

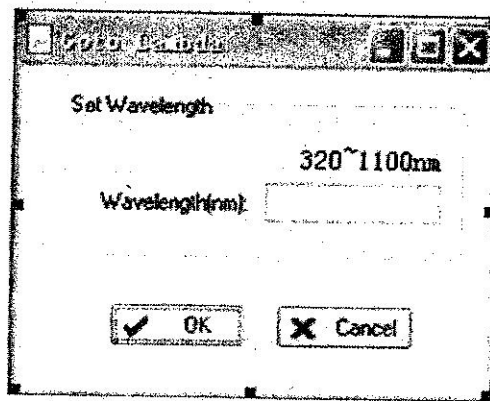
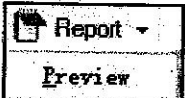


Fig. 42

Put the wavelength you need and then click "OK".

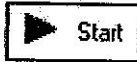
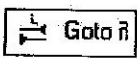
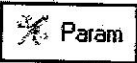
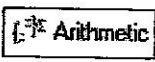
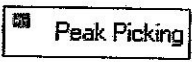
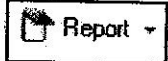
d. Report print

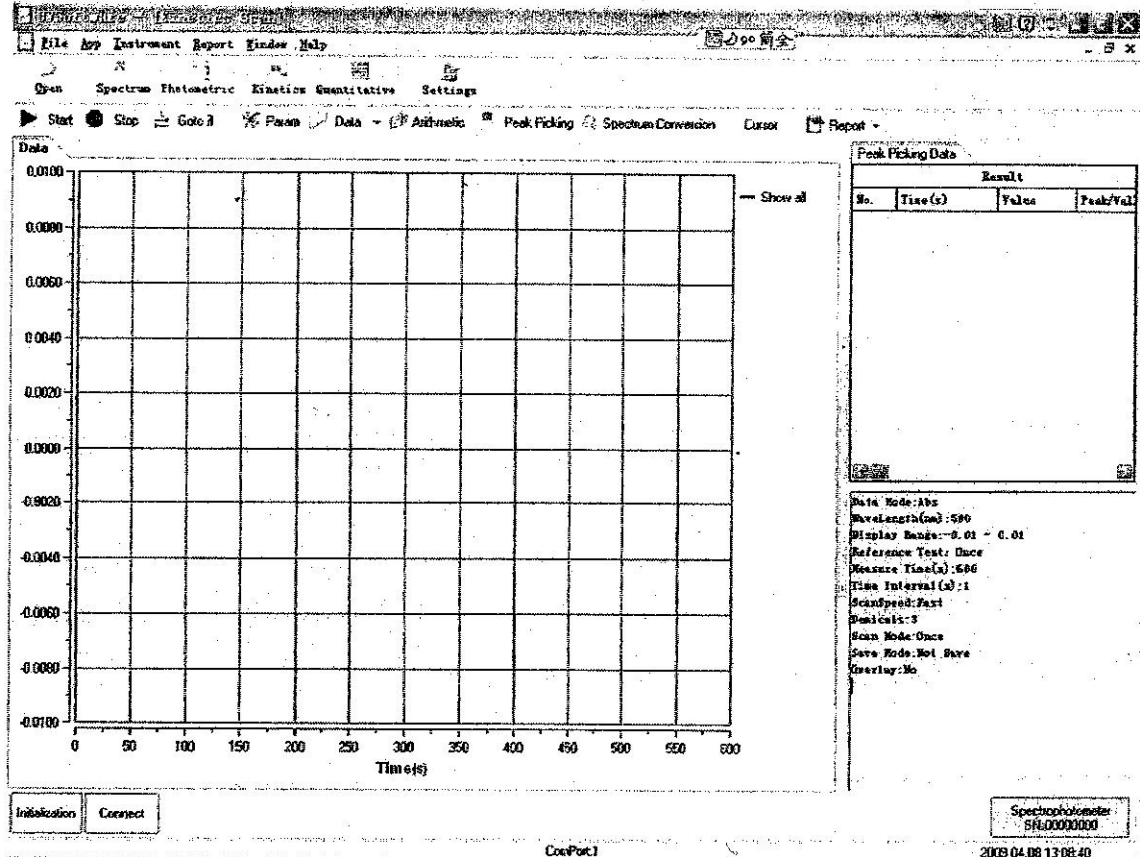
Click  on tool bar, select  to review report. The table of report can be adjusted through mouse according to your demand.

4.3 Kinetics measurement

4.3.1 Enter kinetics measurement mode

Click  button to enter kinetics measurement mode.

	Start measurement
	Stop measurement
	Wavelength locating
	Parameter setting
	Arithmetic of spectrum
	Peak peaking
	Spectrum conversion
	Cursor
	Print report



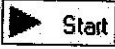
4.3.2 Set parameter

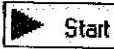
Click  Param button on tool bar to set parameter, see in Fig. 43 shows.

The 'Parameter Setting' dialog box is shown with two tabs: 'General' and 'Samples'. The 'General' tab is active, displaying various settings: Data Mode (Abs, T%, E), WaveLength(nm) (500.0), Display Range (-0.010 to 0.010), Reference Test (Once), Decimals (3), Measure Time(s) (600), Time Interval(s) (1), Scan Mode (Once, Repeat, Auto), Data File (D:\UVSoftware\Bin\Data\Kinetic.knd), Save Mode (Auto Save, Manual, Not Save), and an Overlay checkbox. At the bottom, there are 'OK' and 'Exit' buttons.

Fig. 43

In this window,

Reference Test: Once, after test complete, do not change any parameter, click  button to continue test will test sample directly, reference will not be tested;

Repeat, after test complete, do not change any parameter, click  button to continue test will test reference before test sample.

Scan mode: Once, test one time; Repeat, test according to set time interval and test time; Auto, test with set time interval till operator stop the test.

Save mode: Auto Save, after test, system will save automatically in the folder that user set, if scan mode is Repeat, name of saved file will be added “_1”, “_2” etc.; Manual, system will ask if you want to save result after a test; Not Save, system will not ask you to save result.

OverLay: by selecting this, all tested result will be shown on Data page, you can also use this function to see certain result on Data page manually.

Under this interface, you can select data mode: Abs, T% or Energy. Also you can set wavelength range and photometric range (display range), sampling interval, scan speed, reference test mode and decimals. After all parameter has set, click “OK”.

System will create automatically a new page Data1, and update the coordinates of spectrum (see 1 in Fig.44), the parameters that are set will be shown at right part (see 2 in Fig.44), test result will also be displayed at right part (see 3 in Fig.44), and current wavelength will be shown at the top of interface (see 4 in Fig.44).

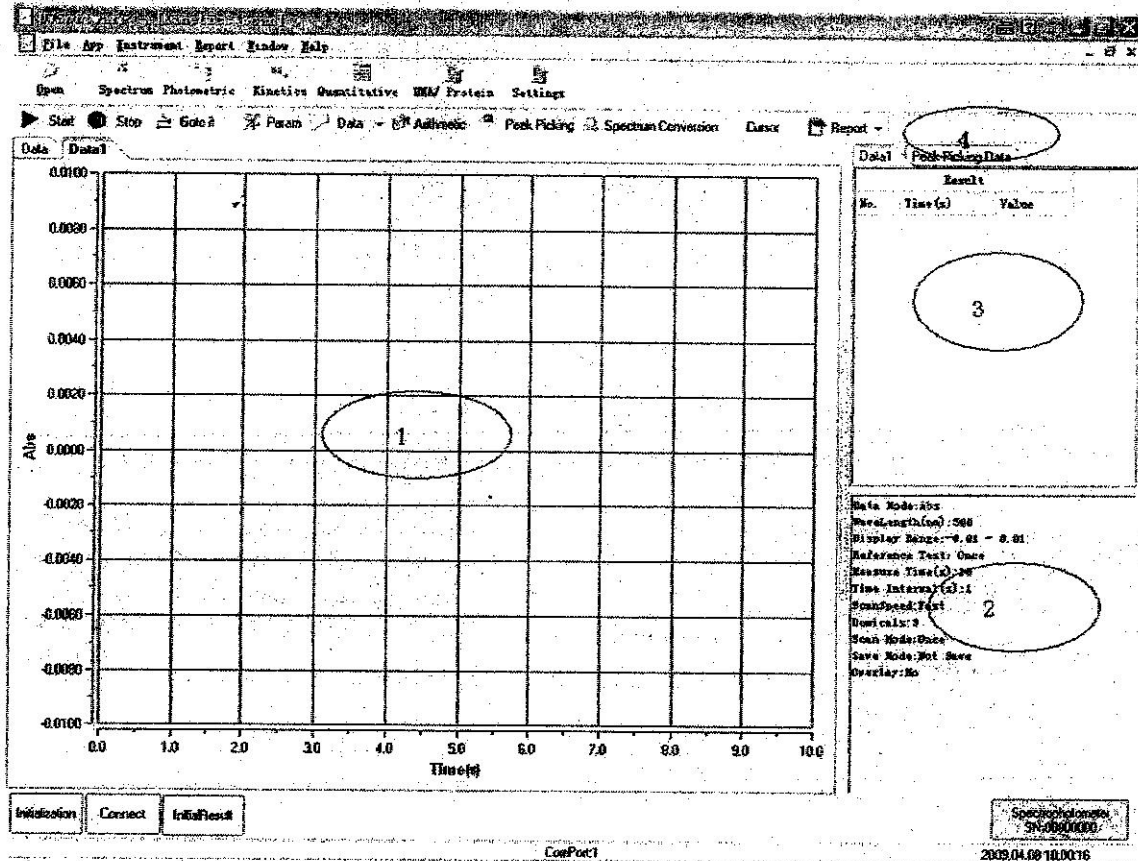
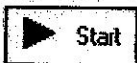


Fig. 44

4.3.3 Measurement

Click  to start measurement. System will inform you to pull reference into light path, see as Fig. 45 shows.

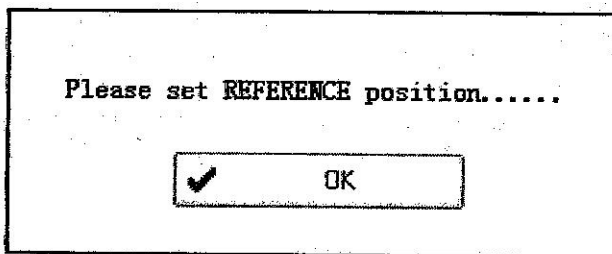


Fig. 45

Pull reference in and click "OK". Then system will inform you to pull sample into light path, see as Fig. 46 shows.

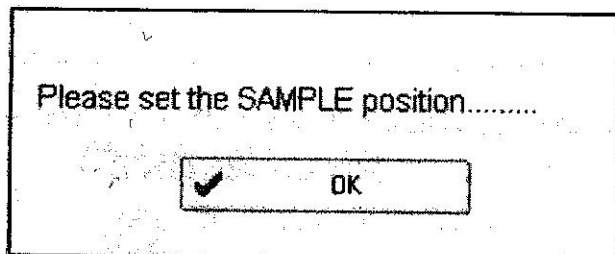


Fig. 46

Pull sample in and click "OK".

After measurement, system will inform you, then please click "OK", see as Fig. 47 shows.
After that, test result will appear, see in Fig.48 shows.

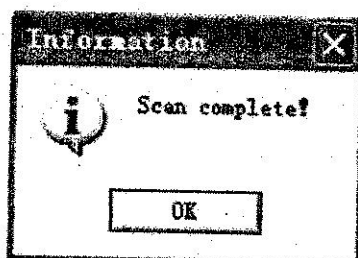


Fig. 47

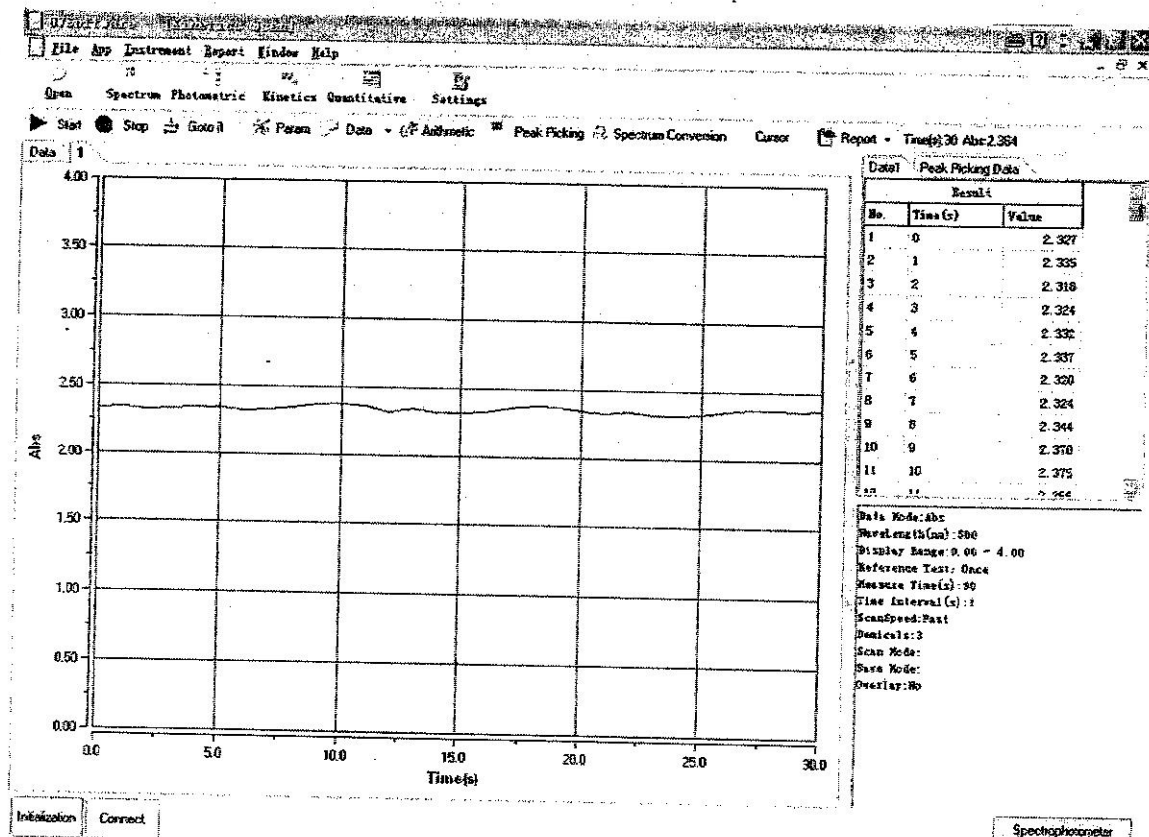
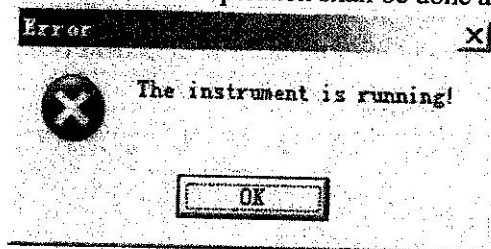


Fig.48

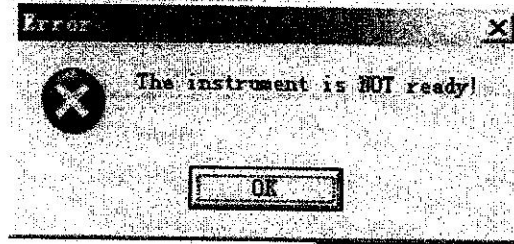
Repeatability measurement is same as spectrum scan, please check the corresponding chapter for details.

Notice:

When instrument is measuring, user clicks "Measure", "Wavelength locating" or other function buttons, system will inform as follow. Other operation shall be done after measurement complete.

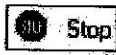


If instrument is not initialized, then user click any function button, user will get information as follow.



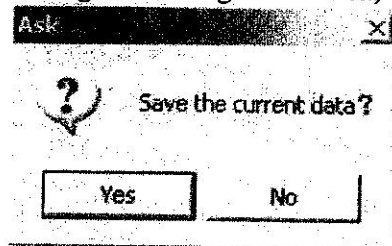
Generally, if repeat test is needed, operator can click  button to continue test; or select Repeat and its repeat time in parameter setting to finish test.

After test finish, if a new test is needed, it is not necessary to quit test window, by click parameter to enter parameter setting window, set new parameter then click "OK" button, system will create a new test page.

During the process of zeroing or testing, if user presses  button to stop without quitting the test window, system will clear all the current data. Click  button again will make system restart test again.

After a test, change of any parameters will make system create a new test page. If test mode, wavelength, reference test mode is changed, system will rerun zero and then start new test; others doesn't require re-zero.

When shutting off test page, user will get following information,

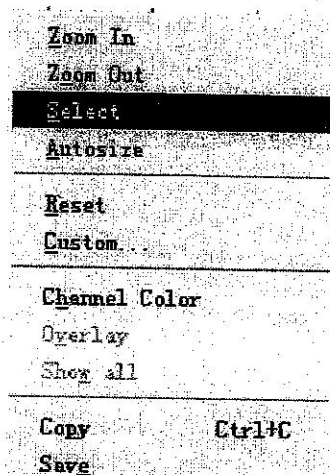


Select "Yes" to remain in test window, and user can save the test result manually; click "No" to quit test page.

4.3.4 Additional function

a. Spectrum adjustment

After measurement, right click mouse on spectrum, you will find the following menu:



In witch:

Select ---- Partly zoom in

Autosize ---- Adjust the spectrum to proper size automatically

Custom ---- Select a certain range for display, see in Fig. 49, after setting, click "OK", spectrum will be display follow the selected range

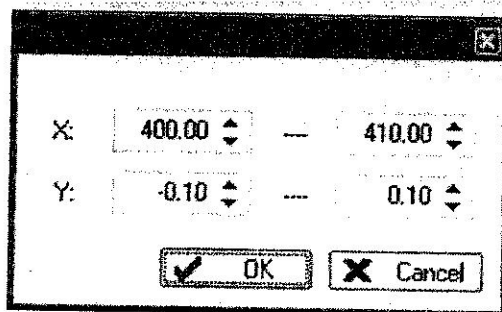


Fig. 49

Channel Color ---- set channel color for data page. See Fig.50, double click color button, color select window will appear, select the color you want, and click "OK".

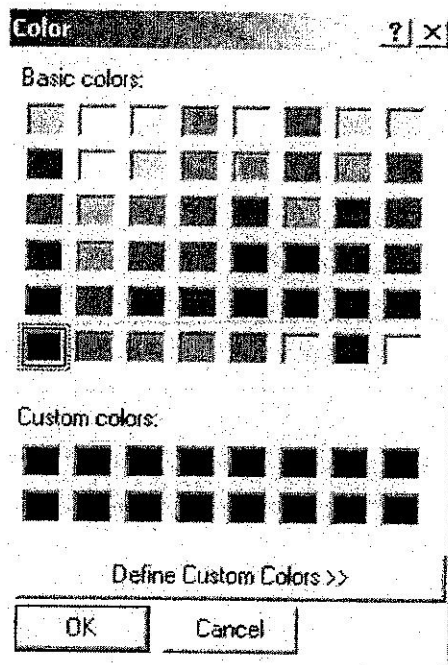
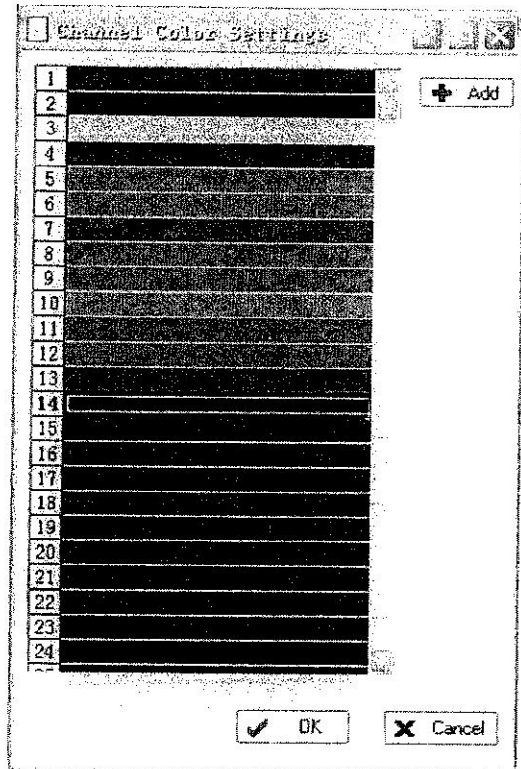


Fig. 50

Overlay ---- Spectrum overlay can show all the test spectrum on one data page, see Fig.52, select spectrum you want to overlay (in Fig.51 Da_0 is the property of page, 0~10s indicates range of scan time, 1 means time interval), click "OK". The overlay spectrum that you selected will be shown in Data page, see Fig.52.

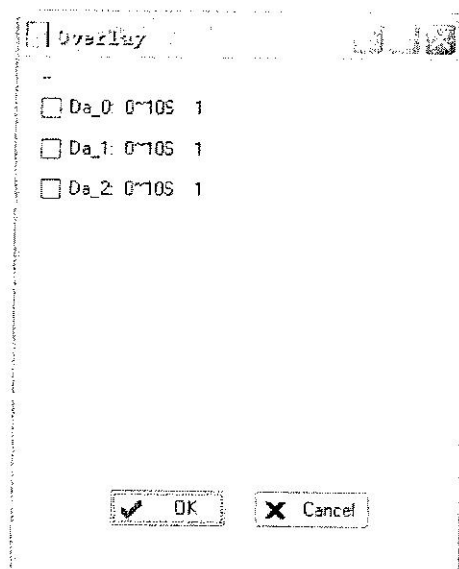


Fig. 51

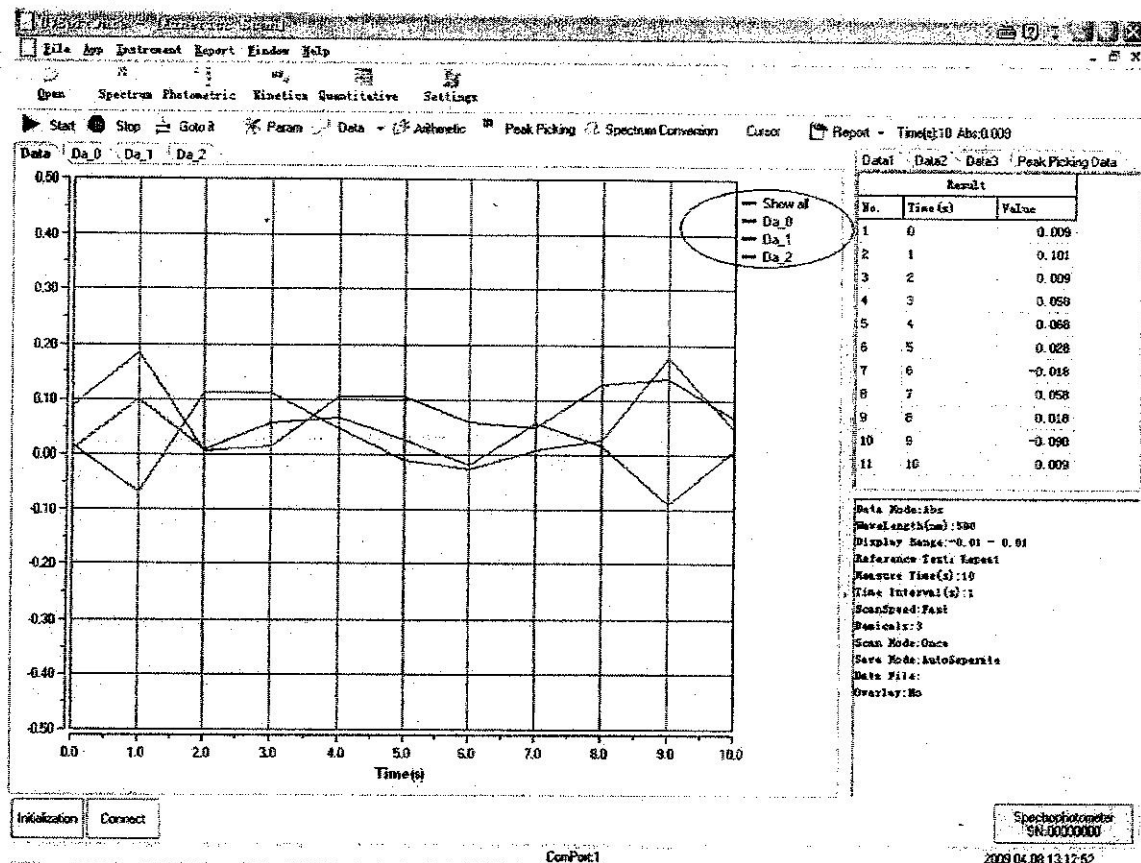
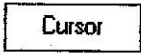


Fig. 52

By selecting from the marked toolbar in Fig.51 can display certain spectrum; if select Show all, all spectrum will be showed.

Click Overlay again to cancel spectrum overlay.

b. Cursor

Click  button on tool bar, vertical cursor will be displayed, you can observe data by moving your mouse, also you can use “←” & “→” to move cursor slowly. If you need to move cursor fast, press “Shift+←” & “Shift+→”.

c. Peak picking

Select the spectrum that you want to check peak, click  button on tool bar, peak picking window will come out (this function is used for certain spectrum, not for overlay spectrum), see Fig. 53, then input threshold and click “OK”, system will mark peaks and valleys on spectrum, and list each of them in a table, see as Fig. 54 shows.

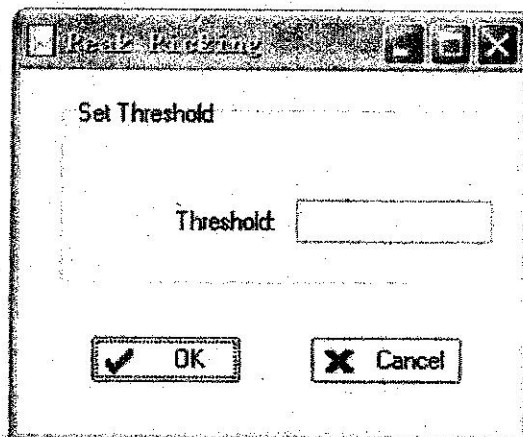


Fig. 53

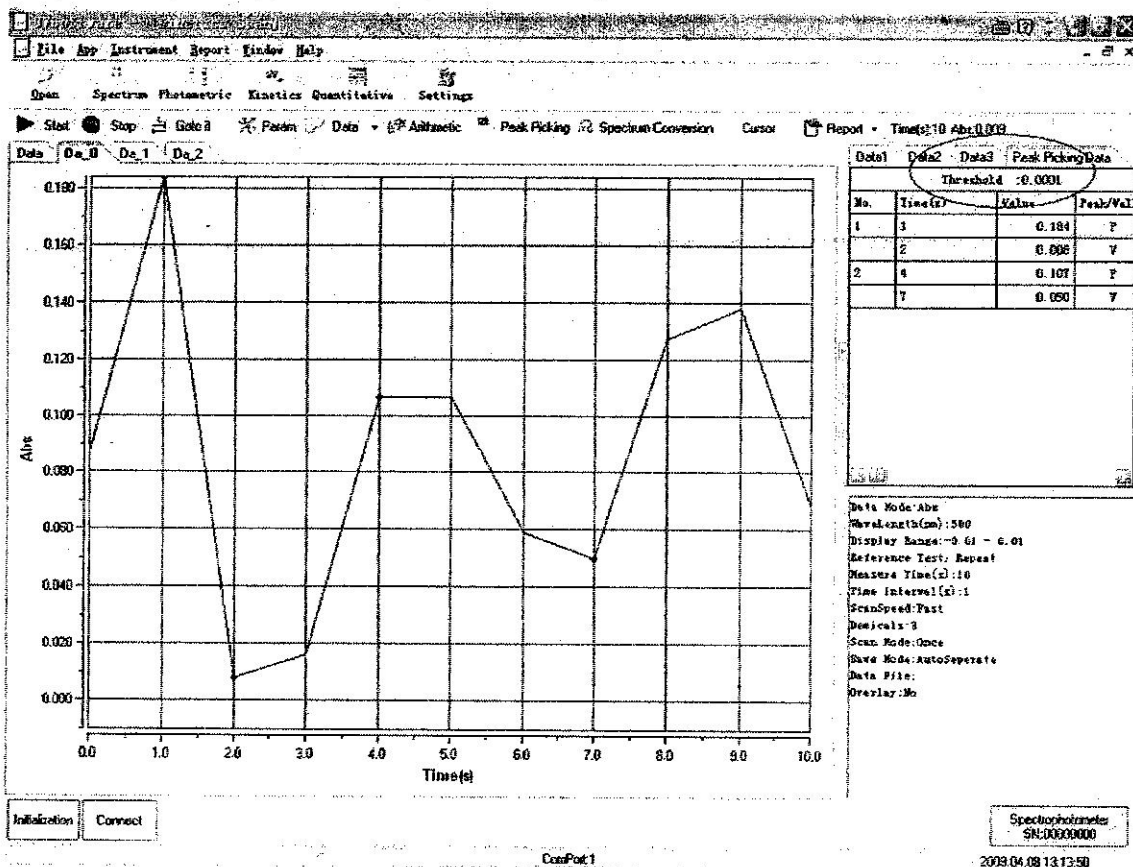


Fig. 54

If system did not find any peak because of improper threshold, system will inform you as Fig. 55.

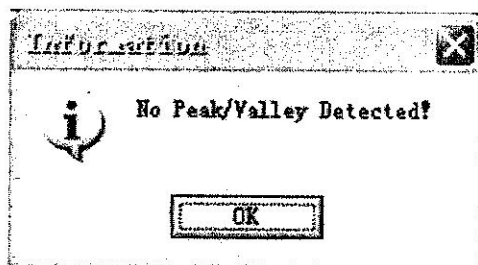


Fig. 55

When doing Peak Picking, if you stay in Data page (Overlay page), system will inform you to select the data you want to do peak picking, see the Fig.56.

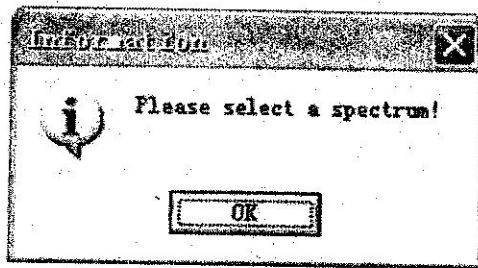


Fig. 56

d. Spectrum transfer

Spectrum transfer is to make conversion for scan of spectrum. It includes the following functions:

Abs<.....>T%: Conversion between absorption and transmittance

Logarithm: Take logarithm calculation on spectrum

Reciprocal: Take reciprocal calculation on spectrum

Smooth: Smoothen the curve and remove burr

Derivative: Take derivative calculation on spectrum, you can select $\Delta\lambda$ and order of derivative

$\Delta\lambda$: Interval when taking derivative calculation

Order of derivative can be selected directly

Attention: for "Abs<.....>T%", "Log", "Reciprocal" and "Smooth", just select and click "OK". But for "Derivative", do not forget to select $\Delta\lambda$ and order of derivative.

Select spectrum you want to transfer, click  Spec Conversion button on tool bar then spectrum conversion window will come out, see as shown in Fig. 58. Select the function you need, and click "OK" button, then system will show the changed spectrum. For example, in Fig. 57 we select ABS<---->T%, then click "OK" button, the changed spectrum will become as what we can see in Fig. 58. Save of changed spectrum is same as that before changed.

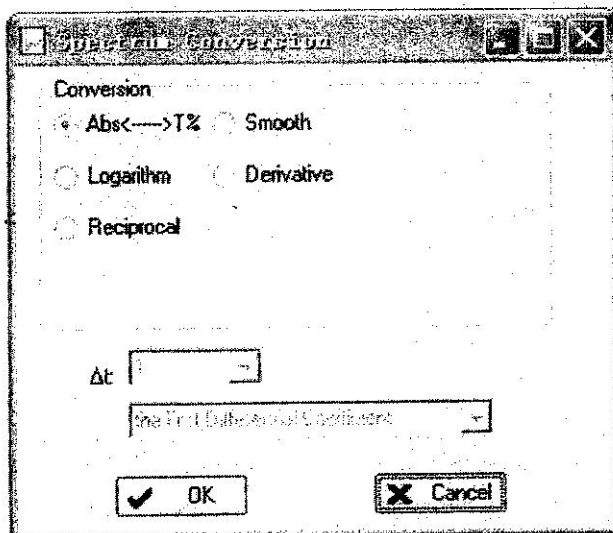


Fig.57

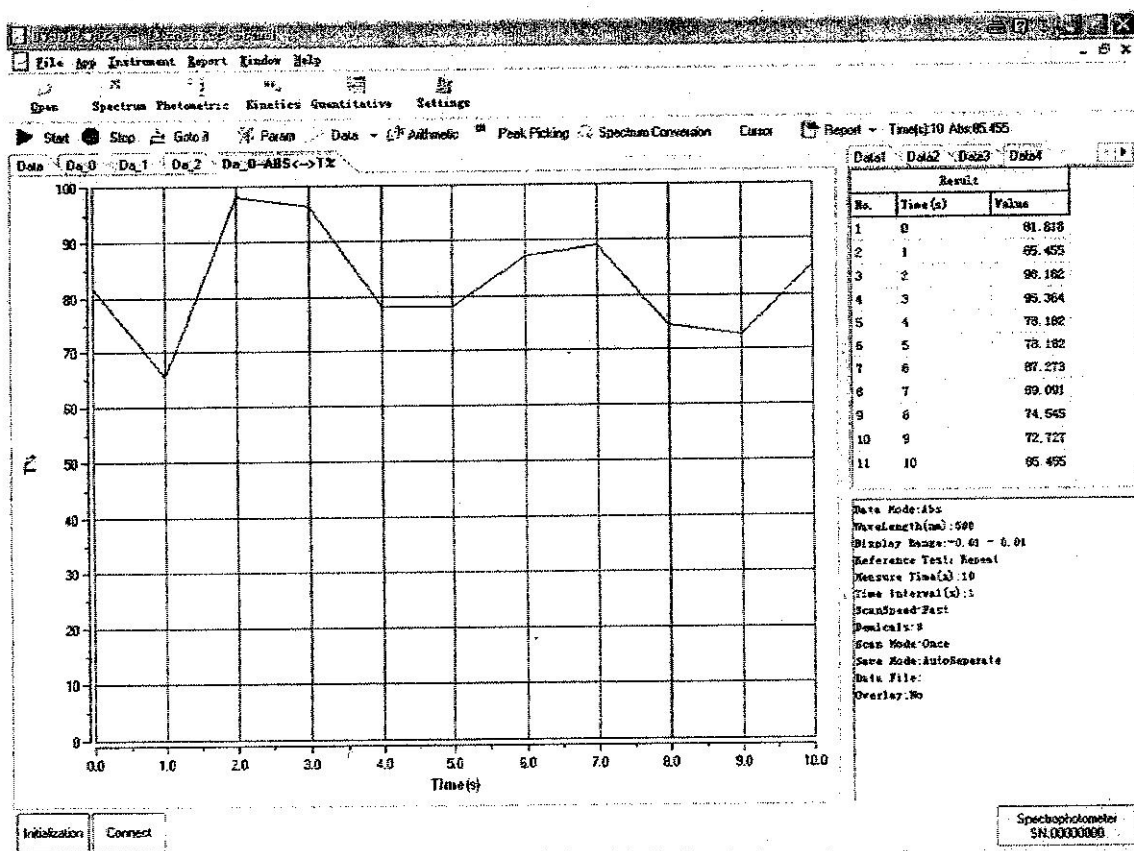


Fig. 58

If you do spectrum conversion on Data page (overlay page), system will inform you as Fig.59 shows. Then please select a certain page to do this conversion.

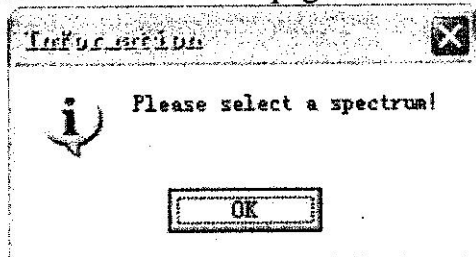


Fig. 59

c. Arithmetic Function

Click  button on tool bar, Spectrum Arithmetic window will come out, here we can do arithmetic for the spectrum, see Fig.60. Select the spectrum you need to operate, and select the function, then click "OK". A new page will created to show the new spectrum, see Fig.61.

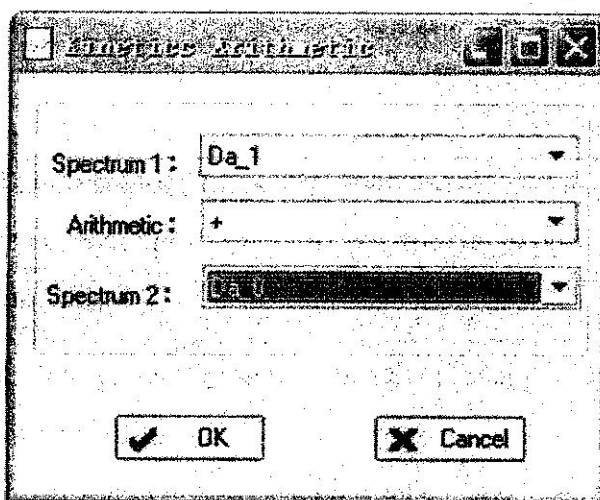


Fig. 60

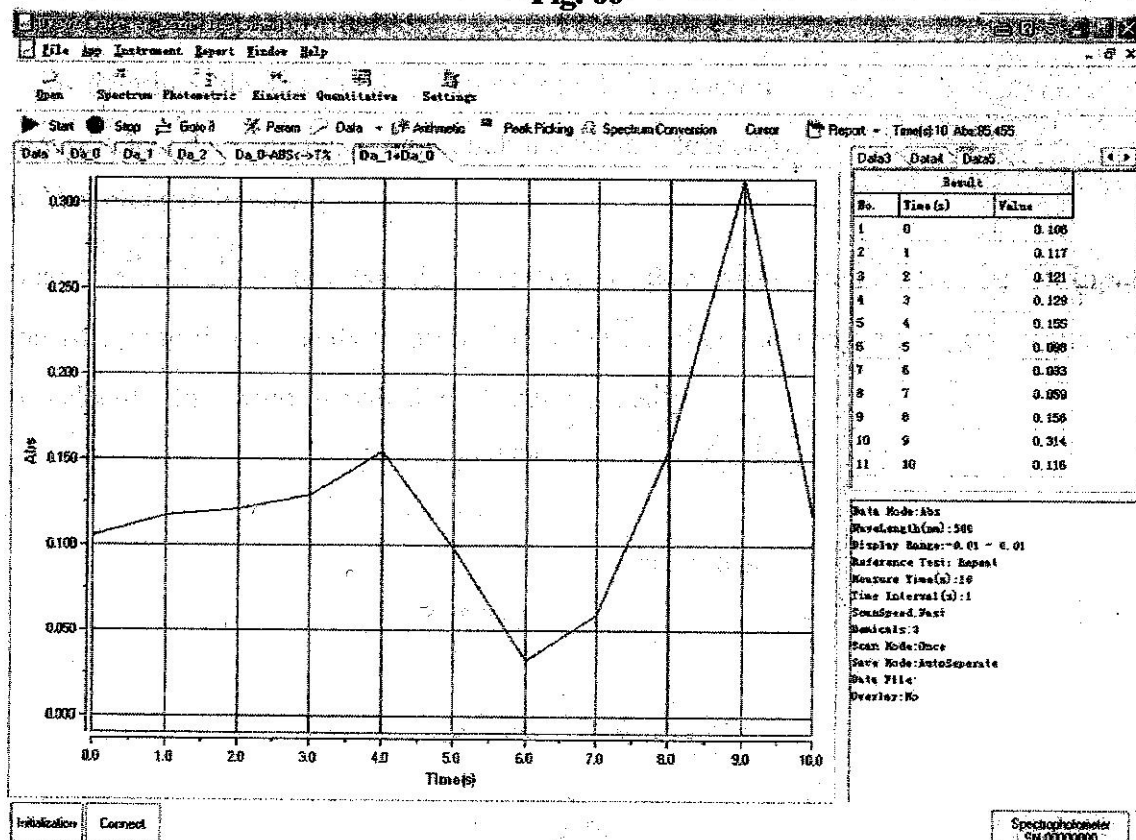
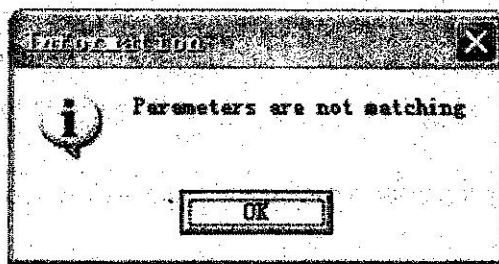
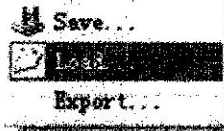


Fig. 61

But if range of scan time, time interval and scan mode of spectrum you selected are different, arithmetic function will not work. System will inform you as follow.



f. Save data

Click  button on tool bar, select load  from pull-down menu to load a spectrum; by Export function operator can export the data to Excel.

g. Data and spectrum copy

Spectrum copy, right click mouse on spectrum, select "Copy", then you can paste the spectrum into Word or Excel file.

Save spectrum as picture, right click mouse then select save, spectrum can be saved as bmp, jpg, emf or png format.

Copy data in table, use "Ctrl+A" to select all data, then use "Ctrl+C" to copy; or use mouse select data you need, right click mouse to select copy.

h. Wavelength locating

Select  on tool bar, the following window will come out, see Fig.62. Input the wavelength that needs locating, click "OK", after the instrument gets to the set wavelength, this window will shut off automatically.

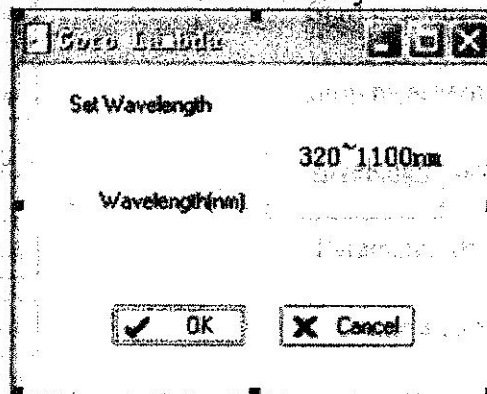
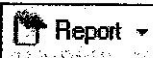
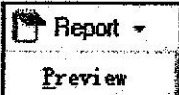


Fig. 62

i. Report print

Click  on tool bar, select  to preview the report.

4.4 Quantitative measurement

4.4.1 Enter quantitative measurement

Click **Quantitative** on tool bar to enter quantitative measurement mode, see in Fig. 63 shows.

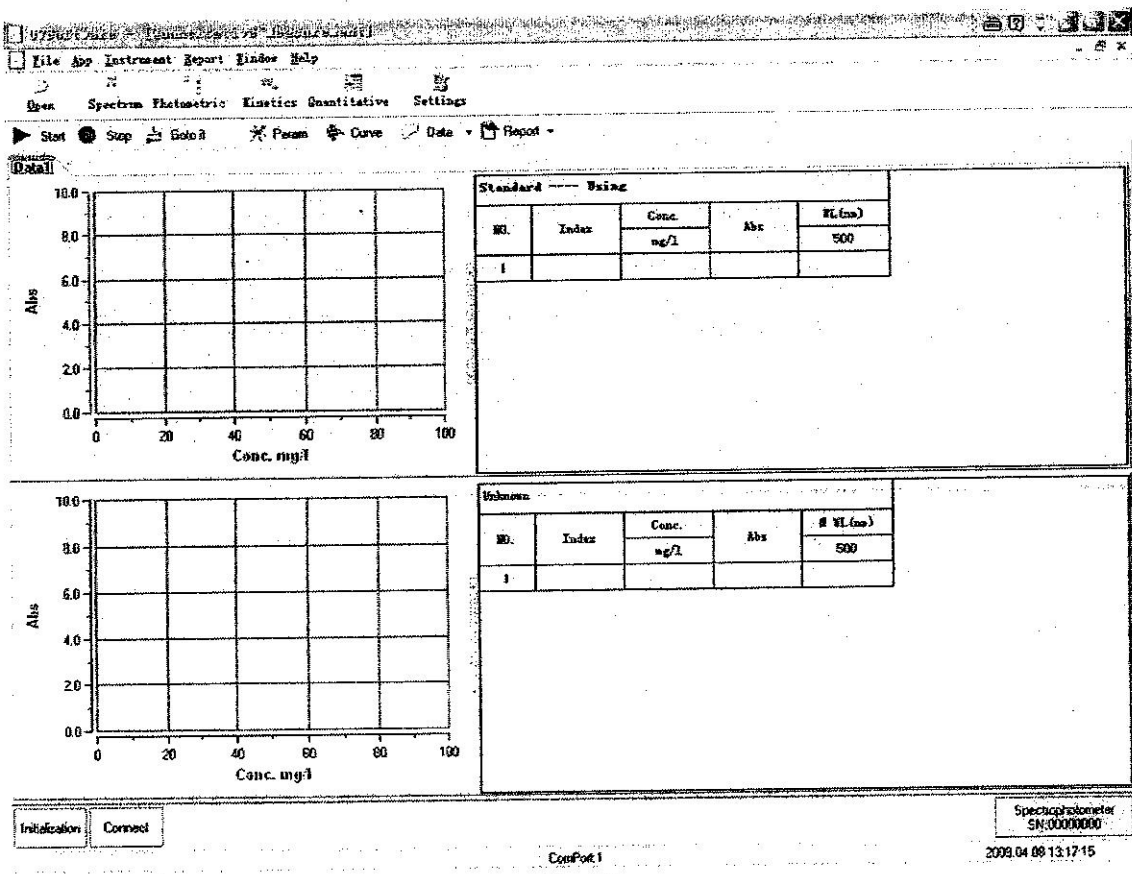
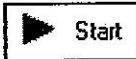
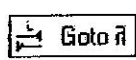
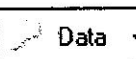


Fig. 63

-  Start Start measurement
-  Stop Stop measurement
-  Goto λ Wavelength locating
-  Param Parameter setting
-  Curve Create a curve
-  Data Data save
-  Report Print report

4.4.2 Parameter setting

Click **Param** on tool bar to enter parameter setting window, see in Fig. 64 & Fig.

65 show.

In parameter setting, user can set wavelength measurement method (single wavelength method, double wavelength coefficient method, triple wavelength method) and wavelength, also user can select reference test method, calculate formula, measurement method (concentration method and coefficient method, for coefficient method, user needs to input coefficient of curve in parameter settings), zero point insertion (if zero point insertion is selected, the fitting curve will pass zero point).

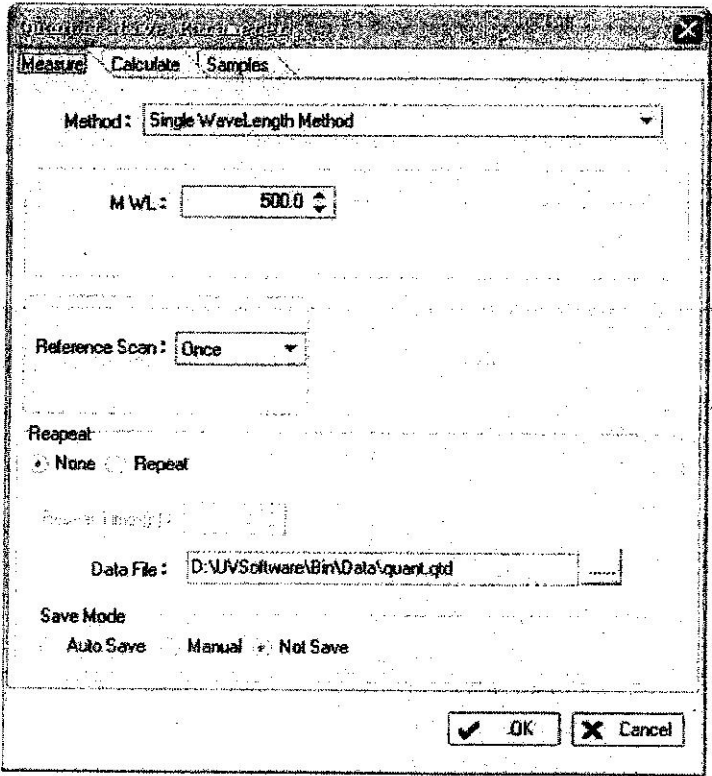


Fig. 64

Fig. 65

In this window, you set measurement method, wavelength of measurement, also you can choose reference test method, calculate formula, test method (concentration method or coefficient method, if use coefficient method, you need to input coefficient into coefficient settings), zero insertion (use this function to make the curve goes through zero point).

In this window:

Method	Wavelength test method
M WL	Test wavelength
Refer Scan	Test method of reference
Formula	Calculate formula
Power	Power of the formula
Conc.Unit	Unit of concentration
Conc	Concentration method
Coef	Coefficient method

4.4.3 Create standard curve (for concentration method)

To create a curve, we need at least two points (if in the parameter settings, you selected zero insertion, then this curve will go through zero point), use mouse to change **Standard** to **Standard — Using**

Click  to start measurement. System will inform you to pull reference into light path, as Fig. 66 shows,

Fig. 66

Then pull reference in and click "OK". After that, system will inform you to pull sample into light path, as shown in Fig. 67,

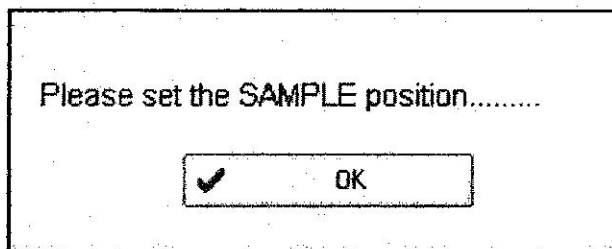


Fig. 67

Then pull sample in and click "OK".

After measurement of standard sample, input the concentration in corresponding concentration column, then click  **Curve** to create the curve. Then the created curve will appear in the window, and its corresponding formula and coefficient will be shown too. See as in Fig. 68 shows.

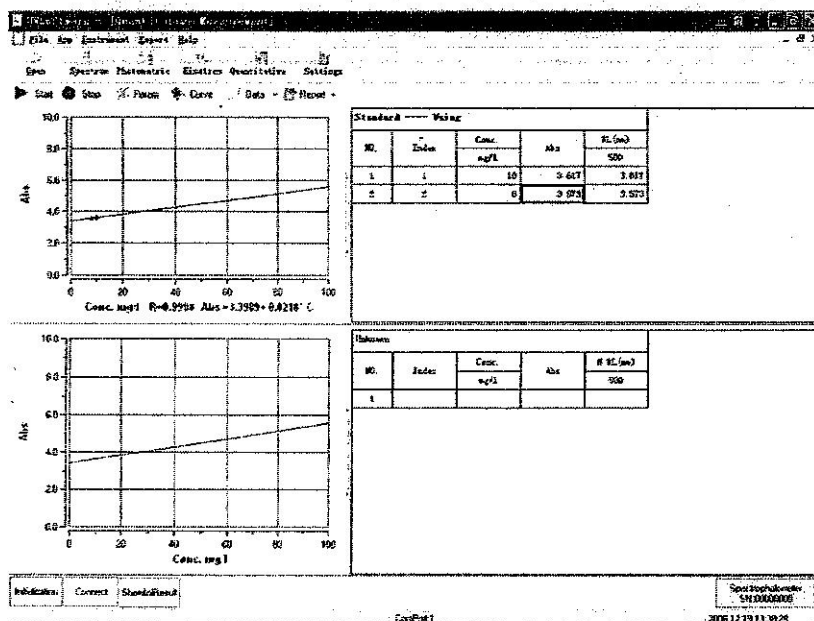


Fig. 68

If the created curve is not ideal because of certain result of reference, for example in Fig. 69, then right click mouse in the data column, then delete it. After deleting, you can retest this standard sample and recreate this curve.

Standard — Using				
NO.	Index	Conc.	Abs	WL (nm)
		mg/l		500
1	1	10	3.617	3.617
2	2	Delete	3.573	3.573

Fig. 69

4.4.4 Concentration test

Put the unknown sample into cell position, use mouse click "unknown sample" on the lower right corner, make **Unknown** becomes **Unknown — Using**. Then click **Start** button to start test, system will inform to pull in sample, see Fig.70, then pull sample into light path, and click "OK".

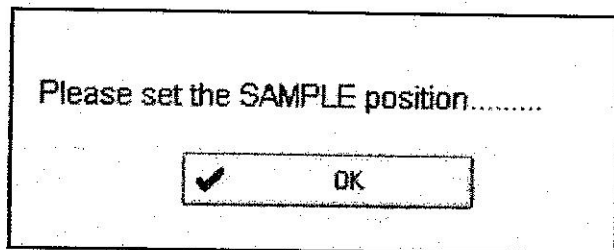


Fig. 70

Test result of unknown sample will like what Fig. 71 shows.

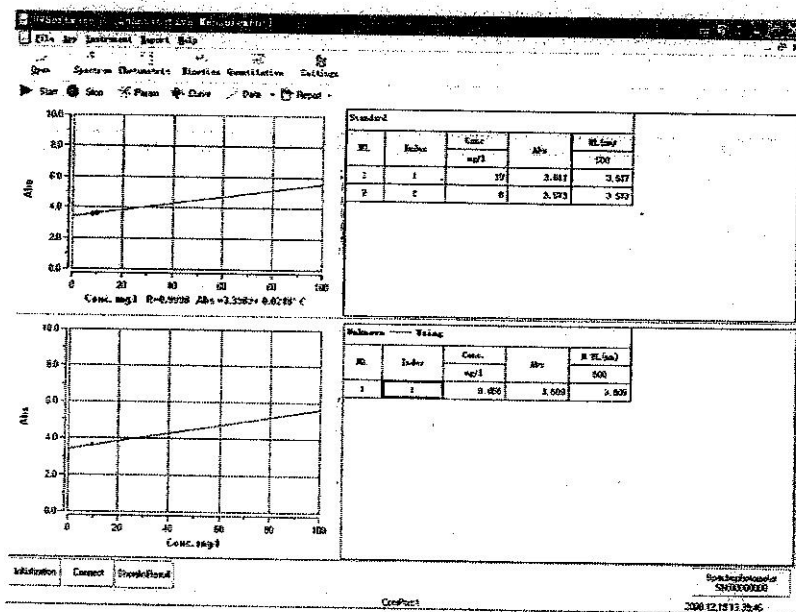


Fig. 71

4.4.5 Coefficient method

Parameter setting is same as Concentration method. Select Coefficient method in test method column, and input the coefficient of known curve, see in Fig. 72, then click "OK", after that, system will create the curve according to the formula that is set, see in Fig. 73 shows.

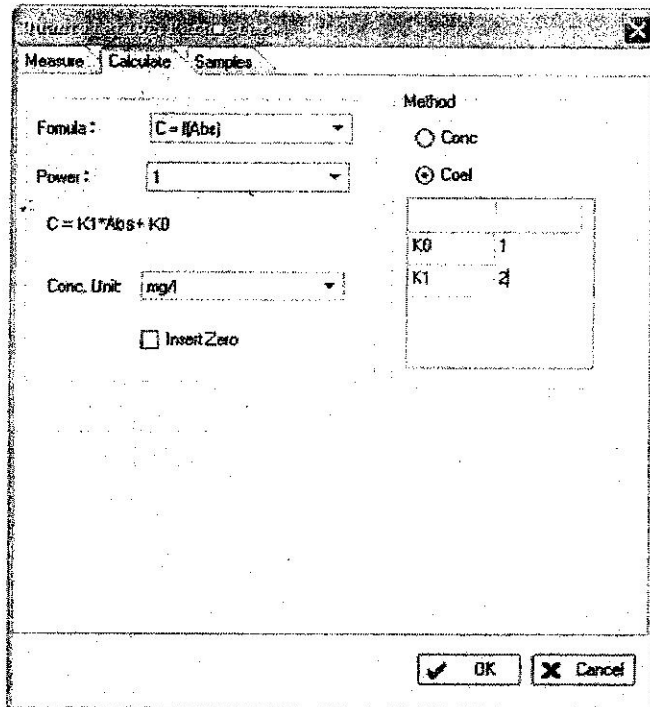


Fig. 72

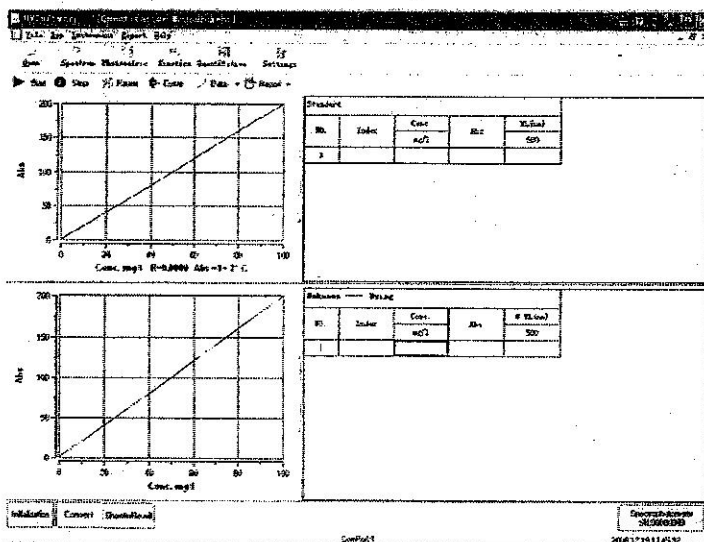
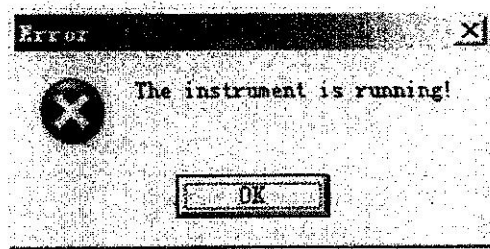


Fig. 73

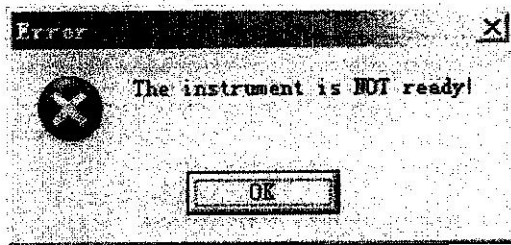
After parameter setting is finished, put the unknown sample into cell position, use mouse click "unknown sample" on the lower right corner, make **Unknown** becomes **Unknown --- Using**. Then click **Start** button to start test. Other steps are same with concentration method.

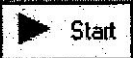
Notice:

When instrument is measuring, user clicks "Measure", "Wavelength locating" or other function buttons, system will inform as follow. Other operation shall be done after measurement complete.

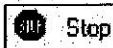
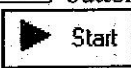


If instrument is not initialized, then user click any function button, user will get information as follow.



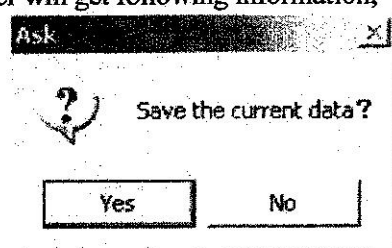
Generally, if repeat test is needed, operator can click  button to continue test; or select Repeat and its repeat time in parameter setting to finish test.

After test finish, if a new test is needed, it is not necessary to quit test window, by click parameter to enter parameter setting window, set new parameter then click "OK" button, system will create a new test page.

During the process of zeroing or testing, if user presses  button to stop without quitting the test window, system will clear all the current data. Click  button again will make system restart test again.

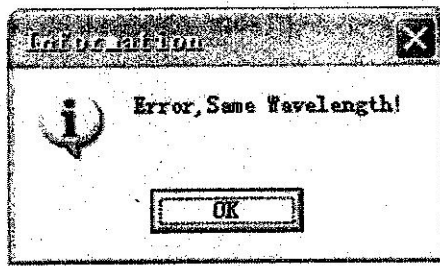
After a test, change of any parameters will make system create a new test page. If test mode, wavelength, reference test mode is changed, system will rerun zero and then start new test; others doesn't require re-zero.

When shutting off test page, user will get following information,



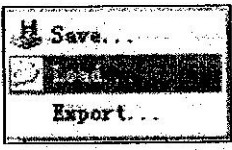
Select "Yes" to remain in test window, and user can save the test result manually; click "No" to quit test page.

During parameter setting, do not set same wavelength, if else, you may get the following information.



4.4.6 Additional function

a. Data save and export

Click  on tool bar, select  , select "save" to save spectrum; select "Export" to export to excel.

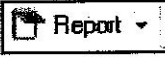
b. Data and spectrum copy

Spectrum copy, right click mouse on spectrum, select "Copy", then you can paste the spectrum into Word or Excel file.

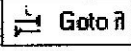
Save spectrum as picture, right click mouse then select save, spectrum can be saved as bmp, jpg, emf or png format.

Copy data in table, use "Ctrl+A" to select all data, then use "Ctrl+C" to copy; or use mouse select data you need, right click mouse to select copy.

c. Report print

Click  on tool bar, select  to review report. The table of report can be adjusted through mouse according to your demand.

d. Wavelength locating

Click  button on tool bar, the following window will come out, see Fig.74.

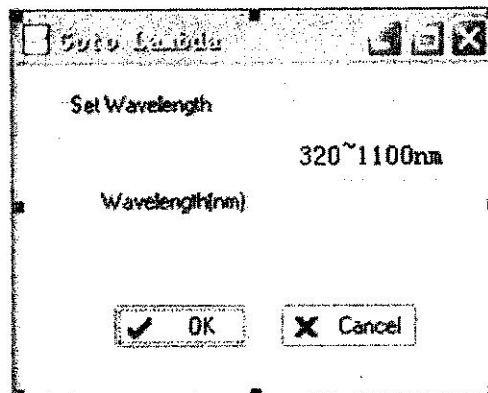


Fig. 74

In put the wavelength you need and then click “OK”.

4.5 Corresponding operation on instrument

Wavelength locating

Select from menu “Instrument – Goto λ ”, to enter wavelength locating window, see Fig.75, input wavelength and click “OK” to confirm, after getting the pointed wavelength, this window will shut off aautomatically.

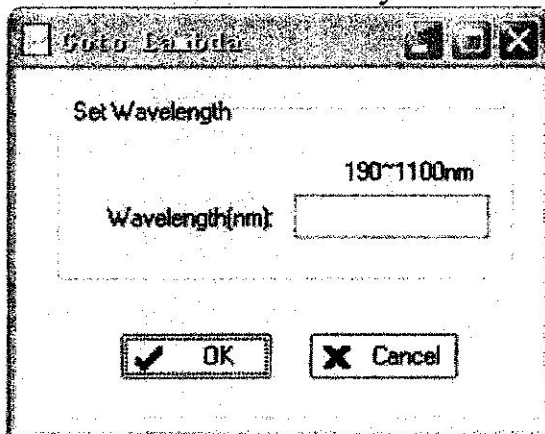


Fig. 75

4.6 Report editing and printing

Click **Report** button on tool bar to edit and print report, see Fig. 76.

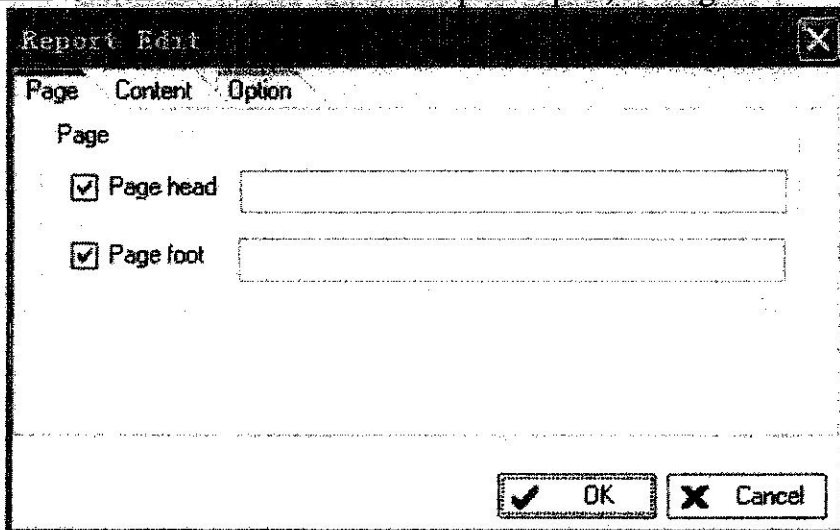


Fig. 76

Edit the above window and then click “OK”.