Please plan a software that will

1. Read the data
2. Make plots
3. Knowing that the data represent a derivative of a signal – calculate the signal (integrate the data). The integrated signal is called spectrum
4. Knowing that the number of radicals is given by the area under the spectrum, calculate the number of radicals. For this purpose one has to integrate the spectrum again
5. Plot the area (number of radicals) versus time
6. Check exponentiality of this dependence (resolve whether it is single or double exponential)
7. Calculate the exponential factor
8. Provide a final decision: if the exponential factor is higher than X and the decay of the number of radicals reaches 10 % or lower of the initial value, evaluate the quality as YES (positive)

Please plan a software that will:

1. Read the data and make a plot
2. Plot y versus
3. check whether one observes a linear dependence of y versus

and determine the range of linearity by performing linear regression and analysis the fitting error

Proposed procedure: linear regression for first 3 points – error?

Linear regression for first 4 points – error?

Repeat until the error become larger than the acceptable value (given by the user)

1. Calculate the slope: y=a+bx

b denotes the slope

1. Knowing the relationship:

Determine the translation diffusion coefficient D

1. Report “positive” if the diffusion coefficient exceeds the value defined by the user.

– trivial

h=6.63 × 10-34 m2 kg / s Planck constant

– gyromagnetic factor 42.58 MHz/T

1MHz=\*10^6 Hz

Hz=1/s

– gyromagnetic factor 42.58\*106 Hz/T

N – nobody knows what it is and the client must explain that

N- number of hydrogen atoms per unit volume, please calculate

It has something to do with molar mass and mole

Avogadro number?

I know the chemical formula of the electrolyte,

Let me consider he example of water

Molecular mass of water (H2O)=2g+16g=18g

18g of water includes 1 mol of water molecules – this means the Avogadro number of water molecules (one has to find the Avogadro number)

Density of water is 1g/cm3 – one has to convert that to kg/m3

How many moles of water molecules is included into 1m3 of water?

The number of hydrogen atoms is twice larger (because of H20)