Qensh fitting routine.

Function name: *Fit3_sqw_se_lor*

Summary: This function performs the fit of the experimental data to a sum of a stretched exponential and a Lorentzian line.
Here, the stretched exponential correlation time is **expressed in ps**.
Use Fit3_sqw_se_in_w_lor instead to have this time expressed in meV (this is usually what is used.).

NB: In the case β=1, this is equivalent to a fit to a sum of two Lorentzians.

Details: data are fitted to the following S(Q,ω):

$$S(Q,\omega) = S_{core}(Q,\omega') \otimes R(\omega) + Background(\omega) + \alpha . S_{Buffer}(Q,\omega)$$

where

$$S_{core}(Q,\omega') = I_{El}.\delta(\omega') + \left[\frac{I_{SE}}{2\pi} \int \exp(-\left(\frac{t}{\tau_{SE}}\right)^{\beta} \cos(\omega' t)) + \frac{I_B}{2\pi} \frac{\Gamma_L}{\Gamma_L^2 + \omega'^2} \right] . \exp\left(\frac{\omega'}{k_B T}\right)$$

and $\omega' = \omega - \omega_0$

and $Background(\omega) = \frac{\text{bckd}(\omega_{max}) - \text{bckd}(\omega_{min})}{\omega_{max} - \omega_{min}} . (\omega - \omega_{max}) + \text{bckd}(\omega_{max})$

Param. #	symbol used in Eq. above	name	unit
0	ω_0	Elastic Peak Shift	meV
1		Resolution Shift	meV
2		Buffer Shift	meV
3	T	Sample Temperature	K
4	α	weighting factor for Buffer or substrate subtraction	
5	bckd(ω_{min})	Background level at ω_{min}	A.U.
6	bckd(ω_{max})	Background level at ω_{max}	A.U.
7	I_{el}	Elastic Peak Intensity	A.U.

8	I_{SE}	Stretched Exponential Intensity	A.U.
9	τ_{SE}	Stretched Exponential correlation time	ps
10	β	Stretching exponent	
11	I_B	Lorentzian Intensity	A.U.
12	Γ_L	Lorentzian HWHM	meV

Note: Only the parameters highlighted in yellow should be used.