FCS Data Processor – global analysis software in fluorescence correlation spectroscopy

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Analysis features:

- ✓ Global fit: several correlation functions are combined and simultaneously fitted
- ✓ Automatically generated initial guesses for parameters
- ✓ Parameter fixing, constraints and linkage
- ✓ Confidence intervals by exhaustive search
- ✓ Quality of fit is judged by $\chi 2$ criterion and visual inspection of residuals
- ✓ Easy extendable models library
- ✓ Built-in simulator of correlation functions

Interface features:

- ✓ Multi-document interface
- ✓ Advanced parameter management for sorting, quick visual linkage and easy navigation through the parameters space
- ✓ Saving and loading experimental data and analysis results from databases
- ✓ Templates allow to prepare analysis settings in seconds
- ✓ 2D and 3D graphical data representation
- ✓ Import of external data & export of analysis results
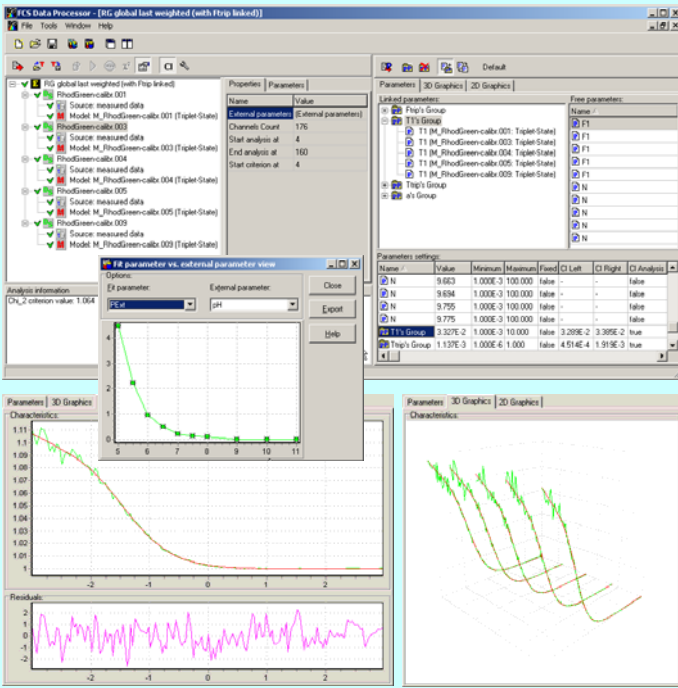
Predefined model library:

Basic model:

$$G(t) = 1 + \frac{X(t)}{N} \left(\sum_i \frac{f_i}{\left(1 + \frac{t}{T_i}\right)\sqrt{1 + \frac{t}{a^2 T_i}}} \right),$$

$$\sum_i f_i = 1$$

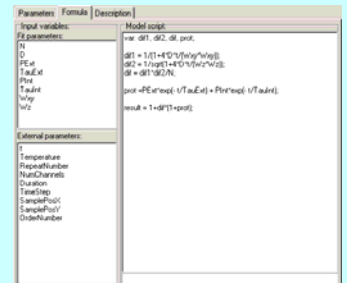**Model library is easily extendable**

Extentions:

— "Pure-Diffusion": $X(t) = 1$

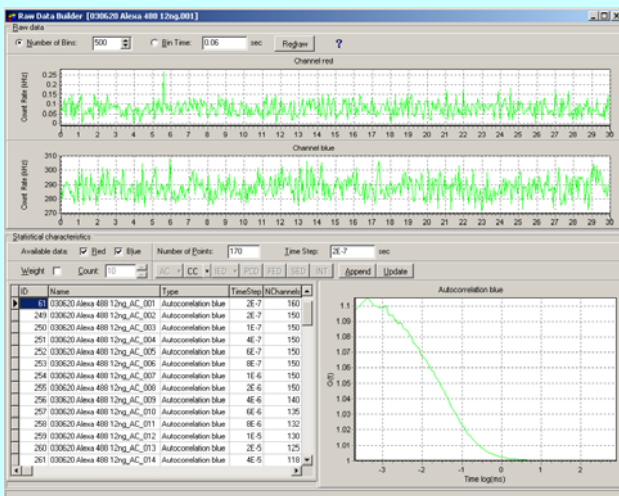— "Triplet-State": $X(t) = 1 + \frac{F}{1-F} e^{-\frac{t}{\tau}}$

— "Conformational": $X(t) = 1 + A e^{-\left(\frac{t}{\tau}\right)^{\beta}}$

— "Protonation": $X(t) = 1 + P_1 e^{-\frac{t}{\tau_1}} + P_2 e^{-\frac{t}{\tau_2}}$

User – defined models:

built-in programming language allows creating new fully functional models

Data Management:

- ✓ Compatible with ConfoCor™ and ConfoCor2™ (Carl Zeiss Jena) and supports data formats of other manufacturers.
- ✓ Support for building and previewing the statistical characteristics from raw data
- ✓ Support databases
- ✓ Searching, sorting and filtering experimental and fitted data in the database allows easy data-viewing and printing