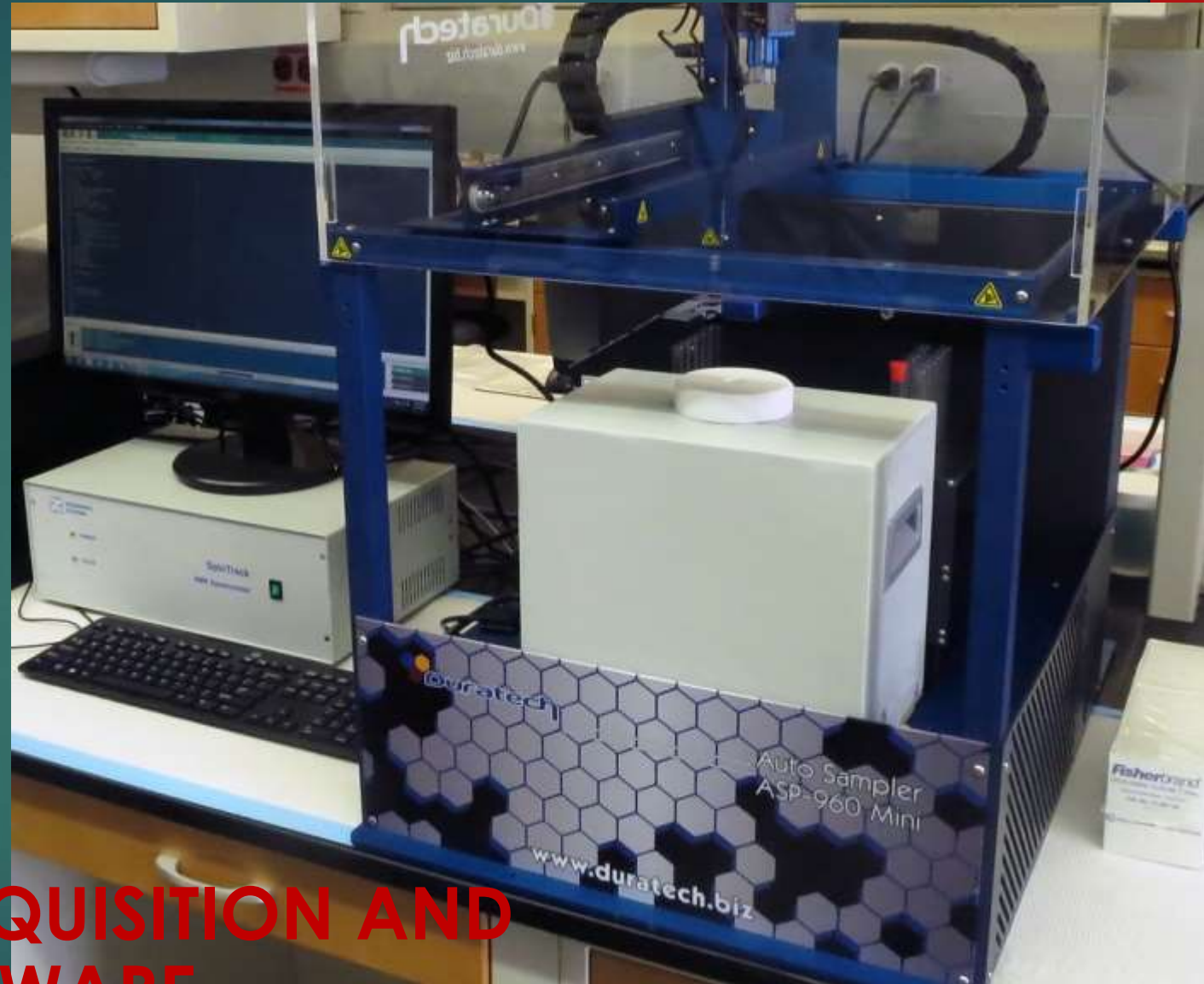


Resonance Systems

TIME-DOMAIN NMR OEM

Relax8

NMR AND MRI ACQUISITION AND PROCESSING SOFTWARE



Functions

- ▶ Making NMR measurements
- ▶ Saving and Retrieving raw experimental data
- ▶ Composing Any pulse sequences, including RF pulses, ADC, Gradient (or 3-axis MRI Gradients), Delays, TX and RX phases
- ▶ Post Acquisition Data Processing
- ▶ Standardized Calibration procedure and Spreadsheet databasing
- ▶ Standard Packages of TD-NMR experiments
- ▶ Pre-defined ISO and ASTM TD-NMR applications (ISO 8292, ISO 10565, ASTM D 7171-05 and many others)
- ▶ Easy configuration of required User Interface to make routine measurements as “One Button” applications
- ▶ Programming multi-step or continuous measurements with pre-defined time, auto save data or fitting results, automatic start when a sample is inserted
- ▶ External run from other programs

Making NMR measurements

Making of any measurements is as easy as to open the required application file and pressing RUN button

The screenshot displays the Resonance Systems software interface. At the top, there is a menu bar with options like 'File', 'Edit', 'View', 'Tools', 'Help', and 'About'. Below the menu bar, there is a toolbar with icons for 'Open', 'Run', and 'Stop'. The main window shows a graph with 'Intensity, %' on the y-axis and 'time, us' on the x-axis. A red circle highlights the 'Open' button in the toolbar. An 'Open' dialog box is open, showing a list of files in the 'App' folder. Three numbered steps are overlaid on the image:

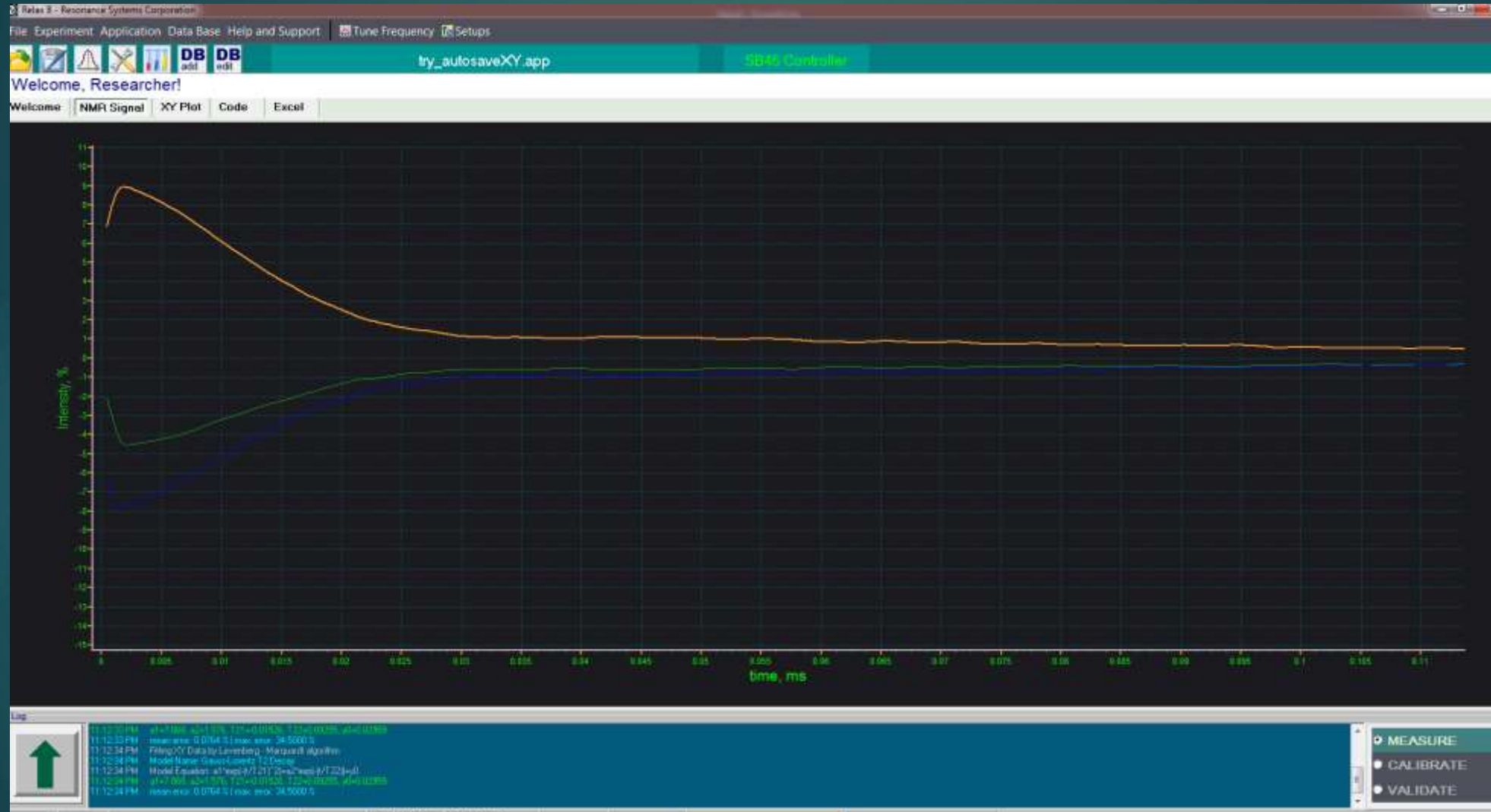
1. press 'Open'
2. select App
3. Run it!

The 'Open' dialog box shows the following files:

Name	Date modified	Type	Size
T2_CPMG_10mmUniversal-Time	1/22/2018 2:02 AM	APP File	23 KB
try_autosaveXY	1/23/2018 10:28 PM	APP File	23 KB
IMSE_SB45	1/2/2018 3:00 PM	APP File	37 KB
SE_SB45_Feb15	1/2/2018 2:24 PM	APP File	25 KB
T2_CPMG_10mmUniversal	12/8/2017 10:57 PM	APP File	22 KB
T2_CPMG_5mmUniversal	12/7/2017 10:52 PM	APP File	22 KB
T2_CPMG_10nom_5mm	12/7/2017 5:56 PM	APP File	31 KB
MeasureFD_5mm	12/7/2017 5:18 PM	APP File	24 KB
MeasureFD	12/7/2017 5:18 PM	APP File	24 KB
Measure_diffusion_ST203a	12/6/2017 5:16 PM	APP File	24 KB
SFC1	11/29/2017 1:33 PM	APP File	28 KB
SFB8	10/27/2017 9:46 PM	APP File	24 KB
MeasureT2_CPMG_nom	10/21/2017 10:52 ...	APP File	22 KB
isoR292-120R2017-direct	9/20/2017 6:35 PM	APP File	30 KB
isoR292-120R2017-compensated_by_spintrack	9/20/2017 6:35 PM	APP File	29 KB
isoR292a17.correct	7/31/2017 3:47 PM	APP File	28 KB
isoR292a17old	7/31/2017 1:14 PM	APP File	28 KB
LioneMeasureT1	5/13/2017 4:10 PM	APP File	31 KB
LioneMeasure	5/13/2017 12:25 PM	APP File	29 KB
IMSE_SB45_step	5/11/2017 6:16 PM	APP File	29 KB

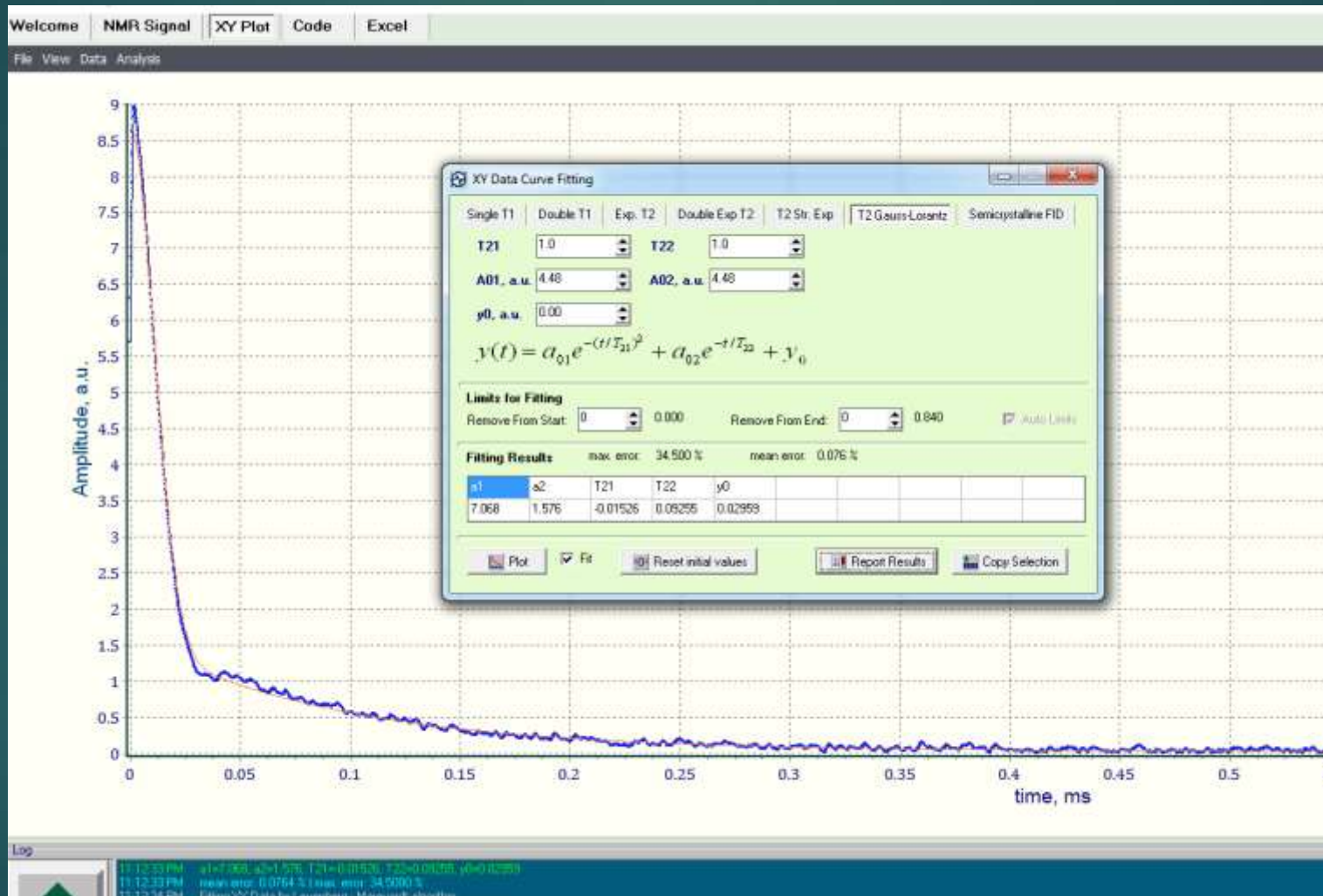
Making NMR measurements

The measurement curve will appear on the screen



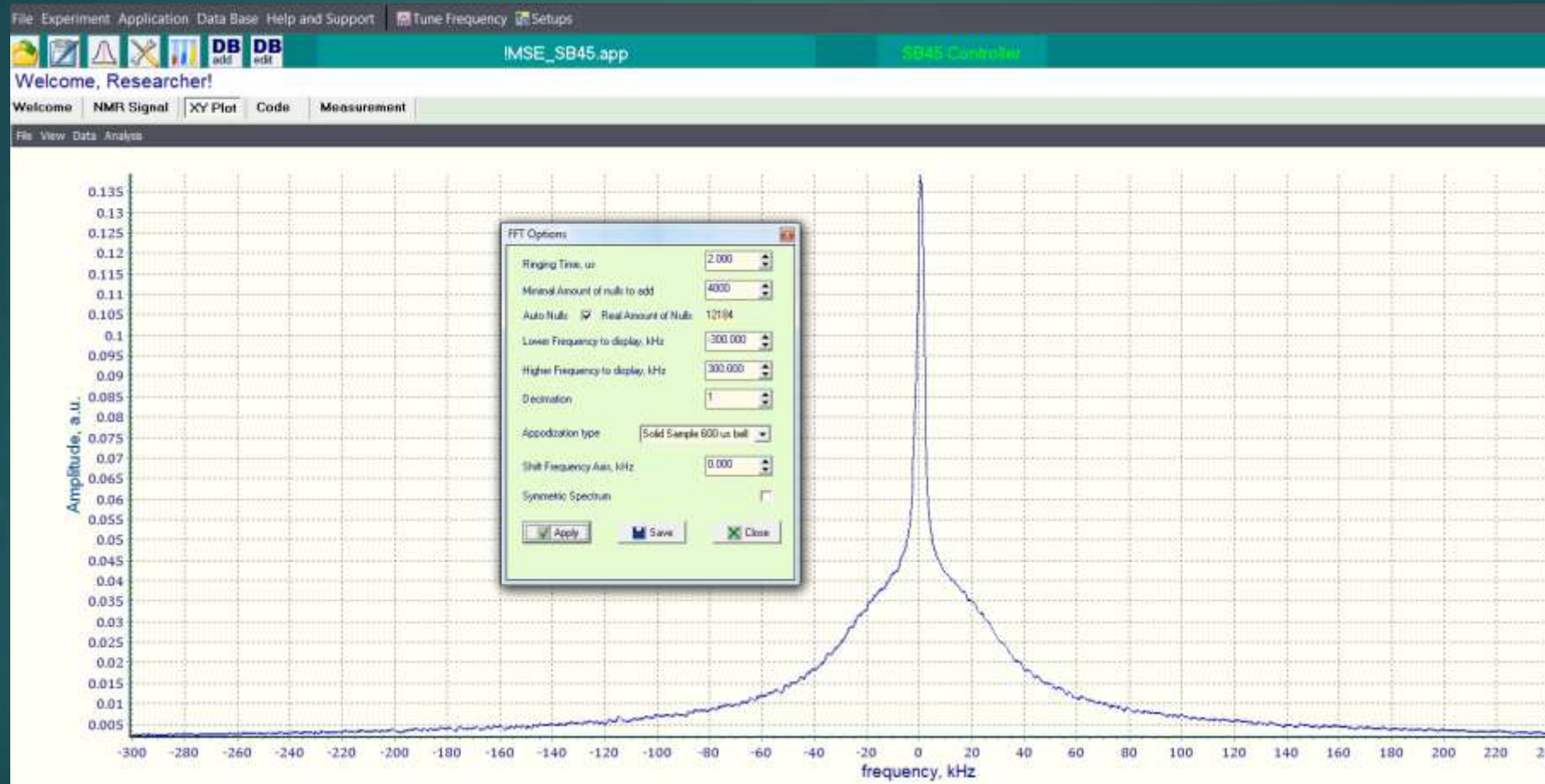
Making NMR measurements

Now you can easily do the fitting of NMR Relaxation



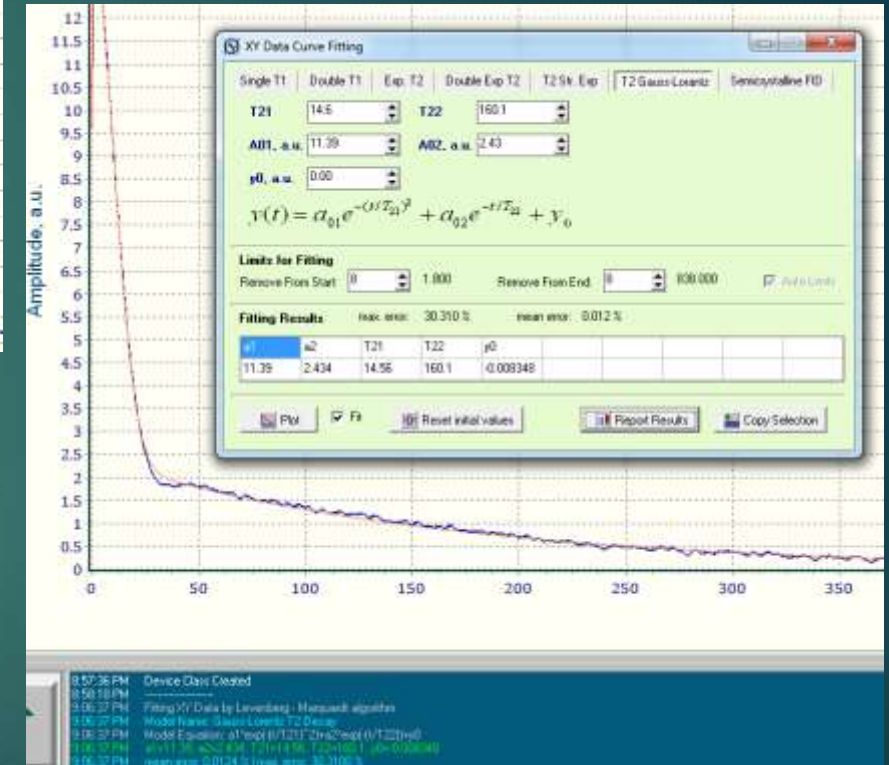
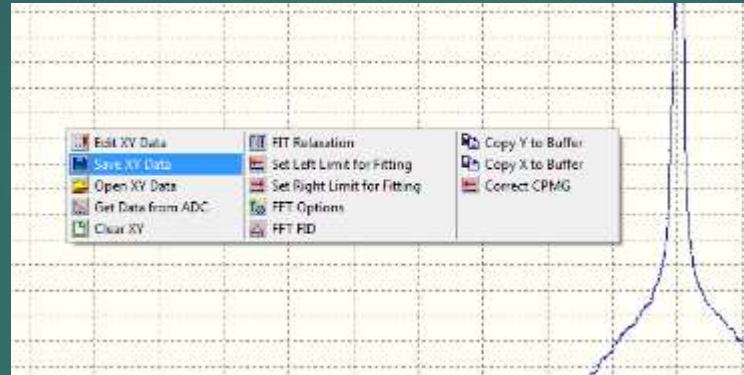
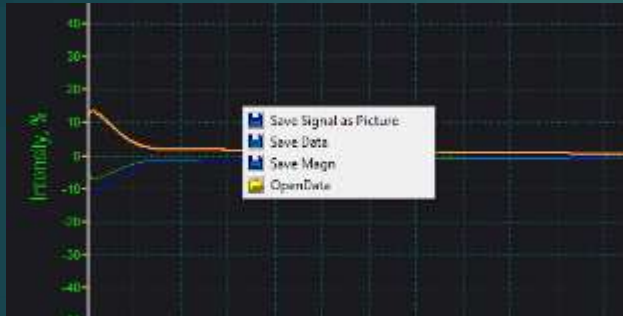
Making NMR measurements

Or perform FFT and get Spectrum



Making NMR measurements

Save all you have measured and calculated



Making NMR measurements

Or just add the record with all experimental data and setups to Database to do processing later

The screenshot displays the SB45 Controller software interface. The main window shows an NMR signal plot with Intensity (%) on the y-axis (ranging from -70 to 110) and a grid. The plot shows a signal that starts at approximately 10% intensity, decays to near 0% by 10% on the x-axis, and then exhibits a small negative peak around 15% on the x-axis. A database window titled "Database of Experiments DatabaseTemplate.mdb" is overlaid on the plot. The database window contains a table with the following data:

key	Sample Name (txt)	Sample # (int)	Sample Mass	Measurement Type	Additional Notes	_date
*					(Memo)	1/24/2018 9:02:06 PM
2	kjfi				(MEMO)	11/11/2014 6:22:21 At
3	cell			DQ_SpinDiff_8us_excite10	(MEMO)	11/12/2014 5:40:14 At
4	cell			DQ_SpinDiff_56_excite10	(MEMO)	11/12/2014 5:45:55 At
5	cell			DQ_SD_400_us_excite10	(MEMO)	11/12/2014 11:15:59 At
6	cell			DQ_SD_4us_excite10	(MEMO)	11/12/2014 11:18:58 At
7	cell			DQ_SQ_4_excite8	(MEMO)	11/12/2014 11:22:45 At
8	cell			DQ_SD_4us_excite6	(MEMO)	11/12/2014 11:39:22 At
9	cell			DQ_SD_4us_excite12	(MEMO)	11/12/2014 11:44:42 At
17	DQSD-Cell_wet_1				(MEMO)	5/14/2016 1:23:23 PM

The database window also includes buttons for "Add Record", "Goto Record", "Delete Line", "Change Database", and "Save Database".

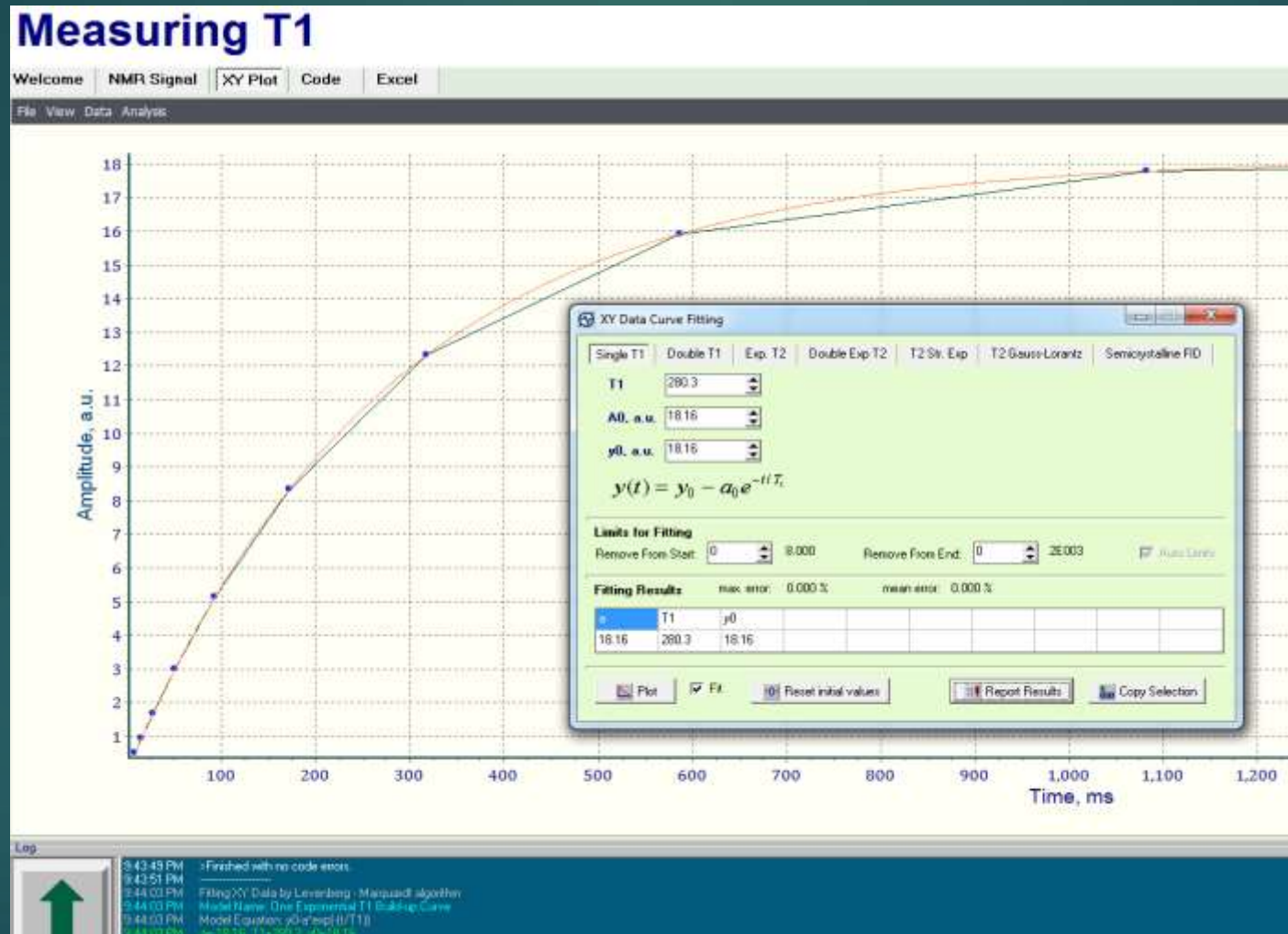
For those who loves NMR...

In Academic or Research packages we supply the complete freedom for creation new experiments, pulse sequences, data processing and manipulation routines by the Pascal-like script

```
Welcome | NMR Signal | XY Plot | Code | Measurement
34 // Bypass_DDC(false);
35
36 Clean_ADC(true);
37 ADC_Multiplier(1);
38 phi1:=0;
39 phi2:=270;
40 phi3:=0;
41 phi_rec:=90;
42 RX_Phase(phi_rec);
43 ShowHighMessage('phase cycling stage: '+FloatToStr(1, 0));
44
45 Sequence;
46 Pulse(p_90, phi1);
47 Silence(tau1);
48
49 Pulse(p_90, phi2);
50 for i:=0 to n_mse-1 do
51 begin
52     Silence(tau2);
53     Pulse(p_90, phi3);
54     Silence(2*tau2);
55     Pulse(p_90, phi3);
```

For those who loves NMR...

If you are not aware of programming, you can choose your T1, T2, Diffusion, Spin Diffusion, Multiple-Quantum application from the supplied pool of Apps



For Lab stuff in Factories...

We value your time, we save it to make the Calibration, Accurate Measurements and Results Documenting just with pressing one button

SFC_MSE app

Welcome, Researcher!

Welcome NMR Signal Code Measurement Calibration

Copy Selection Copy Data Save Data Reassign File Export To Excel Editor Mode Show Table

Key	Sample ID	Value	Comments	Time	Date
10/26/20					
10/26/20		6.719	good	13:01:20	5/2/2016
10/26/20		0.508	good	12:05:38	11/17/2014
10/26/20		0.510	good	12:04:24	11/17/2014
10/26/20		0.510	good	12:03:19	11/17/2014
10/26/20		0.512	good	12:02:15	11/17/2014
10/26/20		0.509	good	12:01:04	11/17/2014
10/26/20		0.512	good	11:59:04	11/17/2014
10/26/20		0.57	good	02:49:33	11/18/2014
10/26/20		0.53	good	02:49:10	11/18/2014
10/26/20		1.21	good	22:53:20	3/1/2015
10/26/20		8.74	good	20:48:45	3/1/2015
10/26/20		8.66	good	20:48:42	3/1/2015
10/26/20		8.73	good	18:39:06	3/1/2015
10/26/20		8.55	good	18:38:06	3/1/2015
10/26/20		8.69	good	18:36:58	3/1/2015
10/26/20		0.05	good	20:51:53	2/28/2015
10/26/20		6.661	good	13:40:10	2/24/2015
10/26/20		6.810	good	10:35:45	2/24/2015
10/26/20		11.638	good	10:35:17	2/24/2015
10/26/20		5.797	good	10:35:06	2/24/2015
10/26/20		9.995	good	13:53:32	2/19/2015
10/26/20		5.326	good	13:51:32	2/19/2015
10/26/20		6.597	good	13:50:38	2/19/2015
10/26/20		9.341	good	13:51:08	2/19/2015
10/26/20		6.597	good	13:50:38	2/19/2015

0:57:36 PM Device Class Created
0:58:18 PM
0:58:37 PM Plotting Data by Leverberg - Marquadt algorithm
0:58:37 PM Model Name: Gauss Lorentz T2 Decay
0:58:37 PM Model Equation: a1*exp(-t/T2) + a2*exp(-t/T2) + a0
0:58:37 PM a1=11.26, a2=4.94, T2=144.58, T2=10.0, a0=0.08348
0:58:37 PM rms: 0.0124 % rms: 0.003100 %

Welcome NMR Signal Code Measurement Calibration

ID	mass, g	Value	Calc. Value	NMR	error
1	Sample 1	1.00	0.00	0.25	0.0000
2	Sample 2	1.00	36.40	36.31	0.0940
3	Sample 3	1.00	72.00	71.81	0.1859

Export Import Redraw Apply Amount of Samples: 3

Solid Fat Content

NMR Value, a.u.

SFC, %

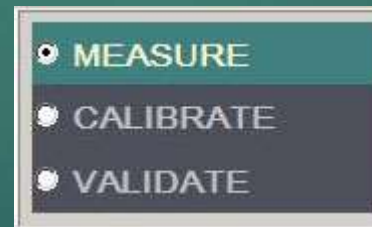
a2: 0.00019 ; a1: 1 ; a0: 0.25

Three operating modes:

“Measure” – run your application by pressing one button

“Calibrate” – calibrate the device using customized calibration functions with unlimited points number

“Validate” - test instrument functionality at any time you want



For Automated Process Control...

Autosampler robot, Sample Insert Detector also can be configured with the **Relax8** software as well as the automatically saving data or fitting results.

If a customer has own process control software, the Relax8 application can be just called from the command line in background mode

Sample

ID

comment

mass, g

Detection Enabled

Auto Start when sample is in

Saving Data

Auto Save Amplitude

Auto Save Complex Data

Auto Save XY Plot

Save to:

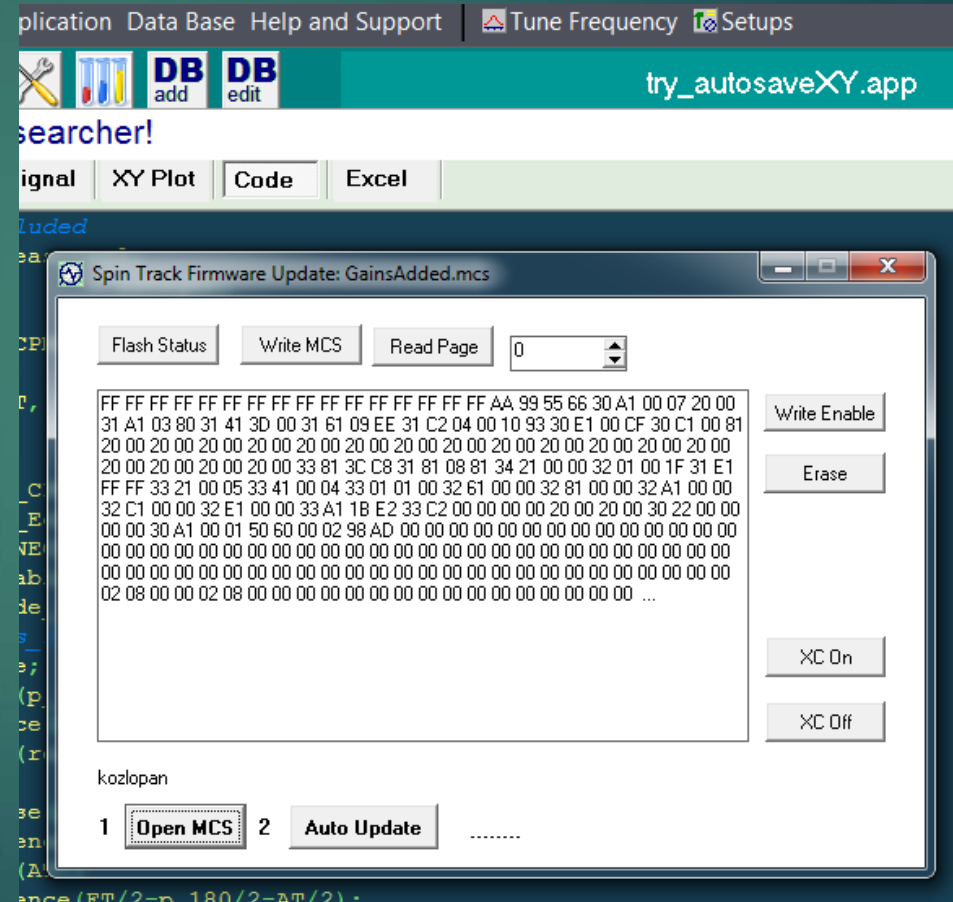
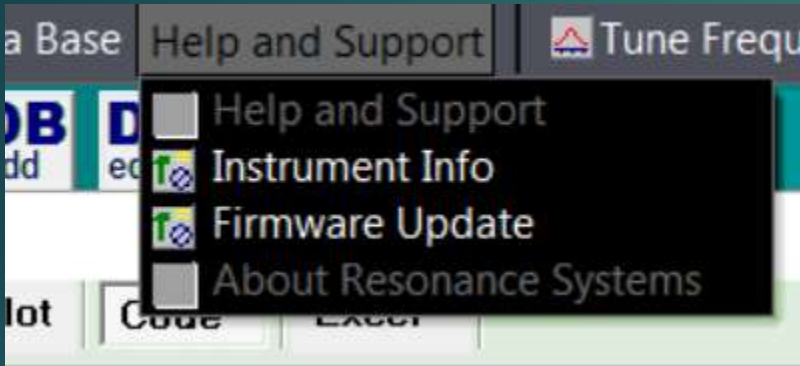
Results\kozlopan

Apply all



All New Critical Updates...

To ensure the best up-to-date functioning of the Spin Track NMR Analyzer it is always possible to install the latest Firmware and Software in just two clicks



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