MEB : EDX

Working distance : 6 < WD < 7
Voltage : 3 Kv à 20 Kv
The dead time must be less than à 30%

Optimal excitation is obtained for an incident energy of about 1.5 to 2 times the energy of the emission line

SOFT : esprit / esprit1

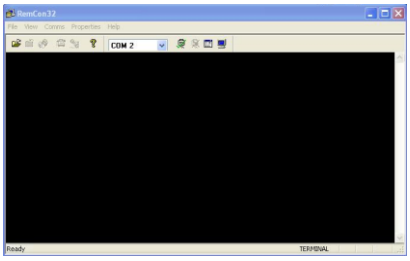
To identify the elements Make an identification at 20 kV to have the lines at high energy (OBJECT measurement)

1°/ Start-up of the EDX :

1.1/ Communicating EDX with the SEM: Launching the SEM software

Normally the RemCon32 program is already open

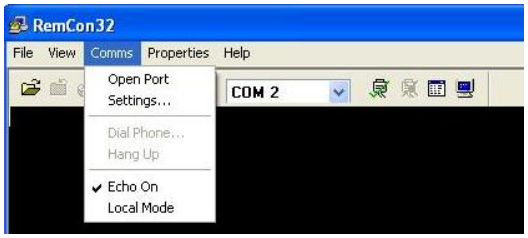
1°/ Clic on 



2°/ Clic on « COMMS »
Sélect « COM2 »

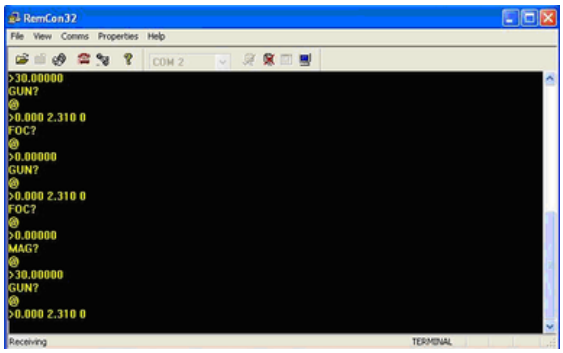
- if « OPEN PORT » , To pass in « CLOSE PORT » Clic on « OPEN PORT »

- If « CLOSE PORT » , do nothing



3°/ Lauch the software « EXPRIT 1.8 »

Compte : USER
No password



SEM communicate with EDX

1.2 / Create a new project :

Create a new project

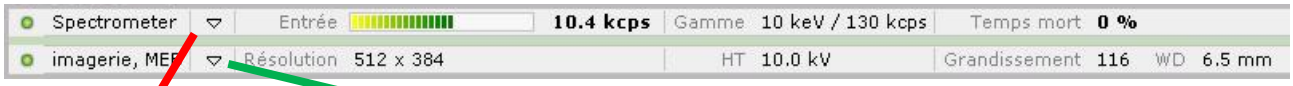
Save the project

2°/ Applicable to any type of measurement

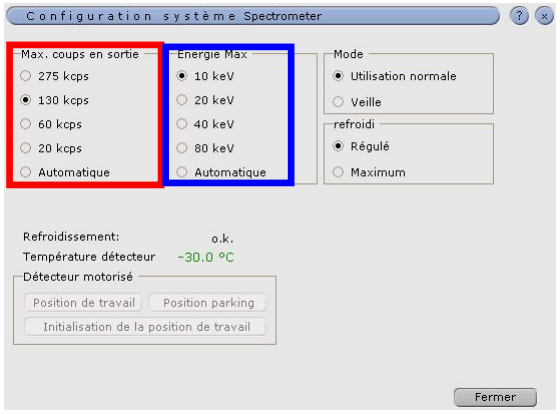
A/ Setting of measurement and display parameters

The dead time must be less than 30% but the most ready (parameter to be adjusted in the spectrometer)

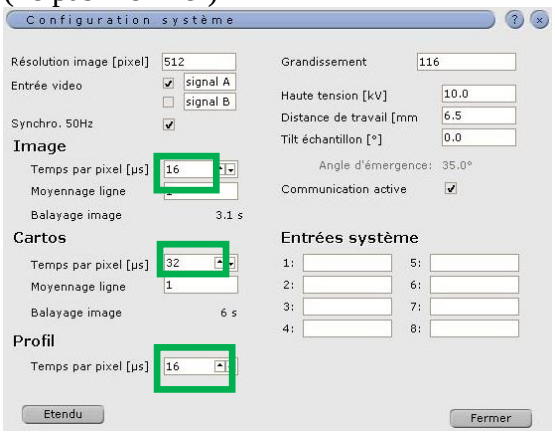
Lets have the most information



Spectromètre



Imagerie, MEB
(ne pas mofifier)



Paramètre de base
Carto / profil : temps de pixel (µs) = 256
Image : temps de pixel (µs) = 32

To change the dead time change the **Max. coup en sortie**

Max. coup en sortie
Mode standard = 130 kcps

	Cst temps
20 kcps	3 µs
60 kcps	2 µs
130 kcps	1 µs
275 kcps	0.5 µs

à 275 kcps = less noise, wider peak, less resolution

Energie max

	Résolution
10 Kev	**2,5 Ev/canal**
20 Kev	**5 Ev/canal (très basse énergie)**
40 Kev	**10 Ev/canal**
80 Kev	20 Ev/canal (inutile)

= 40 Kev en standard ou 20 Kev (plus de résolution)

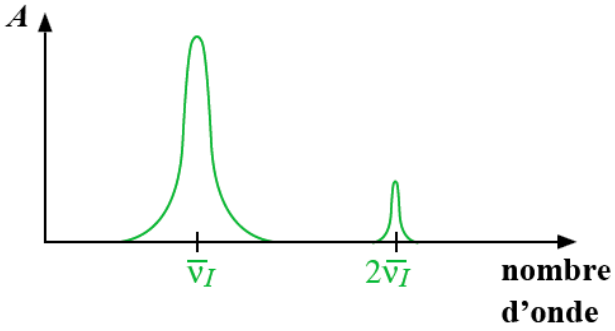
Le spectre est de 4096 canaux

B/ Parametres / Probleme

Attention aux artefacts :

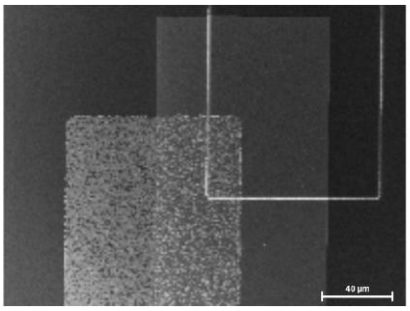
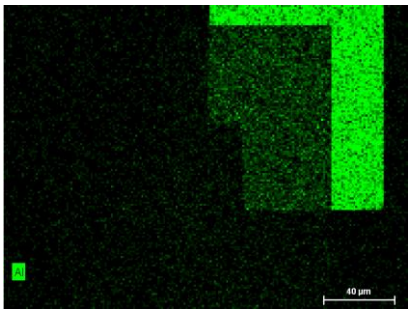
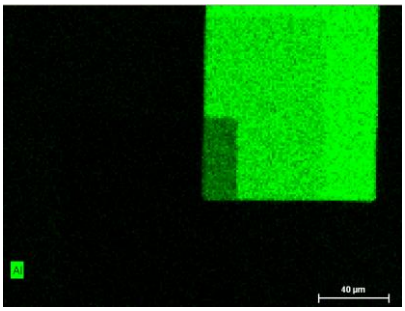
C’est une mesure de 2 événements en même temps

C’est 2 fois la tension d’un pics



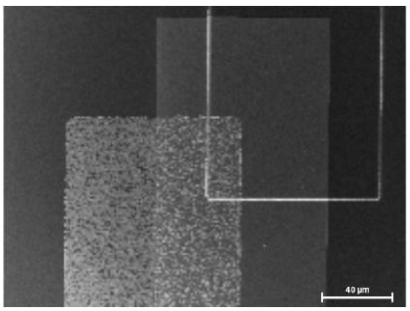
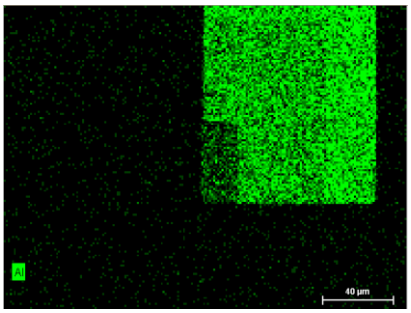
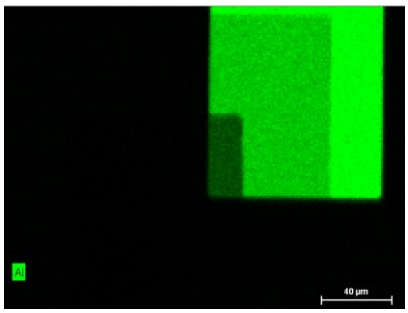
Voltage : ↗ **difference layer / materials:** ↘ **Depth layer :** ↗

5 Kv 30µ 40 Kev 130 kcps : 9min **20 Kv 30µ 40 Kev 130 kcps : 9min**

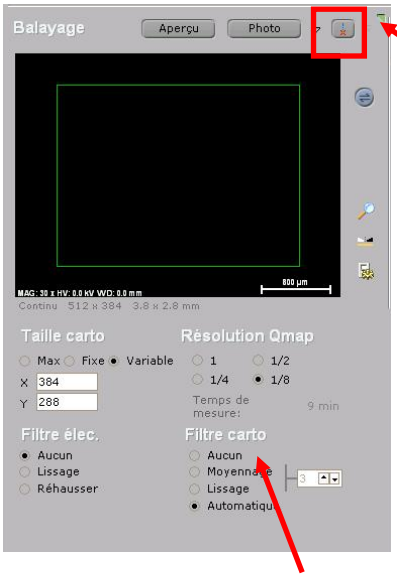
Diaphragme : ↗ **Time :** ↘ **Information :** ↗ **Nb coup :** ↗

15 Kv 10µ 40 Kev 130 kcps : 9min **15 Kv 120µ 40 Kev 130 kcps : 9min**

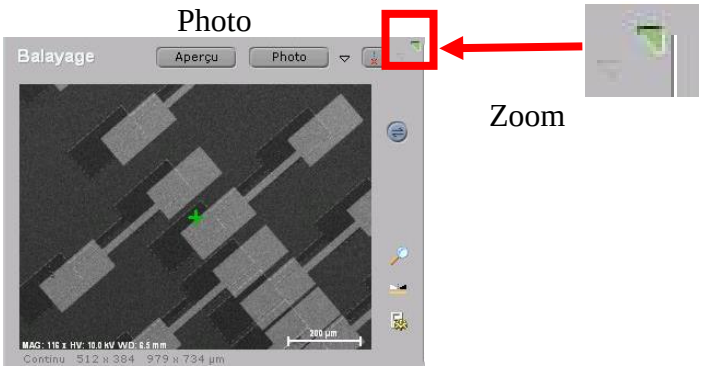
3° / Scanning

Clic on **« Photo »**, to obtain the picture



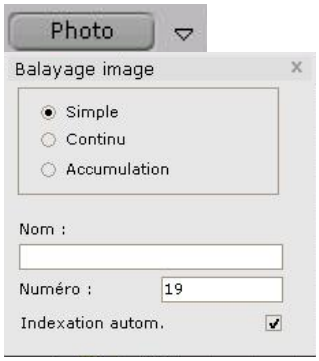
Correction of the drift measurement image (put off)

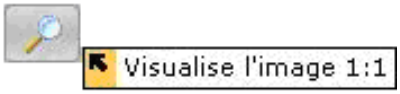
Photo



Zoom

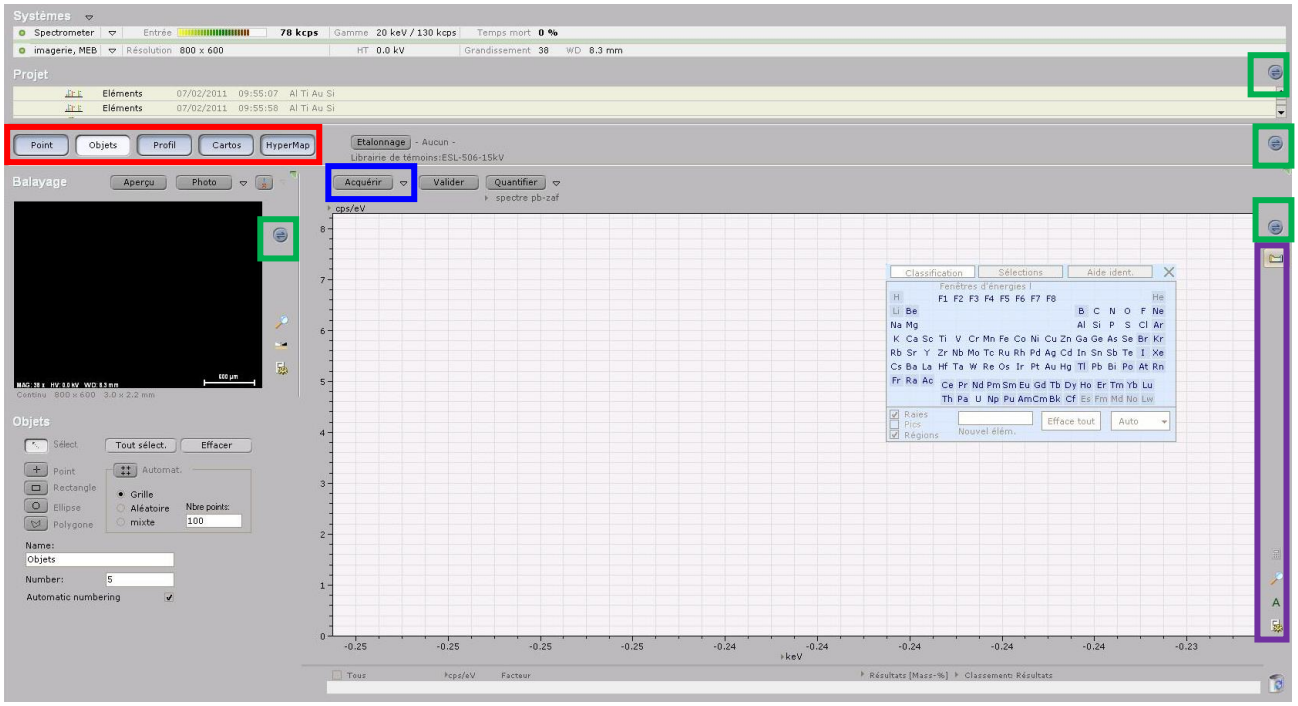
Dans « filtre carto », sélection « aucun »



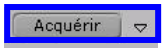


Change name and number

4°/ Partie mesure



Select measurement : Objet , Profil , Cartos



Lauch measurement

Sauve

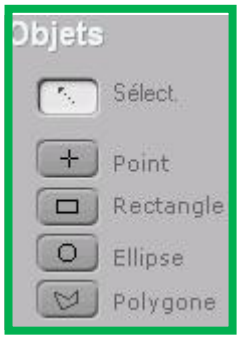
Analyze measurement

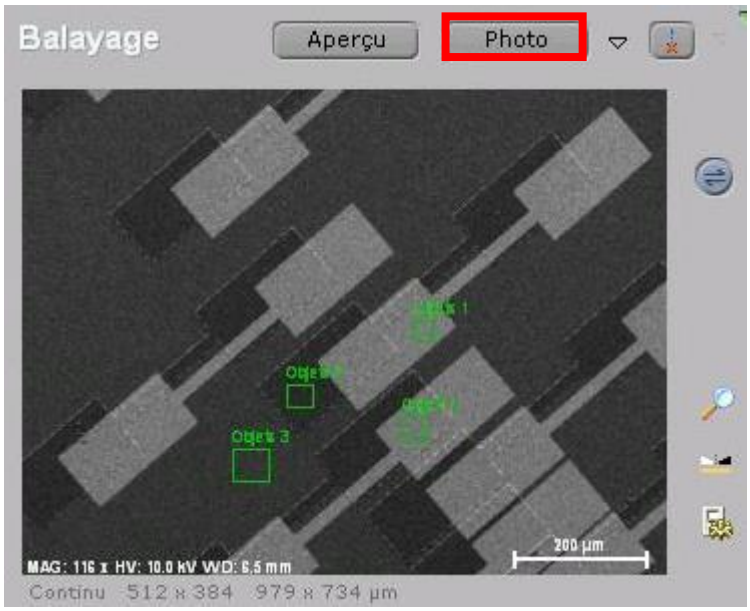
5°/ Mesure 

5.1 – Make a picture

Clic on ●

In Objects select the areas to be measured ●



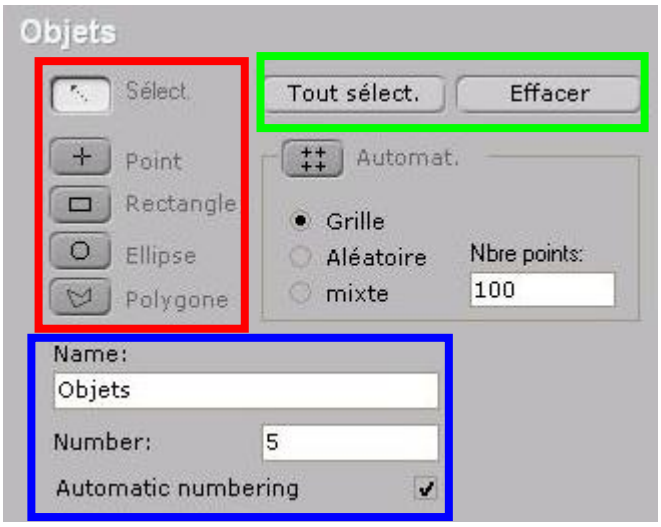


5.2 – points measures

select one or more points to be measured ●

Define name ●

To acquire a measurement, select a point to be measured, or all of them if you have several « OBJETS » ●

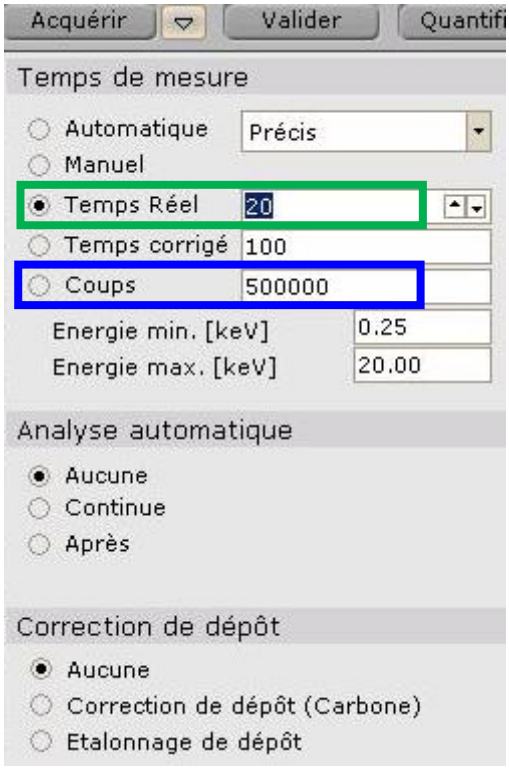


5.2 – Acquisition , parametres de mesures

to start the measurement

Click on 

to change the measurement parameters



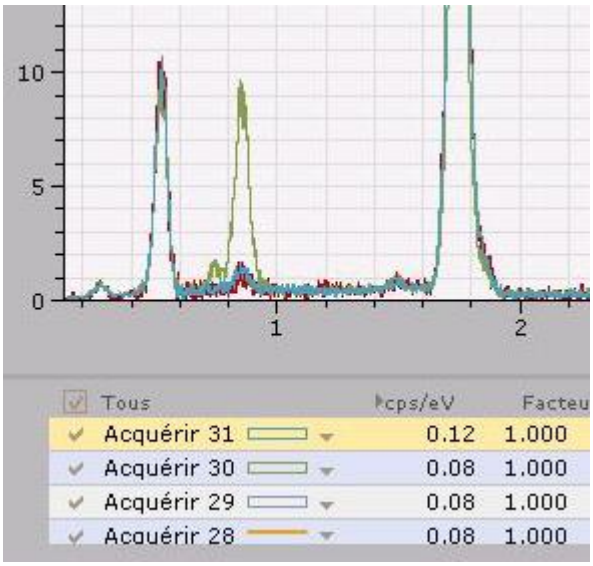
You can work in REAL TIME ● or in number of Strokes●

Determine the parameters according to the desired resolution

Attention to measure on several points click on

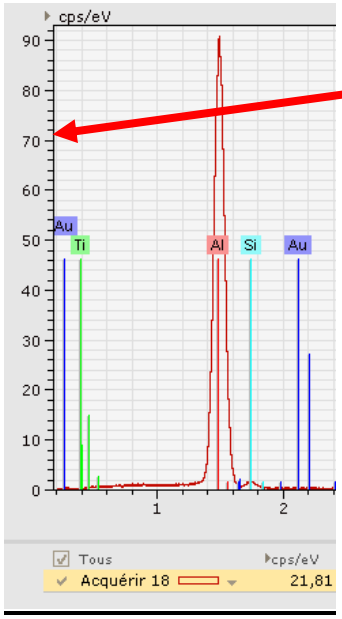
Once the measurements have been made

The materials for each measure must be identified.



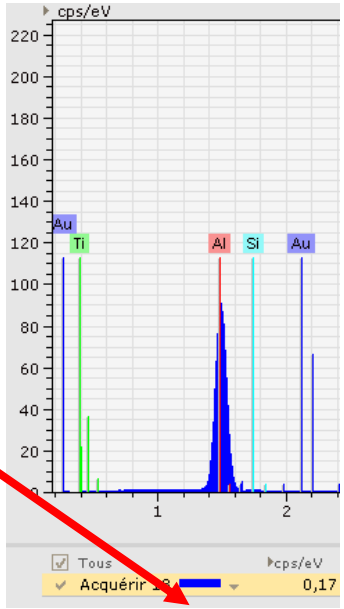
5.3 – Browsing for spectrum analysis

5.31 - Divers



Change of scale
- click on the scale and change the height

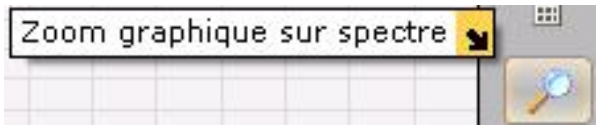
Color change and fill

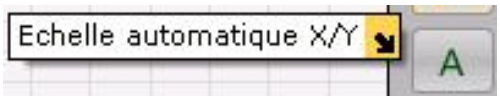


To see one or more spectra, check ●

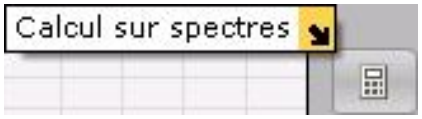
Attention if the color is yellow the acquisition

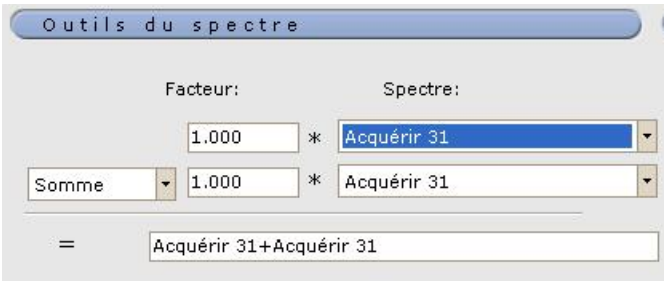
Acquérir 31 the acquisition is displayed

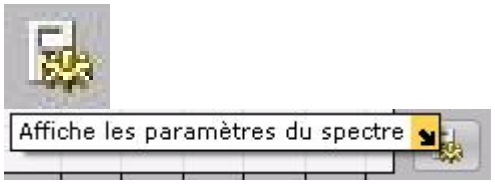


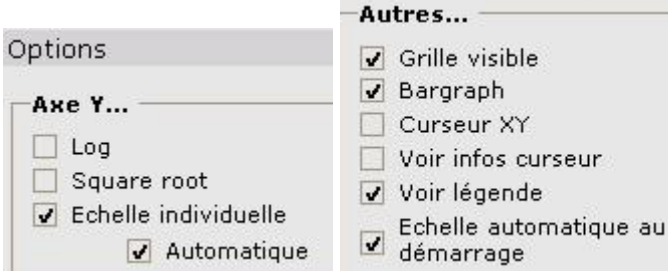


Allows you to put your purchase in the trash



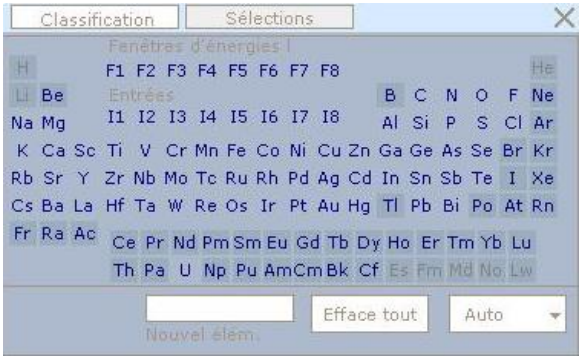




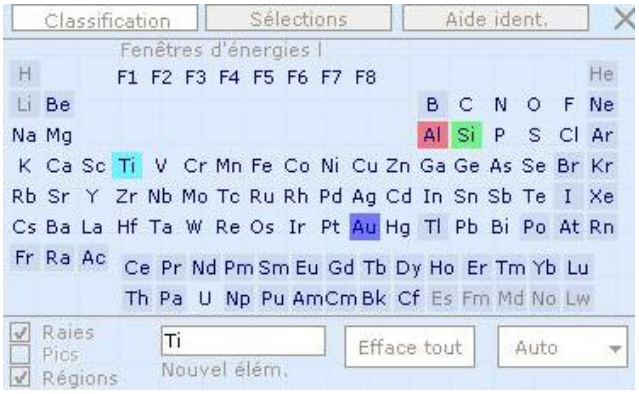


5.4 – Analyse

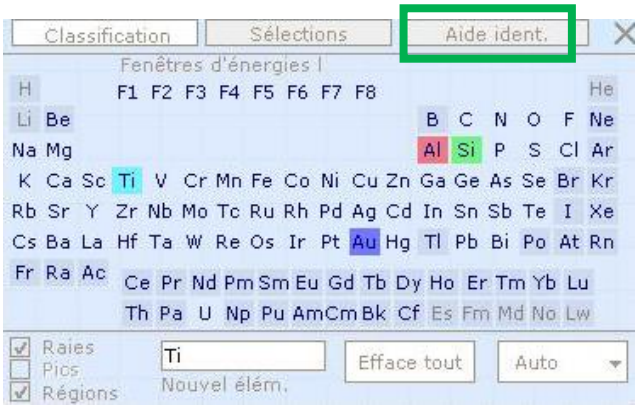
Clic on  to display the periodic table

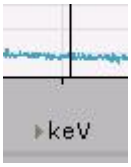


We know the elements:
Select each item individually by clicking on it



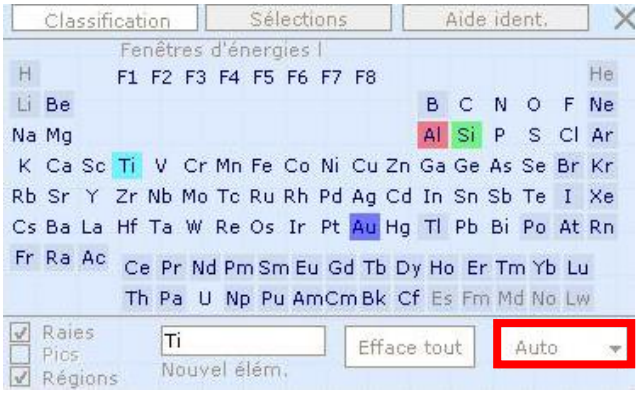
Manuel :
Clic on AIDE IDENT.

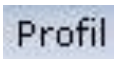




Move the black line on the peaks
or
Click on each peak of the most intense peaks and select the material that "suits" you (compare with the other lines)

Automatic:
- Click on **Auto** (beware of the results)
- If you want to limit the degrees of freedom of this search, click on the arrow to the right of "Auto",
in "Preset list + automatic" mode, you can systematically include elements (yellow),
and for all "automatic" modes, exclude (pink),
play on the sensitivity ("minimum concentration").

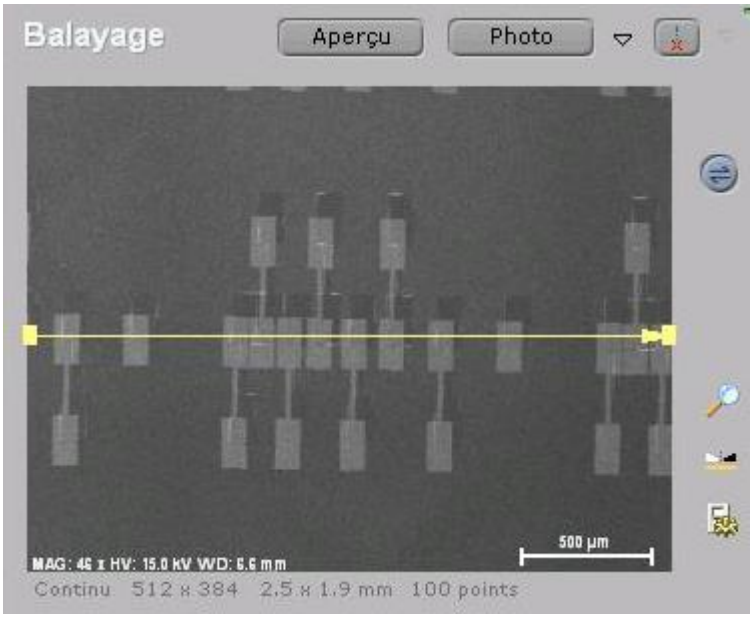


6°/ Mesure 

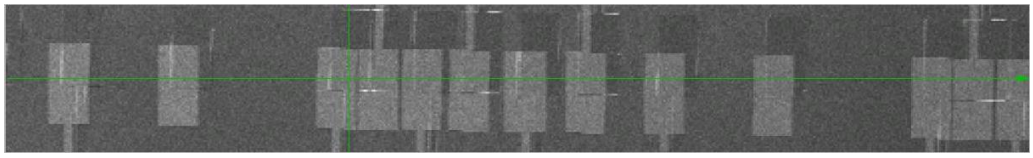
6.1 – Make a photo

The yellow arrow determines our measure

You can move it

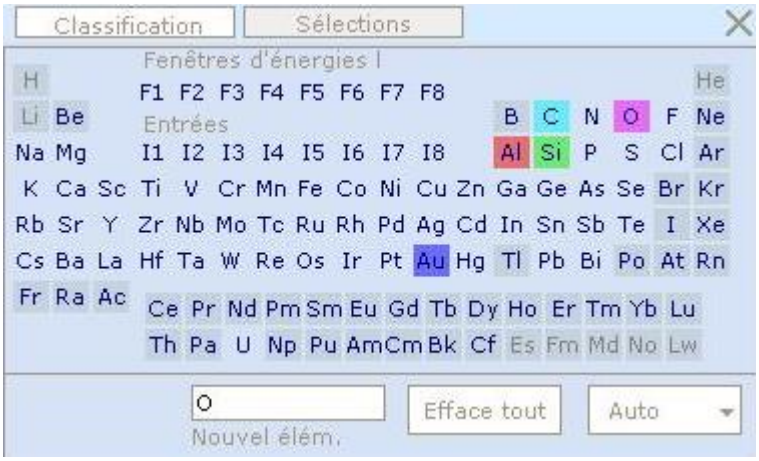


She appears below



6.2 – Determine materials

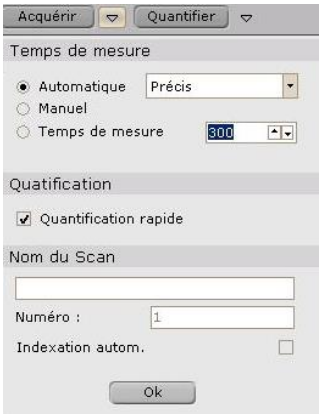
For a faster analysis check your materials



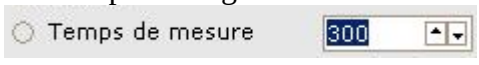
6.3 – Start your measurement

Click on  to start the measurement

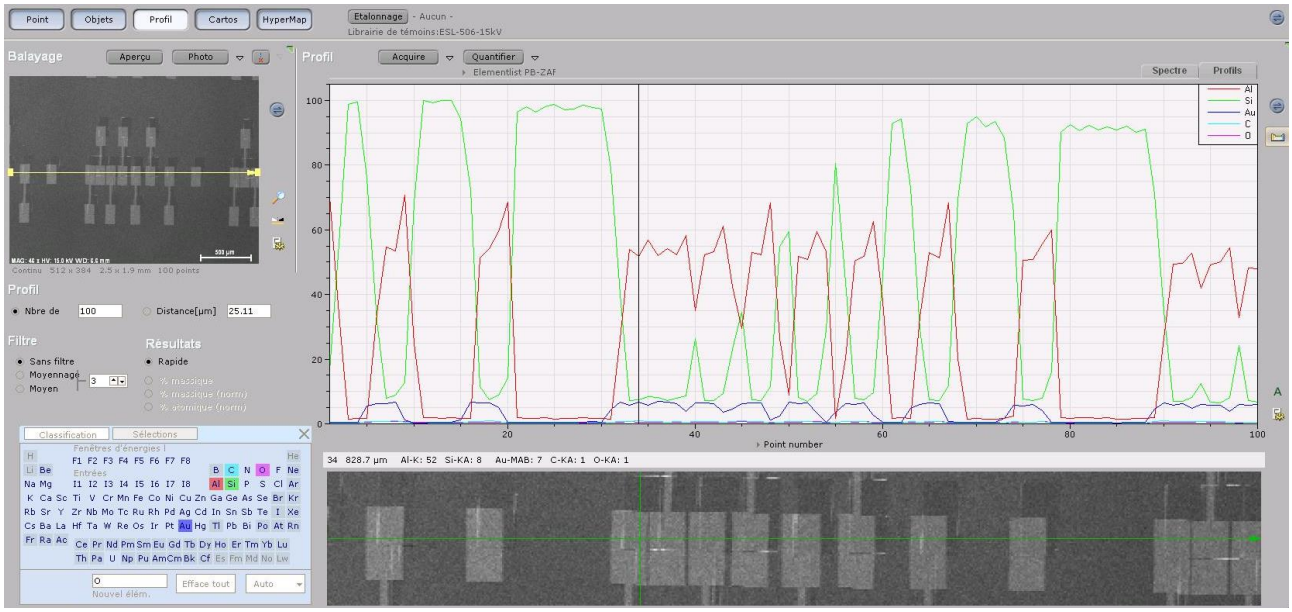
Click on  to change the measurement parameters

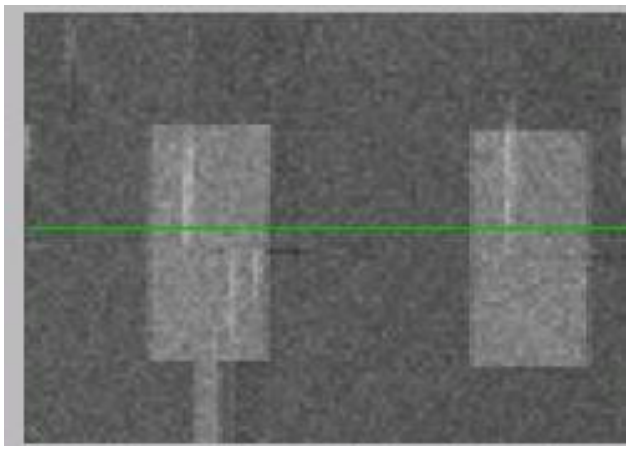


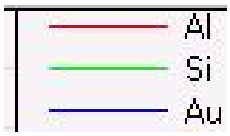
We can put a long measurement time and we can stop it at any time



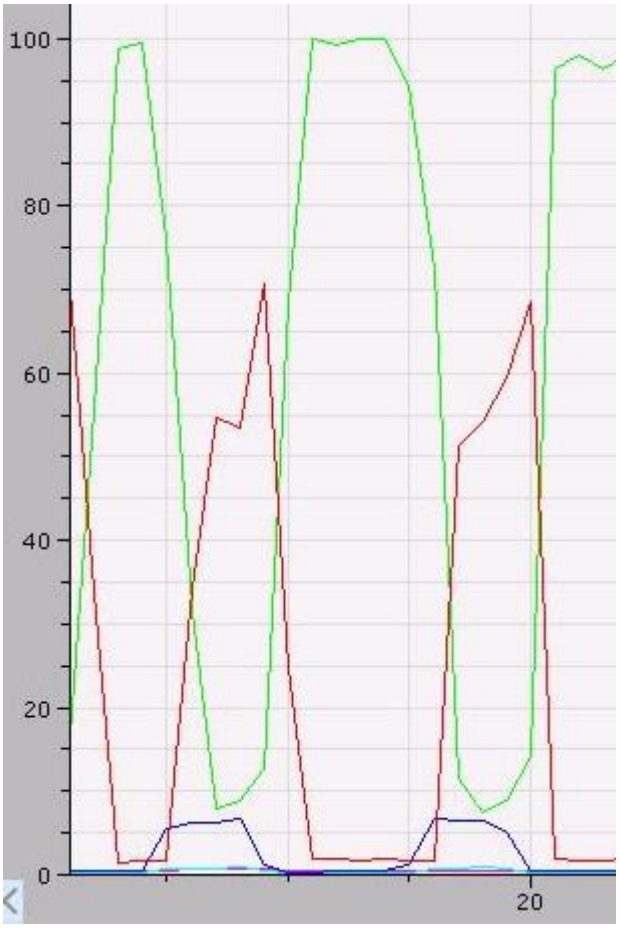
6.4 – Analyze your measurement







By observing the curves, we can determine which materials are above

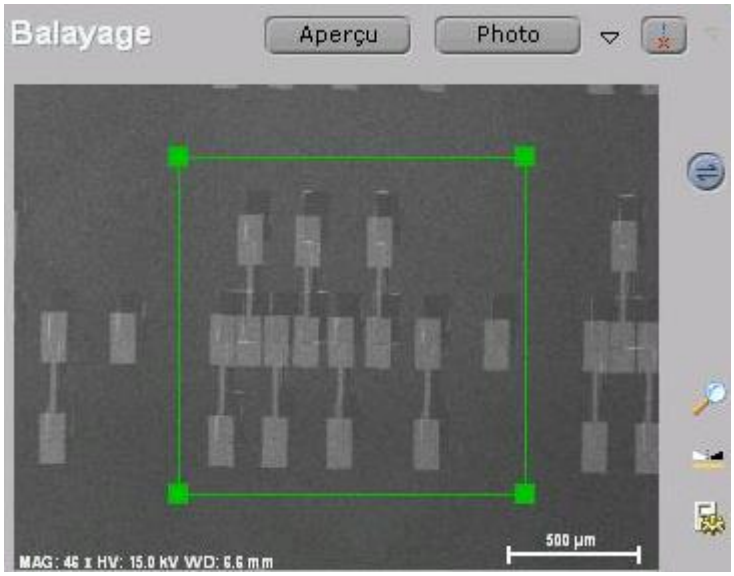


7 – Mesure carthographie Cartos

7.1 – Make a photo

The yellow arrow determines our measurement

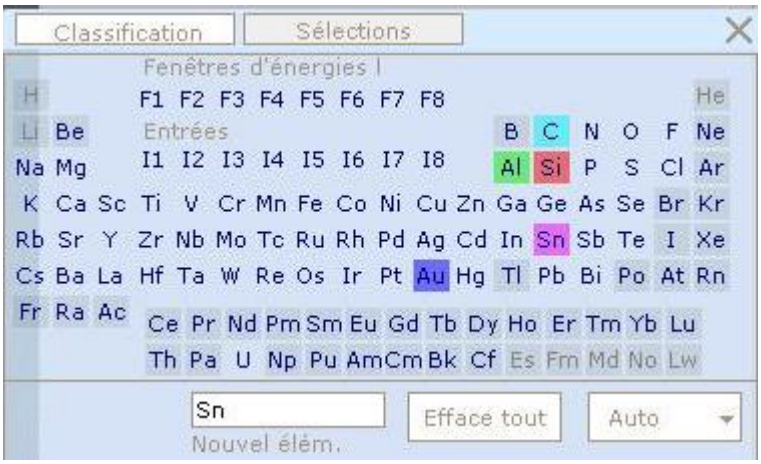
You can move it



7.2 – Determine materials

For a faster analysis check your materials

(avoid doing a spectrum analysis)



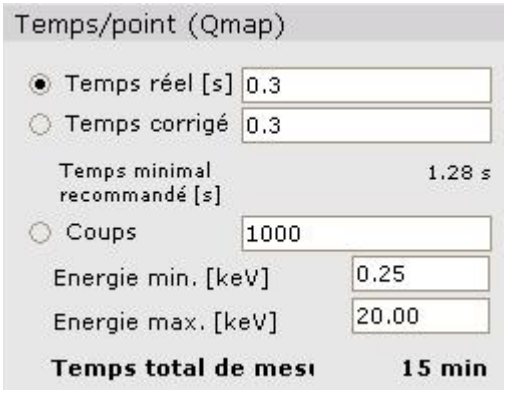
7.3 – Start your measurement

Click on 

to start the measurement

Click on 

to change the measurement parameters

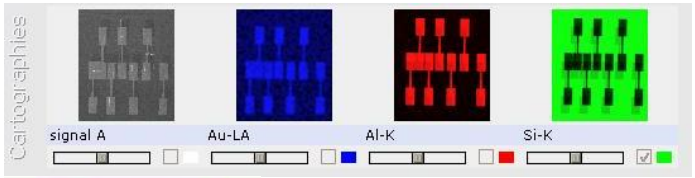


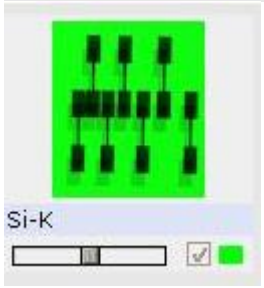
We can put a long measurement time and we can stop it at any time

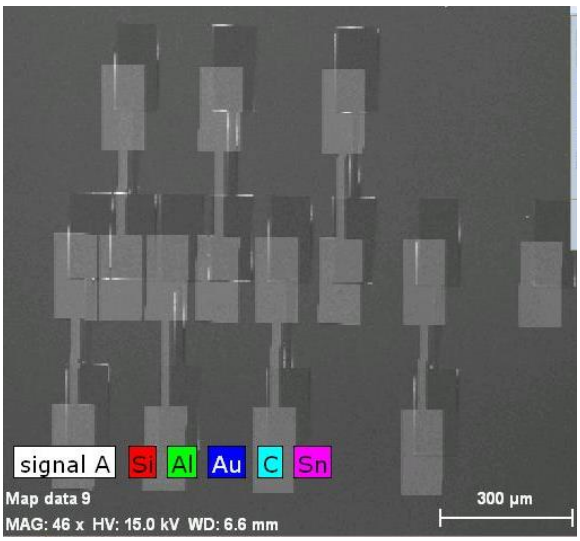
7.3 – Analyze your measurement

We clic on **CARTOS**

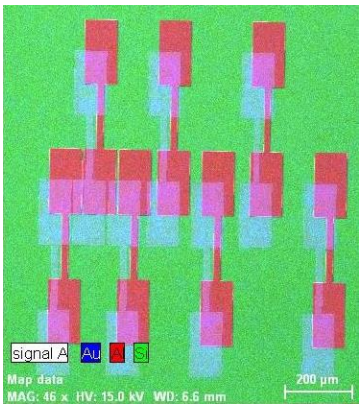
Clic on







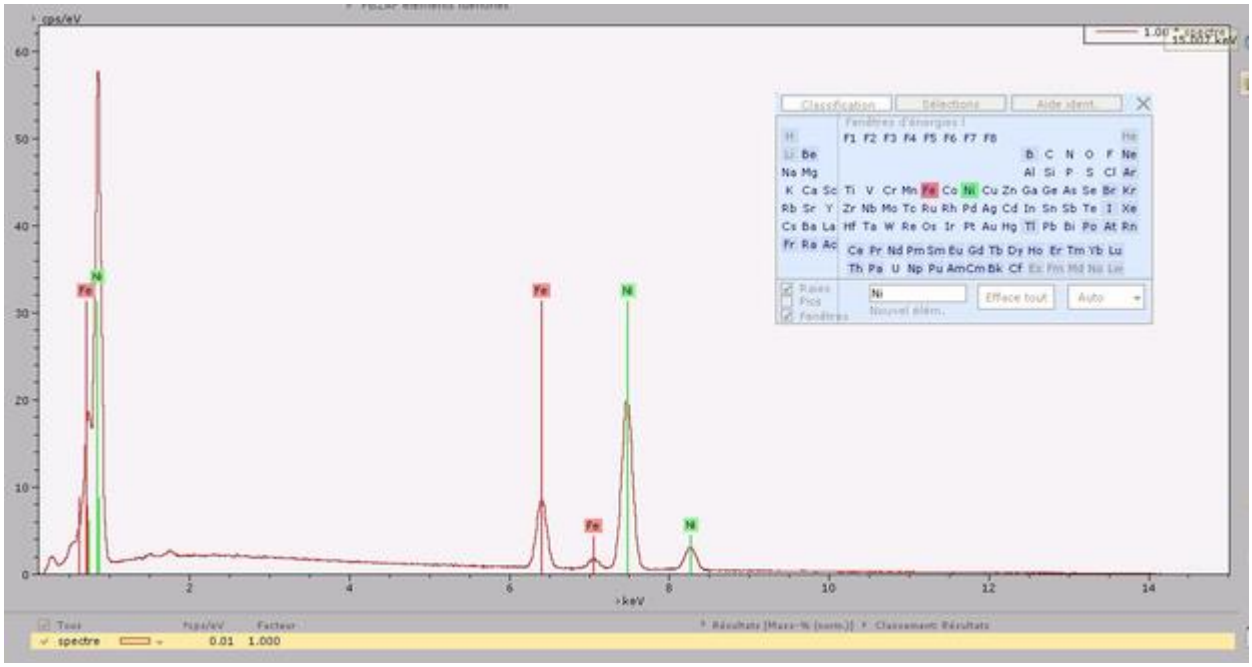
We can check several materials



La quantification

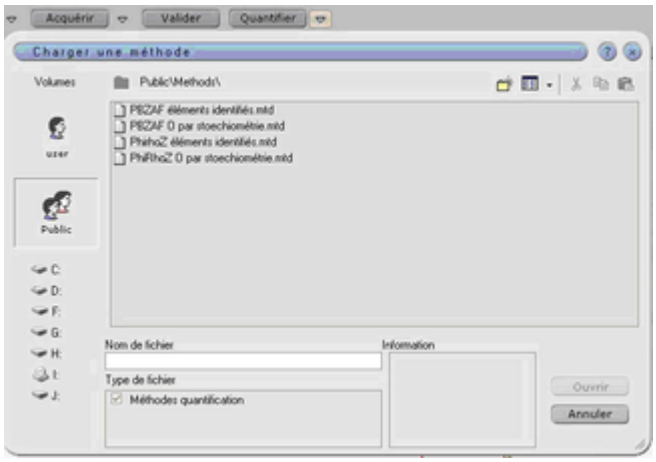
1 – select your measure

Start the measurement on your sample

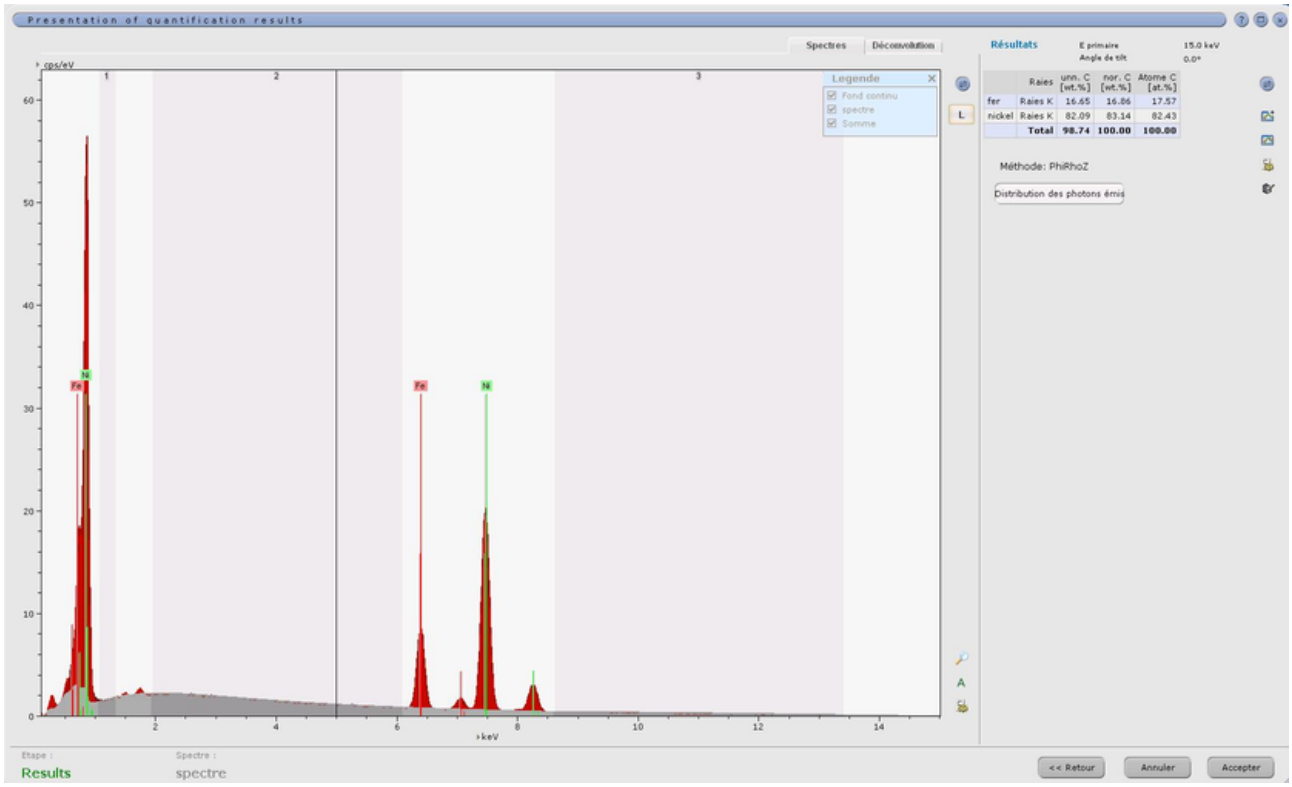


Select your materials

Click on « quantifier »



Choose method « phirhoZ élément identifier »



Cliquer sur « accepter »

Quantification

Travailler a 15kV

Working Distance = 6

Diaphragme = 60

40 Kev 130 kcps