

Chapter 10: Setup Menu



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A. Holder

Figure 10-1:View of the 'Holder' Tab on Setup Menu.

<i>Menu Details: Setup - Holder Tab</i>	
Synoptic Offset	??
SIMS-CCD Offset	Correction factor to align CCD image and SIMS image during the definition of reference points
FCo	Position of object Faraday cup in the holder. The sample holder moves into this position during primary ion counts at the FCo position.
Analysis sample	Standard position for sample to be analyzed.

Standard sample	Position for the reference sample.
FCo Voltage	Potential difference between the object Faraday cup and the listed lenses.
CCD Field of view (um)	Linear dimension of the image shown by the CCD camera.

B. Tuning

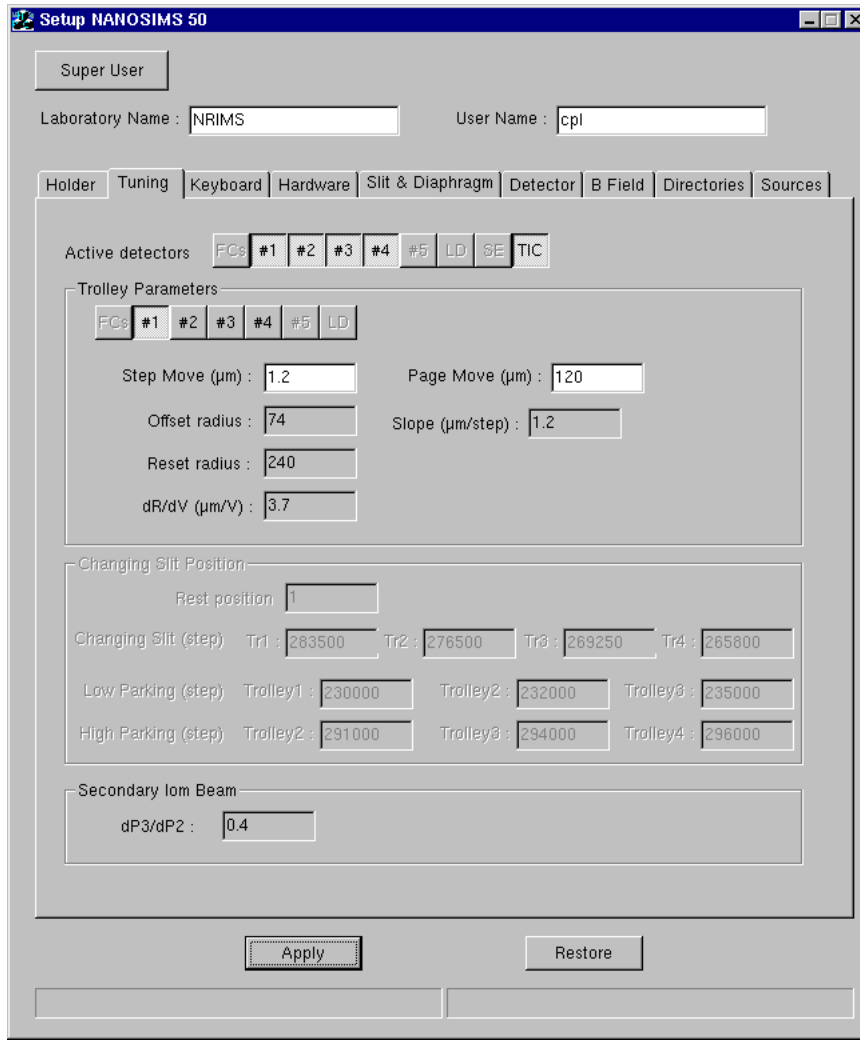


Figure 10-2: View of the 'Tuning' Tab on Setup Menu

Menu Details: Setup - Tuning	
	Active Detectors. Detectors available for this instrument
	Trolley Parameters. Selects a specific trolley to set the parameters.
Step Move	Basic increment for moves of the trolley.
Offset Radius	???
Reset Radius	Start position for trolley after reset.

dR/dV	Effect of deflector potential in HMR scans, etc.
Page Move	Batch increment for trolley move
Slope	Similar to Step move setting
Secondary Ion Beam	????

C. Keyboard

Figure 10-3: View of 'Keyboard' Tab on Setup Menu.

<i>Menu Details: Setup - Keyboard</i>	
Sample Voltage Prop.	
EOW Std.	
Propagation	
FCp	
L1 Std	
Cx Std	

SE FC	
Raster	
B1	
B2X	
B2Y	
B3	
Field (um)	
Field DAC	
Coef	
LF4	
LF4 (DAC)	
TIC	
Polarity	
LF2	
LF3	
SS100 Int	
SS100 Ext	
CV	

D. Hardware

List of installed options

Alternative ion sources

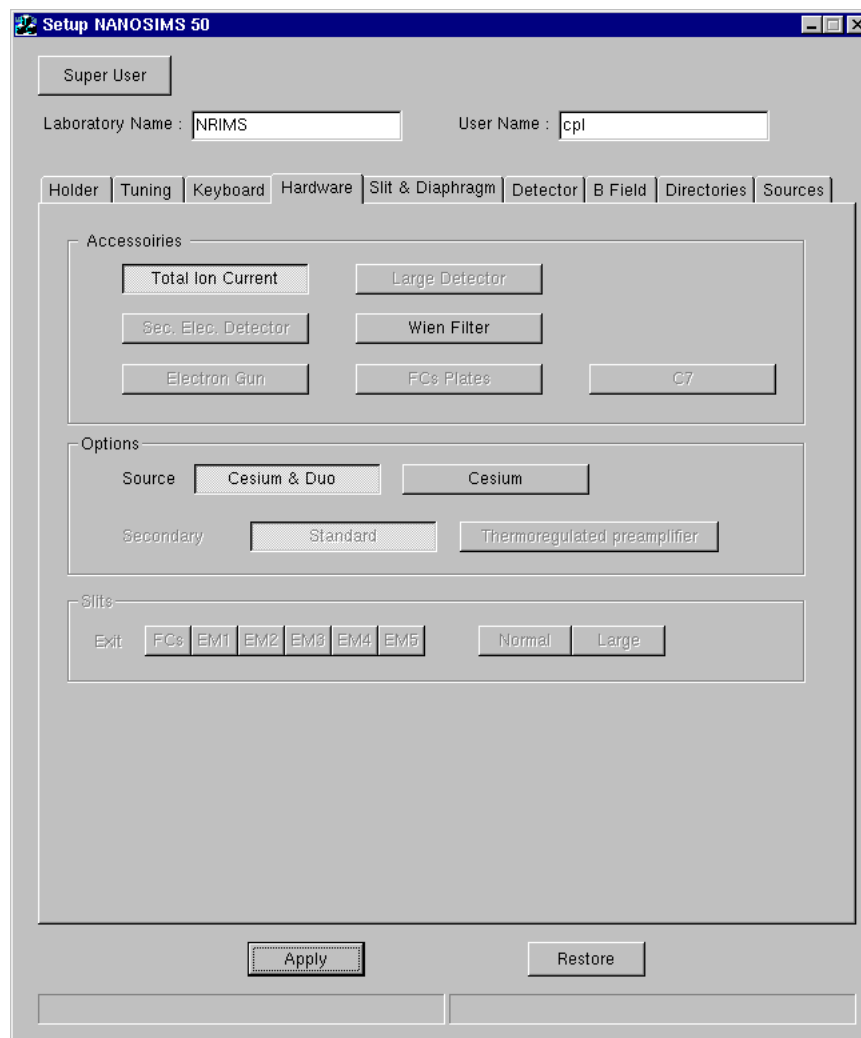


Figure 10-4: View of 'Hardware' Tab on Setup Menu.

Menu Details: Setup - Holder Tab	
Accessories	
Total Ion Current	EM Detector for secondary ions prior to mass filtering
Sec. Elec. Detector	???
Electron Gun	Can be used to prevent build-up of static charges due to exposure of the sample to primary cations.
Large Detector	Fixed EM detector after the magnetic sector
Wien Filter	???

FCs Plates	Deflector plates for Faraday cup after magnetic sector
C7	
Options	
Source	Type of ion sources in the primary column - Cesium carbide and oxygen duoplasmatron, or only a cesium carbide source
Secondary	???
Slits	
<input type="checkbox"/> FCs <input type="checkbox"/> EM1 <input type="checkbox"/> EM2 <input type="checkbox"/> EM3 <input type="checkbox"/> EM4 <input type="checkbox"/> EM5	Selects exit slits for detectors after the mass spectrometer stage.
<input type="checkbox"/> Normal <input type="checkbox"/> Large	Selects size for exit slits

E. Slit & Diaphragm

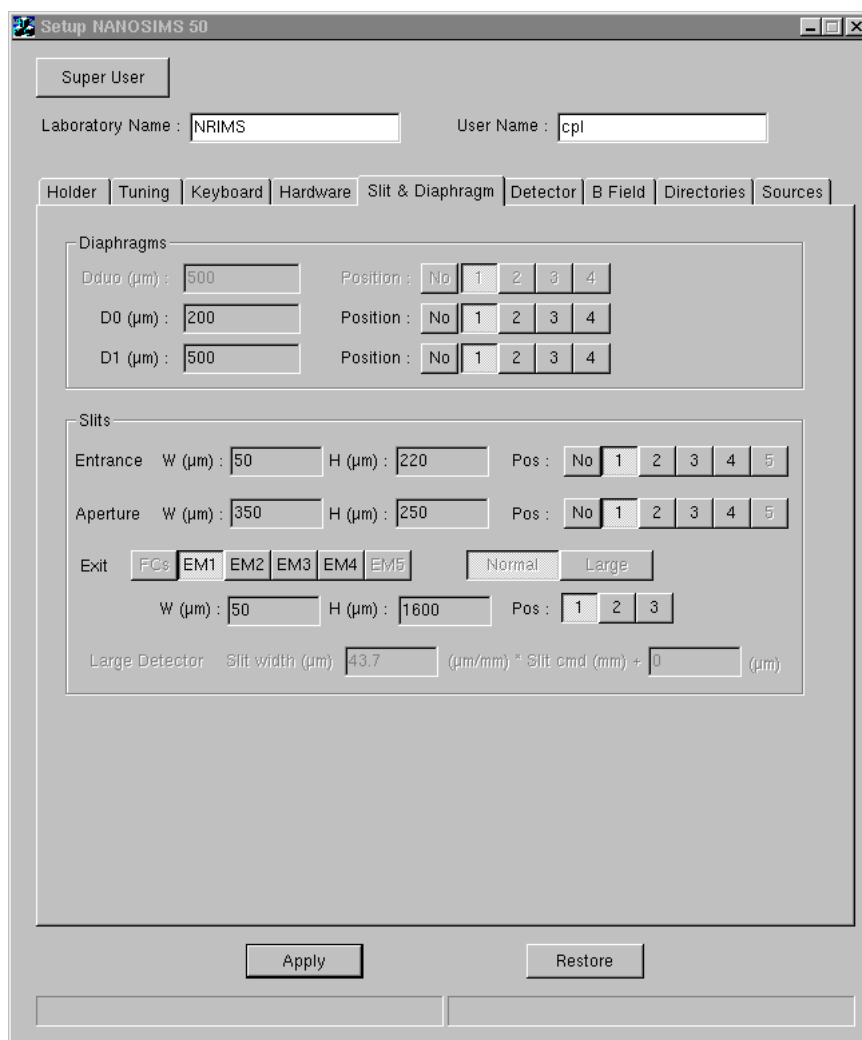


Figure 10-5: View of 'Slit & Diaphragm' Tab on Setup Menu

Menu Details: Setup - Slit and Diaphragm Tab

These settings define the dimensions of the slits and diaphragms at the settings.

Diaphragms (circular openings)

D Duo	Duoplasmatron diaphragm - only needed with oxygen source.
D0	Diaphragm in primary column to shape the primary ion beam
D1	Diaphragm in the objective column. Effects the resolution and the depth of field of the final image.

Slits	
Entrance	Entrance slit. Shapes the beam between the electrostatic and magnetic sectors.
Aperture	Aperture slit. Shapes beam prior to entry into the mass spectrometer.
Exit	Exit slit. Limits mass range that can enter the mass detectors.

F. Detector

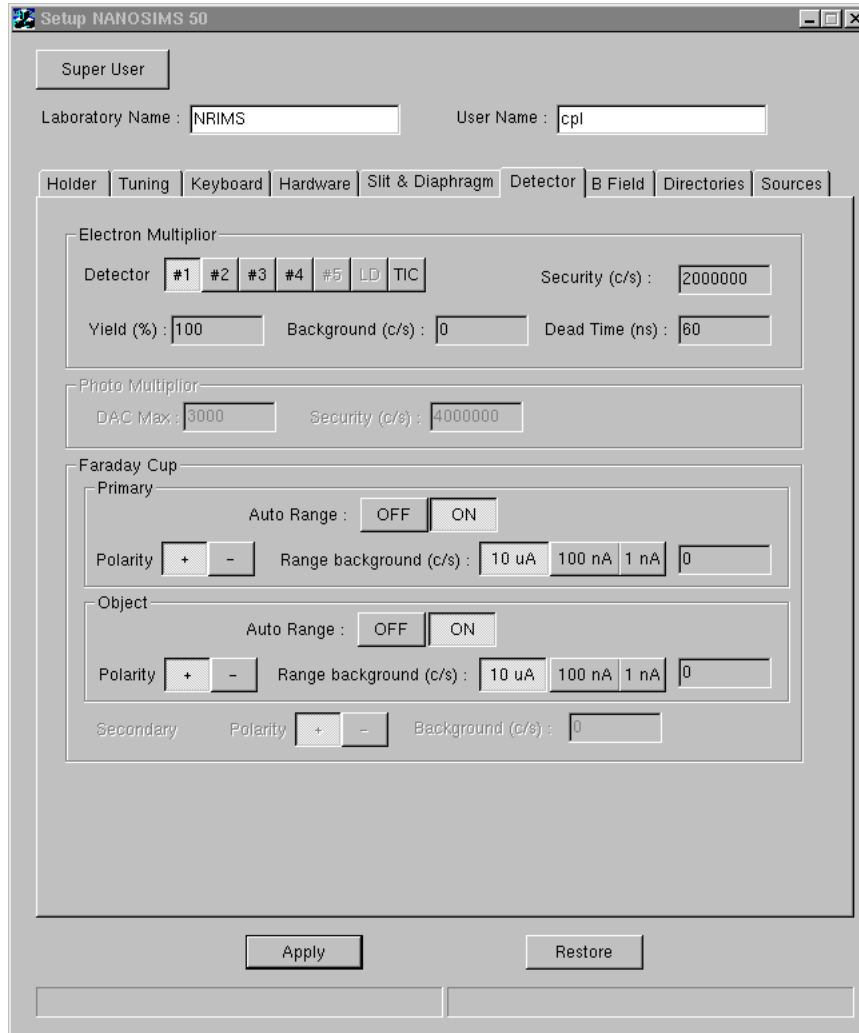
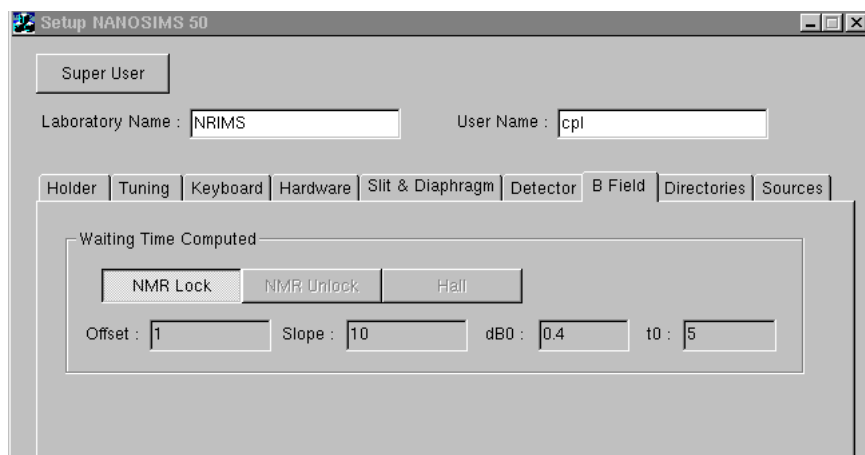


Figure 10-6: View of 'Detector' Tab on Setup Menu.

Menu Details: Setup - Detector	
Electron Multiplier	
<input type="checkbox"/> #1 <input type="checkbox"/> #2 <input type="checkbox"/> #3 <input type="checkbox"/> #4 <input type="checkbox"/> #5 <input type="checkbox"/> LD <input type="checkbox"/> TIC	Selects detector for setup.
Security	Secondary ion current that triggers shut down of the detector to prevent burn-out. This is not implemented on our machine
Yield	Efficiency of the detector. This can be important for quantitative analysis.

Background	The background varies as the detector ages. Use PHD scans to minimize background counts.
Dead Time	Recovery time of the detector after an event.
Photo Multiplier (Not installed in this example)	
DAC Maximum	???? Shouldn t this be an ADC?
Security	Shut-down to prevent damage to detector.
Faraday Cup - Primary	
Auto Range	Off or On - Ion current is sued to adjust the sensitivity of the ampere meter.
Polarity	+ or -. Adjust depending on primary ions used.
Range Background	Sets expected level of background counts
Faraday Cup - Object	
Auto Range	Off or On - Ion current is sued to adjust the sensitivity of the ampere meter.
Polarity	+ or -. Adjust depending on primary ions used.
Range Background	Sets expected level of background counts
Faraday Cup - Secondary (Not installed in this example)	
Polarity	+ or -. Adjust depending on primary ions used.
Background	Sets expected level of background.

G. B Field

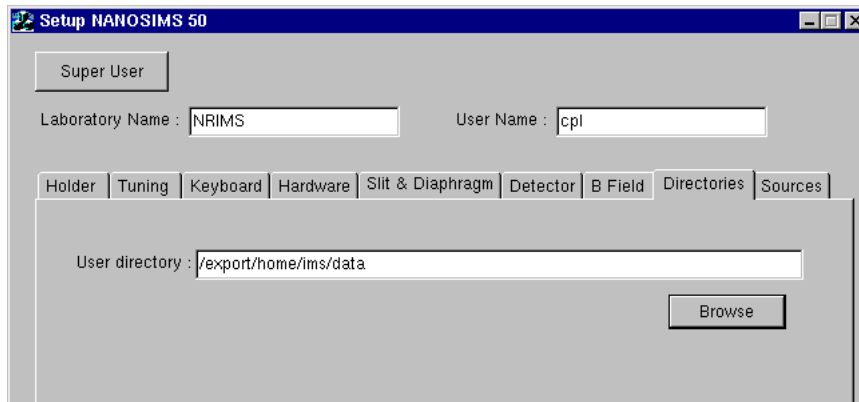


(Truncated)

Figure 10-7: View of 'B Field' Tab on Setup Menu

Menu Details: Setup - B Field	
Waiting Time Computed	
NMR Lock/ Unlock	Magnetic field feed-back loop using nuclear magnetic resonance as a detector
Hall	Hall effect probe for B-field measurement.
Offset	
Slope	
dB0	
t0	Time constant for measurements

H. Directories



(Truncated)

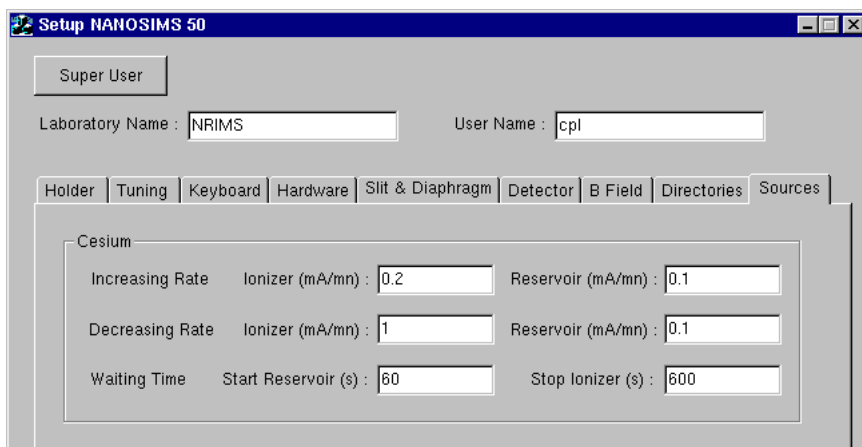
Figure 10-8: View of 'Directories' Tab on Setup Menu

Menu Details: Setup - Directories

User directory

This is where you set up the default directory. Change the default directory if you need access to more than two levels of subdirectories (see page 69 for a description of this issue).

I. Sources



(Truncated)

Figure 10-9: View of 'Sources' Tab on Setup Menu.

Menu Details: Setup - Sources	
Sets ramp-up and ramp-down rates for the cesium source, as well as the sequence of events during start-up and shut-down	
Increasing Rate (Start-up)	
Ionizer	Ramp-up rate of the ionizer current during start-up
Reservoir	Ramp-up rate of the reservoir current during start-up
Decreasing Rate (Shut-down)	
Ionizer	Ramp-down rate of the ionizer current during start-up
Reservoir	Ramp-down rate of the reservoir current during start-up
Waiting Time (scheduled events)	
Start Reservoir	Delay for reservoir start-up to ensure that the ionizer cap is already heated by the time cesium atoms are emitted
Stop Ionizer	Delay for ionizer shut-down to ensure that the ionizer cap is still heated as long as cesium atoms are emitted from the reservoir