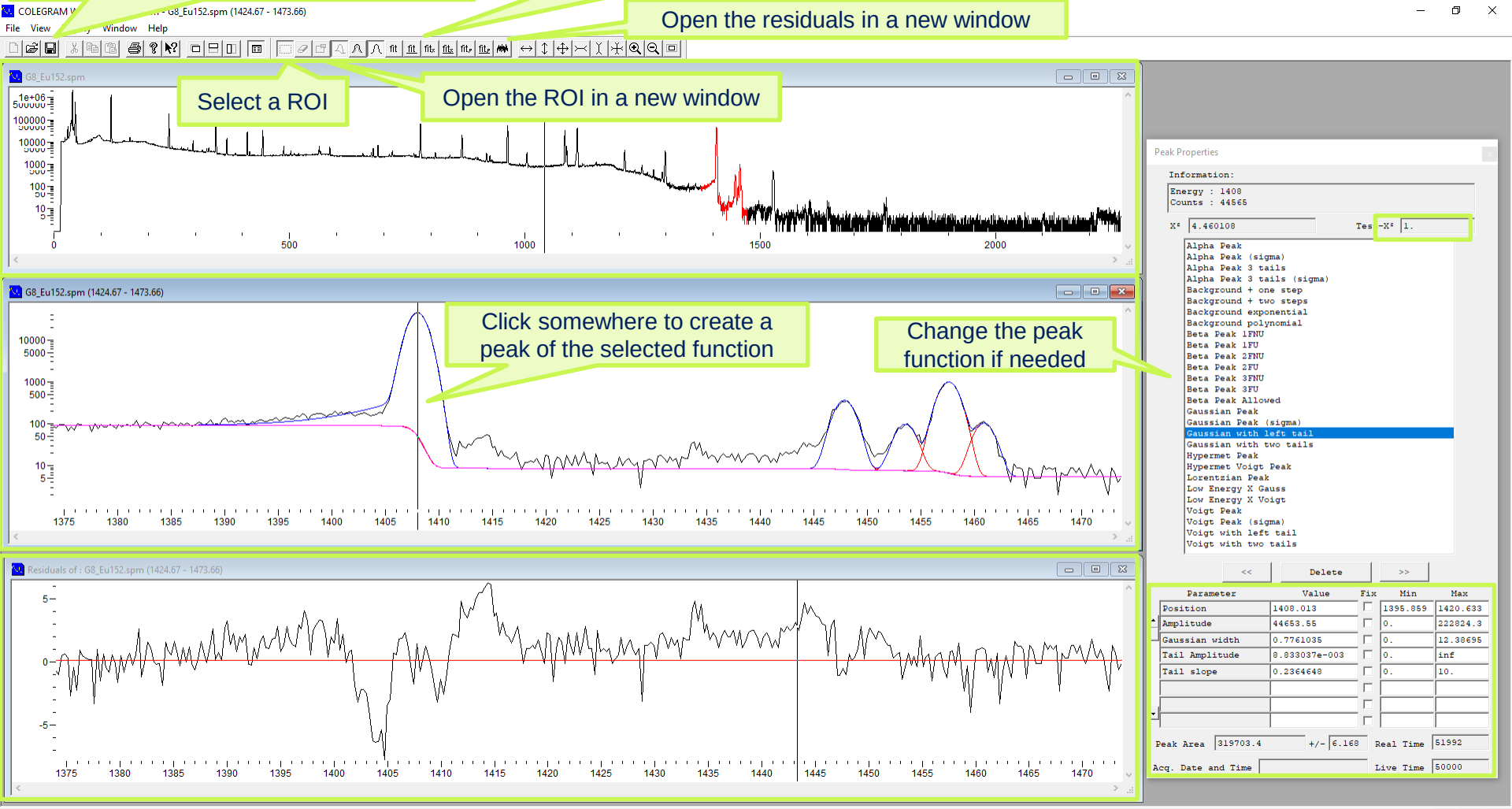
Open the residuals in a new window

Select a ROI

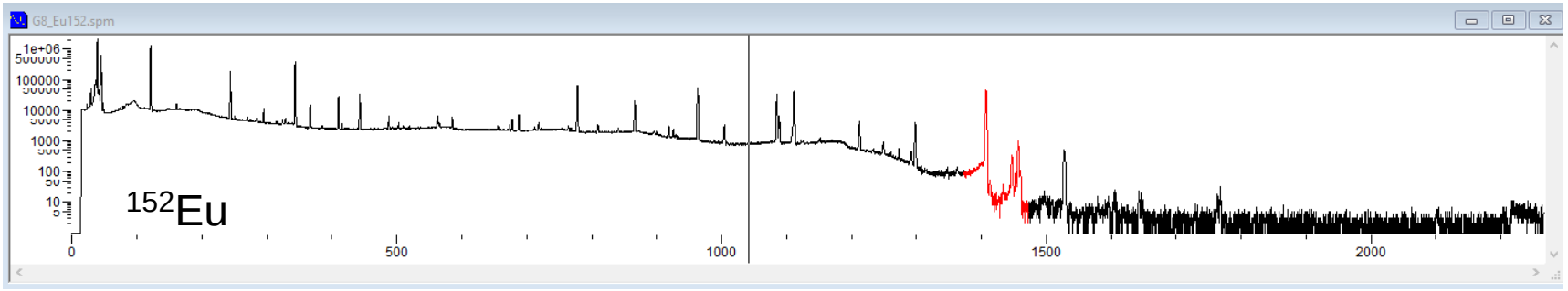
Open the ROI in a new window

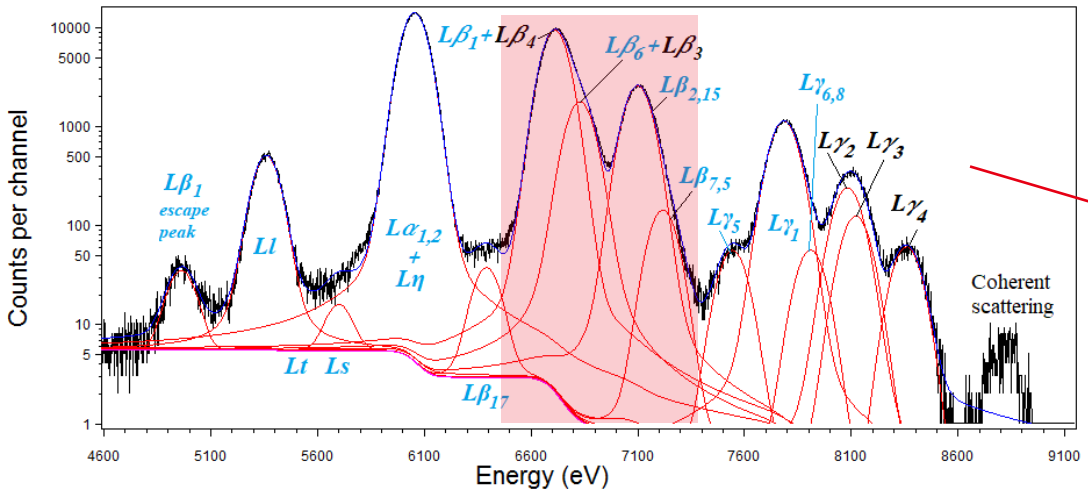
Click somewhere to create a peak of the selected function

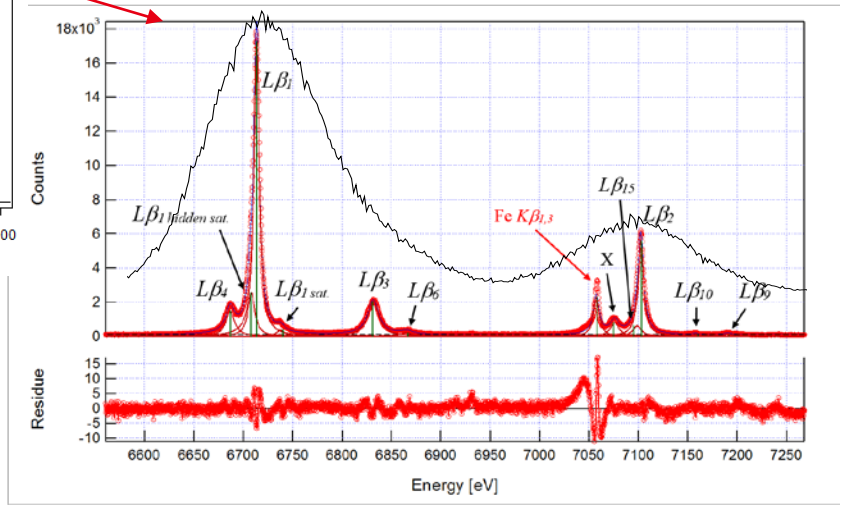
Change the peak function if needed



PHOTON SPECTROMETRY (γ, X-rays)



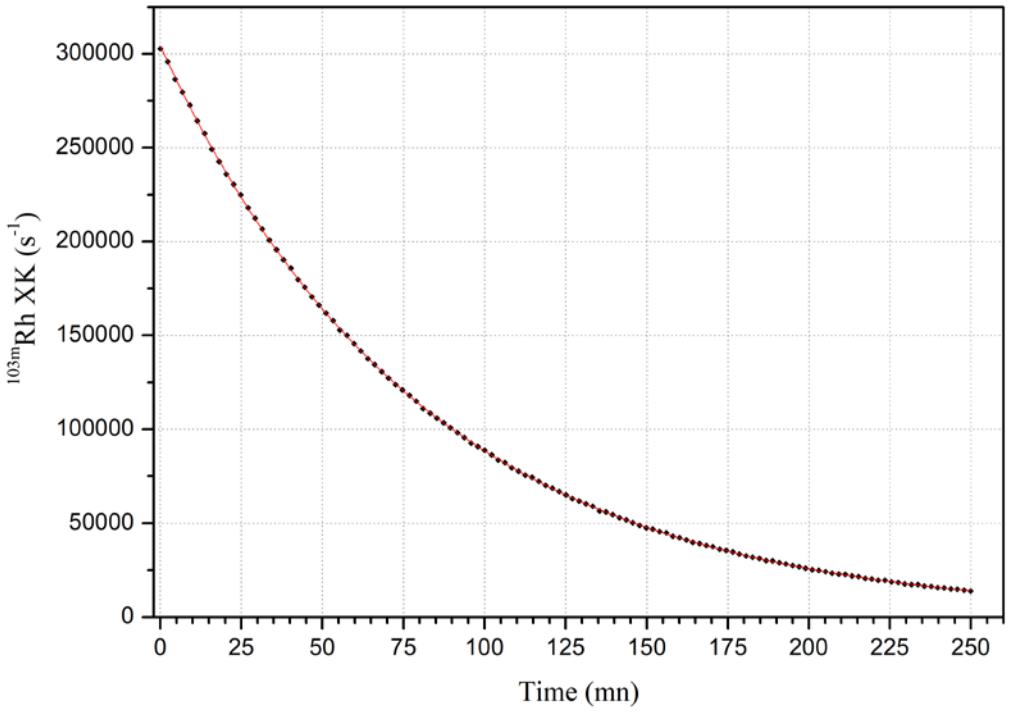




Gd L X-rays

BATCH PROCESSING OF ^{103m}Rh

- One of the spectra used as model
- The model is uploaded for each spectrum and the fitting is performed automatically



- Period = 56,15(6) min
- *DDEP: 56,115 (6) min*

WHAT COLEGRAM CANNOT DO

- Calculate Radionuclide Activity (only peak areas)
- Calculate limits of detection
- Identify peaks from a gamma or X-ray database
- Automatically fit any spectrum with only one big button
- Prepare coffee…

WHAT COLEGRAM MAY DO (IN THE FUTURE)

- Identify peaks from an X-ray database
- Process the background for the whole spectrum (not only the ROI)

Conclusion:

- COLEGRAM is a free software running under windows
- COLEGRAM can process alpha, beta, gamma and X-ray spectra
- Special features (several minimization criteria, batch processing, lots of peak functions)

If you want to try it, write me an e-mail :
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