

ORS

R-FIT[®] v4

Discover the secrets of your new and R&D structures! With an unrivalled resolution and no limit on the number of layers within a structure that may be defined and analysed, R-Fit[®] v4 from ORS, is the most advanced post growth quantitative reflectance analysis package on the market. Compatible with a wide range of commercially available reflectometers, only R-Fit[®] v4 has the power to look closely at the subtleties of your reflectance data and give you the complete understanding you need to control your material growth.

No matter what the structure, no matter what the complexity, R-Fit[®] v4 from ORS, has the mathematical power to match up to any challenge in quantitative reflectance analysis you may throw at it. With a resolution that allows you to analyse layers from only a few Angstroms thickness, R-Fit[®] v4 enables you to access the detail of your data like no other commercially available reflectance analysis package. Search your most complex of structures for the best fit of; refractive index (real and imaginary), growth/etch rate, individual layer thicknesses and RMS roughness.

R-Fit[®] v4 has a number of tools built in to help you get the best from your analysis; including smoothing functionality, background correction, data points erasure and an RMS roughness calculator. All these tools and more, are easily accessed through R-Fit[®] v4's simple-to-use intuitive interface.

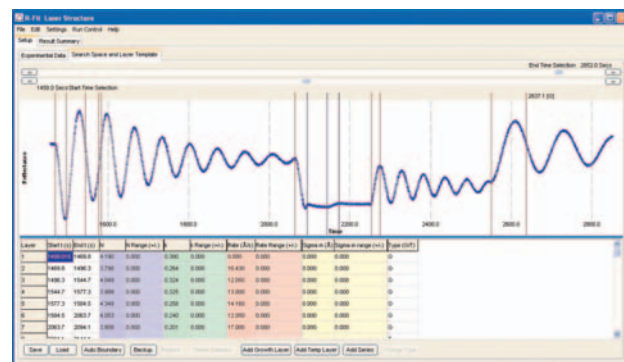
Requiring the input of only a few basic system parameters, such as the probe wavelength and the substrate n and k, R-Fit[®] v4 will show you the optimised values of your structures refractive index, growth rate and RMS roughness in just minutes.

Layer markers may be automatically read from files generated by your reactor's control software, ensuring your reflectance data is accurately divided into the correct layers. Gain greater insights into each layer by introducing your own sub-layers to further understand your structure.

You may also use R-Fit[®] v4 to create a model for analysis of your production processes with R-Fit[®] LIVE. A few simple mouse clicks is all it takes to transfer the model between the two sister packages.

With a highly competitive capital cost, R-Fit[®] v4 will justify the investment in no time, and give you insights into your material growth that will truly amaze you.

Choose the smart option - Choose ORS.
And take **control**.



Above: R-Fit[®] v4 allows you to search on n, k, rate and RMS roughness for an unlimited number of layers within a structure

Quantum cascade lasers

No better illustration of the power of R-Fit[®] v4 could be made than by showing R-Fit[®] v4's ability to fit the many thin layers in a quantum cascade laser (QCL) structure.

The figure to the right shows part of a QCL structure analysed by R-Fit[®] v4. The alternating white and grey areas show the individual layers within the structure. The blue line shows the original reflectance data and the red line shows best fit through the reflectance data.

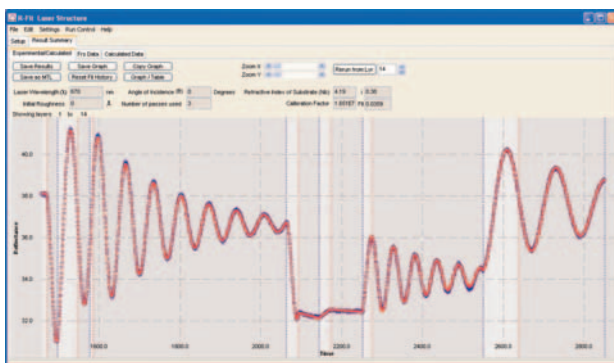
As can be seen, R-Fit[®] v4 is easily able model the reflectance and produces an excellent fit to the original data.

For more information on the fitting of QCLs, contact ORS.



With R-Fit[®] v4, you can fit layers of only a few Angstroms thickness.

Temperature change layers



In this laser structure, several layers are fit for a refractive index change of the underlying substrate, due to a change in the growth temperature.

In many material systems, such as this laser structure, there are periods where no material is deposited but the growth temperature undergoes a change.

These non-growing temperature change layers present no problem to R-Fit[®] v4, where the change in reflectance due to the temperature change, is interpreted as a change in the refractive index of the underlying substrate.

This ability to track changes in the refractive index of the underlying substrate due to temperature is a powerful advantage of R-Fit[®] v4 over many of its competitors. Where other packages would require you to split a fit into several smaller versions when temperature changes occurs, this is not the case with R-Fit[®] v4 which copes perfectly well with these situations.

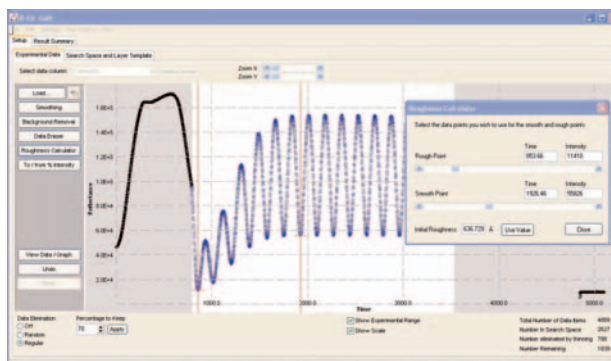
For more information on fitting temperature change layers, contact ORS.

Roughness calculator

For particular use when fitting nitride interferograms, R-Fit[®] v4 has a handy built-in RMS roughness calculator.

Simply select a smooth part in the nitride interferogram as your reference point, then drag the "roughness" cursor across the early stages of the interferogram and see the value for RMS roughness update in the dialog box.

For more information on fitting nitride interferograms, contact ORS.



Here, the RMS roughness calculator is used to quickly quantify the roughness in this nitride buffer layer.