

# JEOL Microscope

Tafti Lab

JEOL JSM 6340F Field Emission Electron Microscope  
(FESEM)

Go to internet explorer and use this link to book the instrument:

<http://bctemsem1.bc.edu/fom/>

The link is bookmarked in the internet explorer

BC Electron Microscopy Facility - FOM - Welcome

Welcome to **BC Electron Microscopy Facility** Facility Online Manager (FOM©)

Username:

Password:

[I am a new user](#) · [I forgot my username or password](#) · [User Manual](#) · [Contact Manager](#)

FOM© is an online accounting and equipment management software.

FOM© is FREE for small research group use (online scheduler only, with a minimal installation fee).

FOM© supports unlimited number of equipments, unlimited number of facilities, and unlimited number of users.

FOM© can be used as a simple scheduler or as a complicated management system. It can be used in a single laboratory, or used to host all the facilities on campus.

If you are interested in using FOM©, please contact FOM Networks at [info@FOMNetworks.com](mailto:info@FOMNetworks.com).

Visit <http://www.FOMNetworks.com/> to see the features of FOM©

Facility Online Manager© www.fomnetworks.com

Number of online users: 1

Your Dropbox is full  
Upgrade now for 1 TB (1,000 GB) of space and sharing features.

Address

3:46 PM

The system has to be **Available** for you to log in. At the end of the session, make sure to log out and do not keep the system **Busy**, otherwise we will keep getting charged for the hours that we are not using the system.

The screenshot displays the BC Electron Microscopy Facility (FOM) User Home page. The browser address bar shows the URL <http://bctemsem1.bc.edu/fom/userhome>. The page title is "BC Electron Microscopy Facility - FOM - User Home" and the user name is "Mykola Abramchuk".

**Authorized Equipments (Click to view schedule)**  
[Showing favorite resources only. Go to [My Profile](#) to set favorite resources, or click [here](#) to show all resources.]

- Electron Microscopy Facility
  - SEM: Any Time Access: Available

SEM use Rates are \$20.00/hr for BC users, \$30.00/hr for External-Academic users, and \$100.00/hr for External Commercial users.

**Available Equipments (Click to request training or usage approval)**

Select or type to search

- Electron Microscopy Facility
  - TEM
  - XRD

**Facility Online Manager**  
Time on server  
Monday Apr. 9  
15 : 51 : 05

- » mykola - Home
- » Equipment sched. ▾
- » Collaborate & Service
- » Purchase Supplies
- » Documents
- » User Report
- » My Profile
- » My Accounts
- » Contact Manager
- » Logout

Facility Online Manager© www.fomnetworks.com

Number of online users: 2

Your Dropbox is full  
Upgrade now for 1 TB (1,000 GB) of space and sharing features.  
Upgrade

Address

3:51 PM

Choose start and end times.

**Notes from equipment manager**  
SEM use rates are \$20.00/hr for BC users, \$30.00/hr for External-Academic users, and \$100.00/hr for External Commercial users.

**Equipment Schedule: SEM**

- SEM is now Available
- Reservation Limits: No later than 14 days; New reservations open hour b
- Your user level on this equipment is: Any Time Access.

02/12 02/19 02/26 03/05 03/12 03/19 03/26 04/02

Mon 04/09	Tue 04/10	Wed 04/11
09:00 - 10:00	09:00 - 10:00	09:00 - 10:00
10:00 - 11:00	10:00 - 11:00	10:00 - 11:00
11:00 - 12:00	11:00 - 12:00	11:00 - 12:00
12:00 - 13:00	12:00 - 13:00	12:00 - 13:00
13:00 - 14:00	13:00 - 14:00	13:00 - 14:00
14:00 - 15:00	14:00 - 15:00	14:00 - 15:00
15:00 - 16:00	15:00 - 16:00	15:00 - 16:00
16:00 - 17:00	16:00 - 17:00	16:00 - 17:00
17:00 - 18:00	17:00 - 18:00	17:00 - 18:00
18:00 - 19:00	18:00 - 19:00	18:00 - 19:00
19:00 - 20:00	19:00 - 20:00	19:00 - 20:00
20:00 - 21:00	20:00 - 21:00	20:00 - 21:00
21:00 - 22:00	21:00 - 22:00	21:00 - 22:00
22:00 - 23:00	22:00 - 23:00	22:00 - 23:00
23:00 - 00:00	23:00 - 00:00	23:00 - 00:00

Click to log on

**Equipment Reservation**

Select the Account Number you want to use for this session:  
 mykola1

Start time: 2018-04-09 16:00:00  
End time: 2018-04-09 17:00:00

Estimated cost: 20.00

Comment:

Agenda View Day View Month View

04/16 04/23 04/30 05/07 05/14 05/21 05/28 06/04

Sat 04/14	Sun 04/15
09:00 - 10:00	09:00 - 10:00
10:00 - 11:00	10:00 - 11:00
11:00 - 12:00	11:00 - 12:00
12:00 - 13:00	12:00 - 13:00
13:00 - 14:00	13:00 - 14:00
14:00 - 15:00	14:00 - 15:00
15:00 - 16:00	15:00 - 16:00
16:00 - 17:00	16:00 - 17:00
17:00 - 18:00	17:00 - 18:00
18:00 - 19:00	18:00 - 19:00
19:00 - 20:00	19:00 - 20:00
20:00 - 21:00	20:00 - 21:00
21:00 - 22:00	21:00 - 22:00
22:00 - 23:00	22:00 - 23:00
23:00 - 00:00	23:00 - 00:00

Number of online users: 2

Your Dropbox is full  
Upgrade now for 1 TB (1,000 GB) of space and sharing features.

Now you are reserved and you need to log in by clicking on your name.  
When you logged in, you name appears on a green background.

**BC Electron Microscopy Facility - FOM - Schedule** Mykola Abramchuk

**Notes from equipment manager**  
SEM use rates are \$20.00/hr for BC users, \$30.00/hr for External-Academic users, and \$100.00/hr for External Commercial users.

**Equipment Schedule: SEM** [Agenda View](#) [Day View](#) [Month View](#)

- SEM is now Available
- Reservation Limits: No later than 14 days; New reservations open hour by hour.
- Your user level on this equipment is: Any Time Access.

Time on server  
Monday Apr. 9  
16 : 05 : 03

» mykola - Home  
» SEM (Electron Mir) ▾  
» Collaborate & Service  
» Purchase Supplies  
» Documents  
» User Report  
» My Profile  
» My Accounts  
» Contact Manager  
» Logout

02/12 02/19 02/26 03/05 03/12 03/19 03/26 04/02 Today Apr 9, 2018 04/16 04/23 04/30 05/07 05/14 05/21 05/28 06/04

Mon 04/09	Tue 04/10	Wed 04/11	Thu 04/12	Fri 04/13	Sat 04/14	Sun 04/15
<a href="#">Click to show sessions from midnight to 09:00</a>						
09:00 - 10:00	09:00 - 10:00	09:00 - 10:00	09:00 - 10:00	09:00 - 10:00	09:00 - 10:00	09:00 - 10:00
10:00 - 11:00	10:00 - 11:00	10:00 - 11:00	Peter Cristofono, 10:00-15:00	10:00 - 11:00	10:00 - 11:00	10:00 - 11:00
11:00 - 12:00	11:00 - 12:00	11:00 - 12:00		11:00 - 12:00	11:00 - 12:00	11:00 - 12:00
12:00 - 13:00	12:00 - 13:00	12:00 - 13:00		12:00 - 13:00	12:00 - 13:00	12:00 - 13:00
13:00 - 14:00	13:00 - 14:00	13:00 - 14:00		13:00 - 14:00	13:00 - 14:00	13:00 - 14:00
14:00 - 15:00	14:00 - 15:00	14:00 - 15:00		14:00 - 15:00	14:00 - 15:00	14:00 - 15:00
Click to log on	15:00 - 16:00	15:00 - 16:00	15:00 - 16:00	15:00 - 16:00	15:00 - 16:00	15:00 - 16:00
Mykola Abramchuk, 16:00-17:00	16:00 - 17:00	16:00 - 17:00	16:00 - 17:00	16:00 - 17:00	16:00 - 17:00	16:00 - 17:00
17:00 - 18:00	17:00 - 18:00	17:00 - 18:00	17:00 - 18:00	17:00 - 18:00	17:00 - 18:00	17:00 - 18:00
18:00 - 19:00	18:00 - 19:00	18:00 - 19:00	18:00 - 19:00	18:00 - 19:00	18:00 - 19:00	18:00 - 19:00
19:00 - 20:00	19:00 - 20:00	19:00 - 20:00	19:00 - 20:00	19:00 - 20:00	19:00 - 20:00	19:00 - 20:00
20:00 - 21:00	20:00 - 21:00	20:00 - 21:00	20:00 - 21:00	20:00 - 21:00	20:00 - 21:00	20:00 - 21:00
21:00 - 22:00	21:00 - 22:00	21:00 - 22:00	21:00 - 22:00	21:00 - 22:00	21:00 - 22:00	21:00 - 22:00
22:00 - 23:00	22:00 - 23:00	22:00 - 23:00	22:00 - 23:00	22:00 - 23:00	22:00 - 23:00	22:00 - 23:00
23:00 - 00:00	23:00 - 00:00	23:00 - 00:00	23:00 - 00:00	23:00 - 00:00	23:00 - 00:00	23:00 - 00:00

Facility Online Manager© www.fomnetworks.com Number of online users: 2

Your Dropbox is full  
Upgrade now for 1 TB (1,000 GB) of space and sharing features.  
[Upgrade](#)

Then click on home.

http://bctemsem1.bc.edu/fom/schedule?equipid=5

BC Electron Microscopy Facility - FOM - Schedule

Mykola Abramchuk

Notes from equipment manager  
SEM use rates are \$20.00/hr for BC users, \$30.00/hr for External-Academic users, and \$100.00/hr for External Commercial users.

Equipment Schedule: SEM

Agenda View Day View Month View

Equipment Logon

Previous user comment:  
ok

Confirm equipment logon:

Time on server  
Monday Apr. 9  
16 : 06 : 29

» mykola - Home  
» SEM (Electron Mir...  
» Collaborate & Service  
» Purchase Supplies  
» Documents  
» User Report  
» My Profile  
» My Accounts  
» Contact Manager  
» Logout

02/12/18  
Mon 02/12/18

Today Apr 9, 2018

04/16 04/23 04/30 05/07 05/14 05/21 05/28 06/04

	Thu 04/12	Fri 04/13	Sat 04/14	Sun 04/15
09:00 - 10:00	0	09:00 - 10:00	09:00 - 10:00	09:00 - 10:00
10:00 - 11:00	0	Peter Cristofono, 10:00-15:00	10:00 - 11:00	10:00 - 11:00
11:00 - 12:00	0	11:00 - 12:00	11:00 - 12:00	11:00 - 12:00
12:00 - 13:00	0	12:00 - 13:00	12:00 - 13:00	12:00 - 13:00
13:00 - 14:00	0	13:00 - 14:00	13:00 - 14:00	13:00 - 14:00
14:00 - 15:00	14:00 - 15:00	14:00 - 15:00	14:00 - 15:00	14:00 - 15:00
15:00 - 16:00	15:00 - 16:00	15:00 - 16:00	15:00 - 16:00	15:00 - 16:00
16:00 - 17:00	Mykola Abramchuk, 16:00-17:00	16:00 - 17:00	16:00 - 17:00	16:00 - 17:00
17:00 - 18:00	17:00 - 18:00	17:00 - 18:00	17:00 - 18:00	17:00 - 18:00
18:00 - 19:00	18:00 - 19:00	18:00 - 19:00	18:00 - 19:00	18:00 - 19:00
19:00 - 20:00	19:00 - 20:00	19:00 - 20:00	19:00 - 20:00	19:00 - 20:00
20:00 - 21:00	20:00 - 21:00	20:00 - 21:00	20:00 - 21:00	20:00 - 21:00
21:00 - 22:00	21:00 - 22:00	21:00 - 22:00	21:00 - 22:00	21:00 - 22:00
22:00 - 23:00	22:00 - 23:00	22:00 - 23:00	22:00 - 23:00	22:00 - 23:00
23:00 - 00:00	23:00 - 00:00	23:00 - 00:00	23:00 - 00:00	23:00 - 00:00

Click to show sessions from midnight to 09:00

Facility Online Manager© www.fomnetworks.com

Number of online users: 2

Your Dropbox is full  
Upgrade now for 1 TB (1,000 GB) of space and sharing features.

Address

4:06 PM

Now you are logged on (system is **Busy**).

The screenshot shows a web browser window displaying the 'BC Electron Microscopy Facility - FOM - User Home' page. The browser's address bar shows the URL 'http://bctemsem1.bc.edu/fom/userhome'. The page title is 'BC Electron Microscopy Facility - FOM - User Home' and the user is logged in as 'Mykola Abramchuk'. The page content includes:

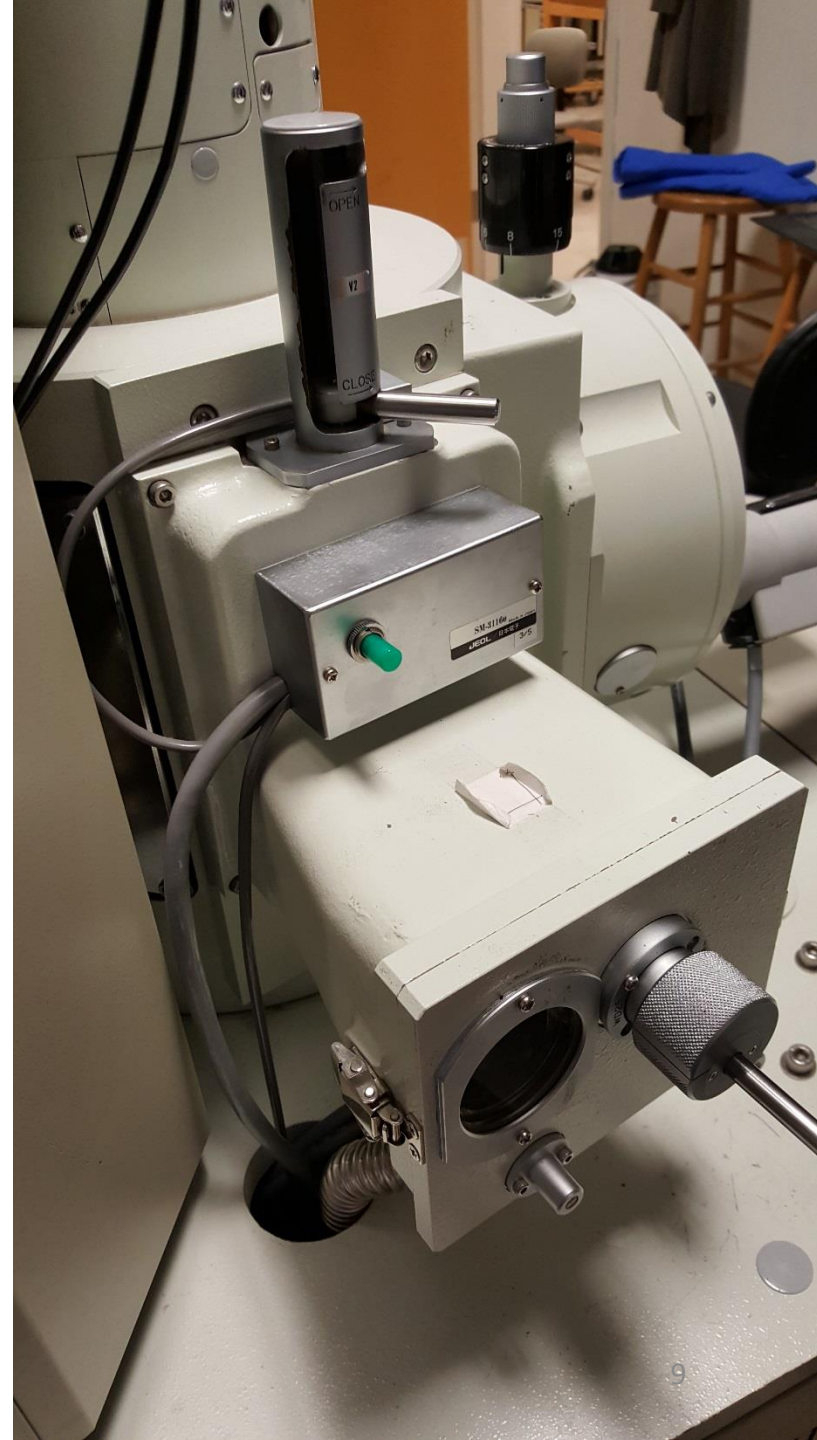
- User Shortcuts:** A list with 'LOGOFF: You are using SEM. Click here to logoff'.
- Authorized Equipments (Click to view schedule):** A section with a sub-header '[Showing favorite resources only. Go to My Profile to set favorite resources, or click here to show all resources.]'. It lists 'Electron Microscopy Facility' with a sub-item 'SEM: Any Time Access, Busy' circled in red. Below this, it states 'SEM use rates are \$30.00/hr for BC users, \$30.00/hr for External-Academic users, and \$100.00/hr for External Commercial users.'
- Available Equipments (Click to request training or usage approval):** A section with a search dropdown and a list of equipment including 'Electron Microscopy Facility', 'TEM', and 'XRD'.
- Left Sidebar:** Contains navigation links like 'mykola - Home', 'Equipment sched...', 'Collaborate & Service', 'Purchase Supplies', 'Documents', 'User Report', 'My Profile', 'My Accounts', 'Contact Manager', and 'Logout'. It also shows 'Time on server Monday Apr. 9 16 : 07 : 19'.
- Bottom:** A footer with 'Facility Online Manager© www.fomnetworks.com' and 'Number of online users: 2'. A Windows taskbar at the bottom shows the time as 4:07 PM and a notification for 'Your Dropbox is full' with an 'Upgrade' button.

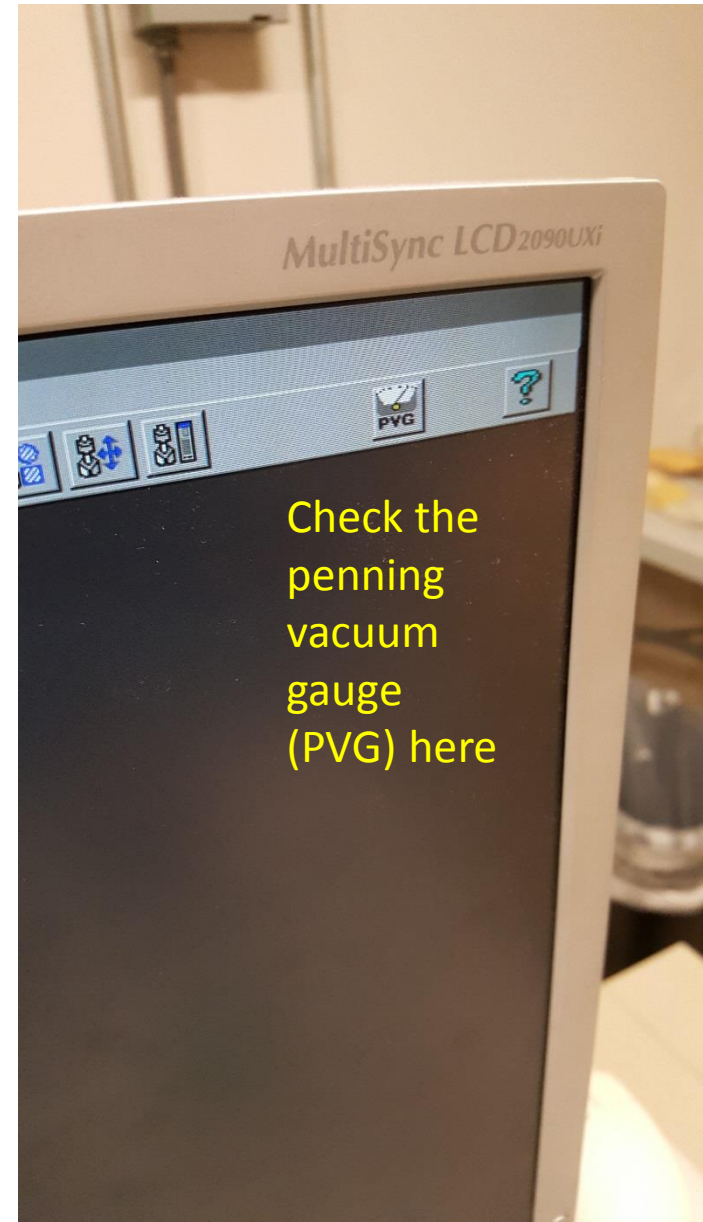
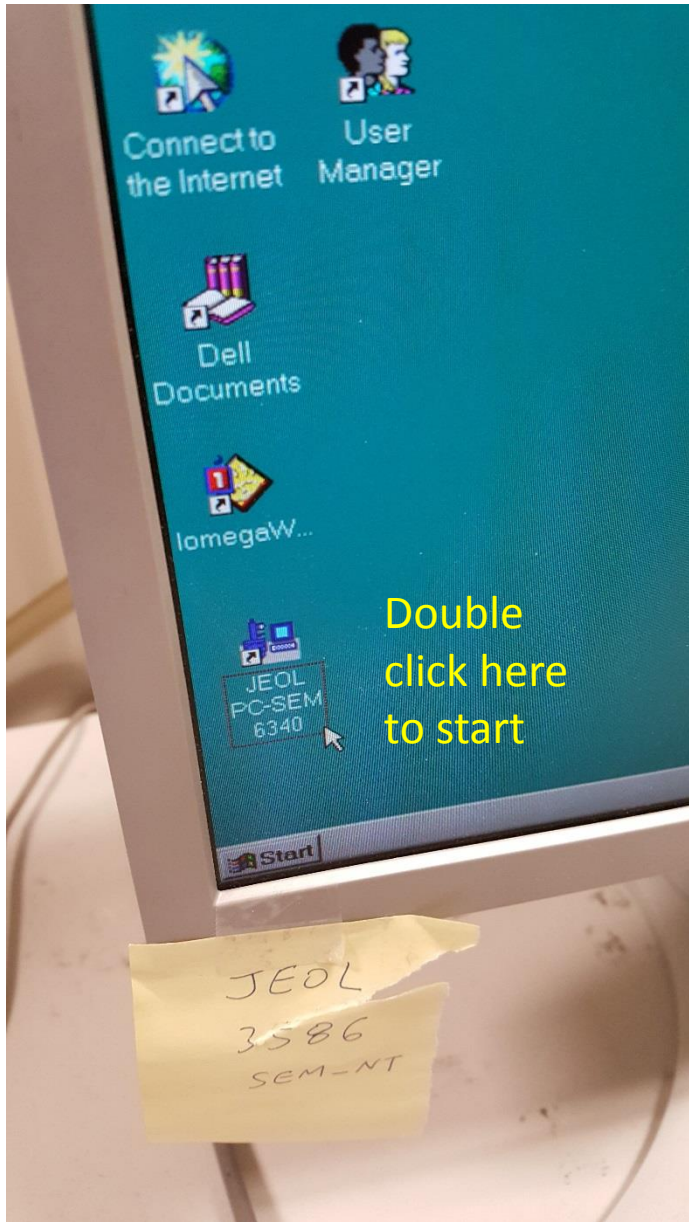




## Installing the samples:

- Clean the SEM holder
- Put a double-sided tape on the holder
- Cleave the sample surface
- Place samples on the carbon tape and sketch a map of their positions
- Use the air puff to clear the dust from samples
- If the green button is lit, the antechamber is vented and you can open it
- Screw the lever into the holder
- Close the antechamber and push the green button to pump the antechamber
- Open the gate valve and insert the puck
- Dock the sample stage, unscrew the lever, and retrieve it
- Close the gate valve and vent the antechamber. If the antechamber is under vacuume, the system does not allow you to start high tension (HT)





File Edit Control Image Tools Stage Setup Maintenance Help

HT 20.00 kV 12.5 μA

Accelerating Voltage: 20.0 kV

SEI Detector: OFF ON

Mode: 0 1 2

Emission: 4 8 12 μA

Auto: OFF

Reset: RESET

CONST

Column Mode: SEM LM ALP

Focus: 2 3 6 8 15 25

Probe Current: 8

Fine

Scan Rotation: OFF -45 -15 -1 0 +1 +15 +45

DFC: OFF

Close

High Tension

If the current drops below 11, press reset

Probe current (7-9)

Column control

Adjust working distance manually and then here

20 kV is good for intermetallic, 10-15 for oxides and halides

Magnifications

LEI and SEI are both secondary el. detectors

Penning Gauge

1.91E-004 Pa

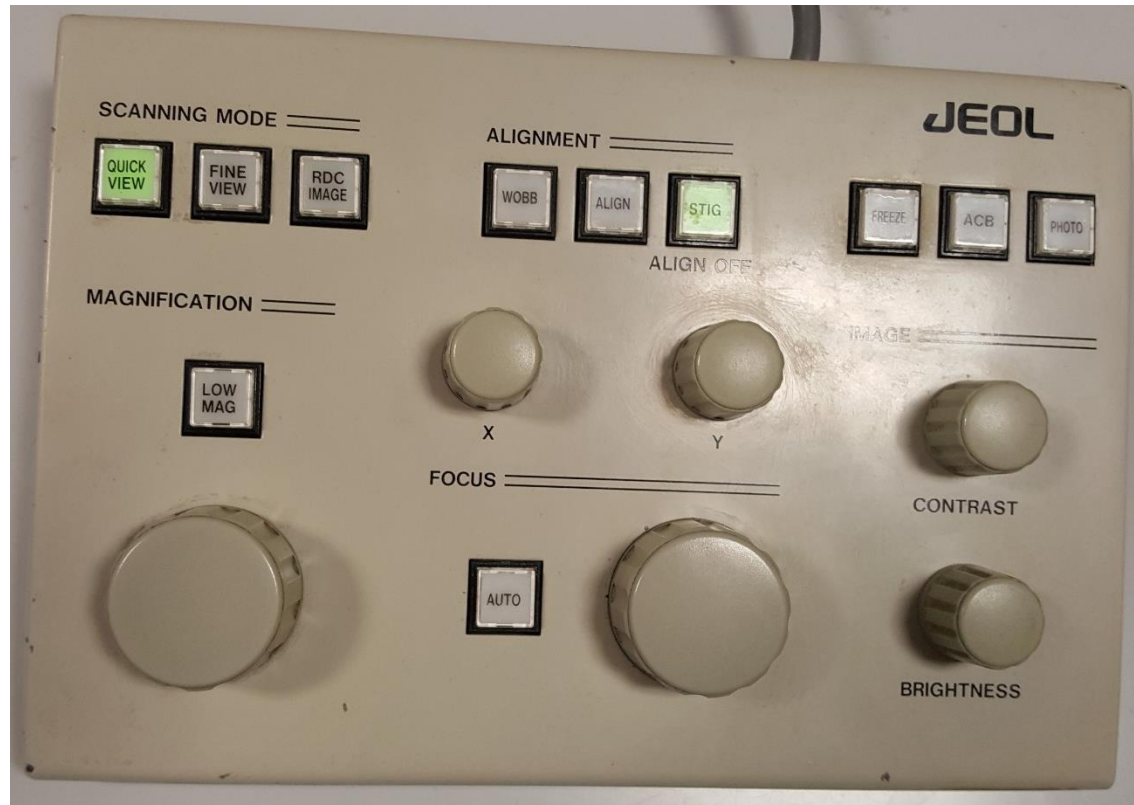
Close

X:24.980 Y:34.910 R:0.0

NONE LEI 20.0 kV X25 1mm WD 15.5mm

- Close the program and then reopen it by double clicking on JEOL-PC-SEM
- Check pressure by double clicking on PVG on the top right of screen
- When  $P < 10^{-4}$ , press HT (High Tension) on top left corner. It changes from blue to green and starts the e-beam.
- Adjust tension to 20 kV on the lower right of the screen for metals and 10 kV for insulators (charging)
- Adjust working distance to 15 manually and then set it to 15 on the lower right of the screen
- Choose LEI for low magnification imaging (typical magnification x1000)
- Choose SEI is for very high magnifications

- Press on low mag to choose x25 magnification
- Adjust current and auto contrast and brightness and focus
- Then, find your first sample with the joy stick (XY)
- Use reduced image (RDC) to find focus faster
- Use Fine View to see better images (press once, press twice)
- Use Photo for the highest quality image and save it if you want



Use RDC to focus quickly

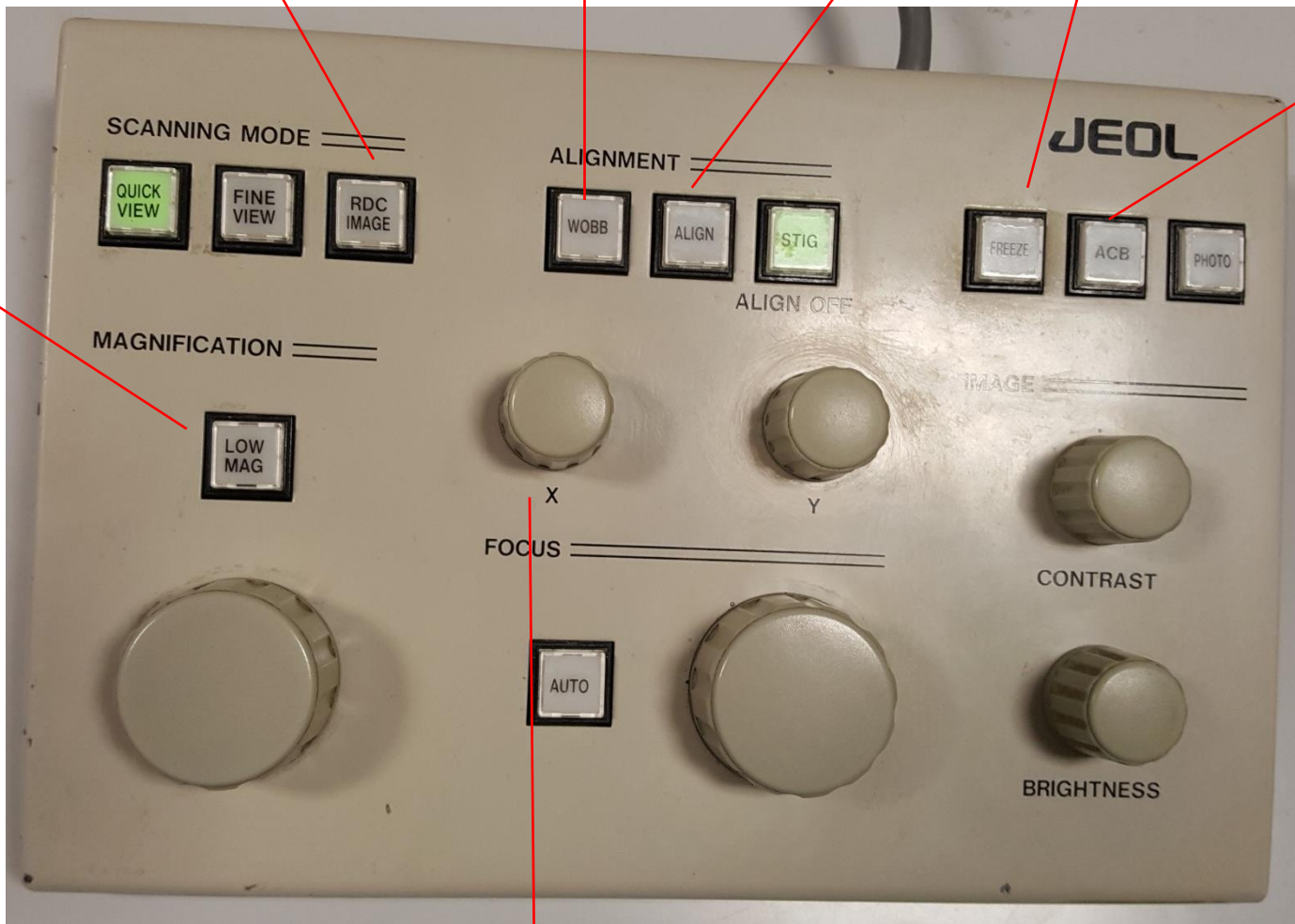
Wobble for stigmatic corrections at high magnifications

Gun alignment

Press to unfreeze after taking a photo

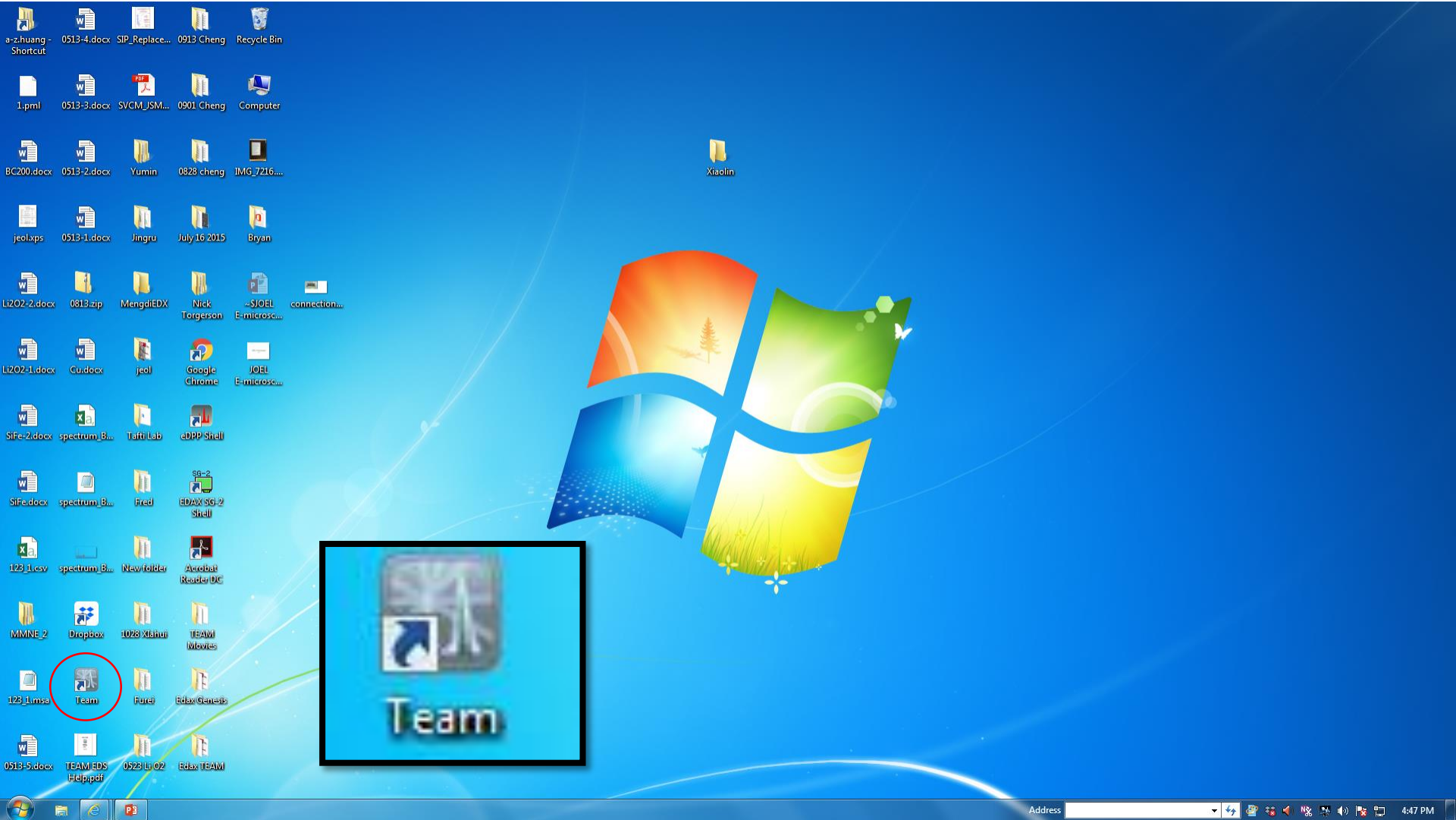
Auto Contrast Brightness

Use Low Mag with LEI detector

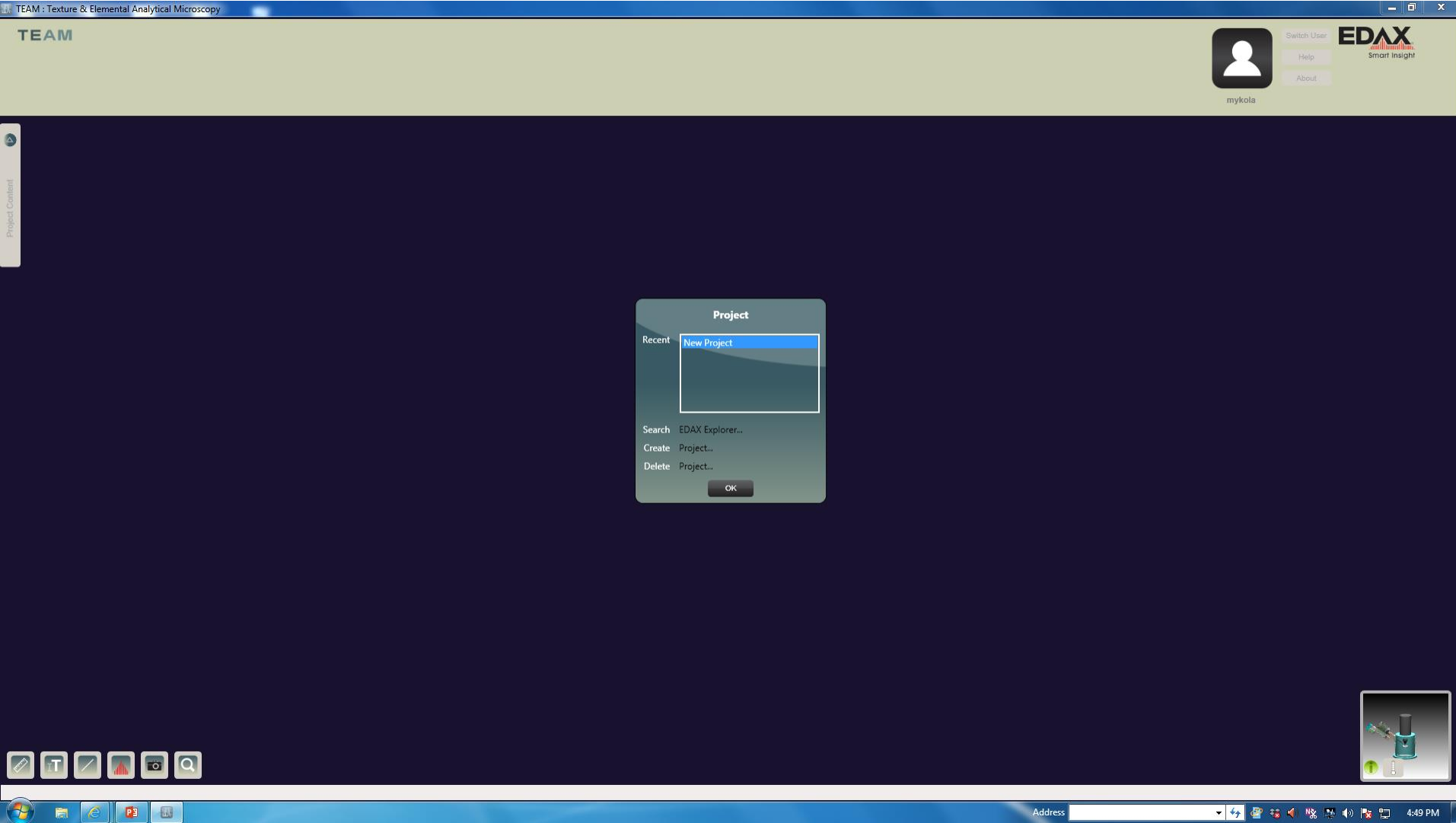


Use x and y for stigmatic corrections at high magnifications

Double click on the Team icon



Put your credentials and say YES to create new project





Before using EDX, make sure to fill the detector with liquid nitrogen.

The screenshot displays the TEAM software interface for Texture & Elemental Analytical Microscopy. The top navigation bar includes tabs for 'Spectrum Only', 'Point Analysis', 'Mapping', 'Line Scan', 'Review Data', and 'Report Design'. The user 'mykola' is logged in, with options to 'Switch User', 'Help', and 'About'. The EDAX logo is visible in the top right corner.

On the right side, the 'EDS Detectors' panel is expanded, showing 'Det 1' with a checked status. Below this, the 'Detector Status' section contains several indicator lights: 'Ok to Vent' (red), 'Ready' (red), 'Connected' (green), 'Interlock Output' (red), 'Interlock Input' (red), and 'Cooling LED' (yellow). A yellow 'Cooling On' button is positioned below these indicators.

At the bottom right, a small inset window shows a 3D model of the detector assembly. A red circle highlights a green indicator light on the model, which corresponds to the 'Cooling LED' status in the software panel.

The bottom status bar provides technical parameters: 'Input CPS: 0', 'Dead Time: 0.0', 'Takeoff: 34.4', 'Working Distance: 15.5', 'Magnification: 1000', and 'kV: 15.0'. The Windows taskbar at the very bottom shows the system clock at 4:50 PM.

Press on this button when it is red and start cooling until yellow turns to green

After logging in, choose saving folder by clicking on user image. Otherwise, you cannot save the elemental maps. If you select this once, it will most likely stay the same for the future (important for the first-timers).

The screenshot displays the EDAX TEAM software interface. The top navigation bar includes tabs for 'Spectrum Only', 'Point Analysis', 'Mapping', 'Line Scan', 'Review Data', and 'Report Design'. The user profile 'bahramif' is visible in the top right corner, circled in red. A 'User Profile' dialog box is open in the center, containing the following settings:

- Account: Change
- Profile Image: Change, Clear
- Language: English (United States)
- Default Quantification Method: eZAF, None, Clear
- Peak ID Filter - P/B:
- Select Quant on Project Create:
- Select Quant on Sample Create:
- Enable Pileup Processing:
- Enable Tool Tips:
- Auto-Reveal Activity Settings:
- Show Balloon Tips:
- Enable Startup Animation:
- Auto Collapse Panel:
- Enable Popup Window:
- Automatic detector shutdown after inactivity:
- Phase list population method: Auto load default phase list
- Status Bar Items: Select
- Custom image folder location: [Text Field] ...
- Default image type: PNG

At the bottom of the dialog box are 'OK' and 'Cancel' buttons. The bottom status bar shows technical parameters: Input CPS: 1201, Dead Time: 0.2, Takeoff: 34.0, Working Distance: 15.0, Magnification: 1000, kV: 20.0. The Windows taskbar at the very bottom shows the time as 2:09 PM.

Click on **Point Analysis**, then **collect image**. Wait while imaging the area and do not change the image.

The screenshot displays the TEAM software interface for EDAX analysis. The window title is "TEAM: Texture & Elemental Analytical Microscopy". The top navigation bar includes tabs for "Spectrum Only", "Point Analysis" (which is selected), "Mapping", "Line Scan", "Review Data", and "Report Design". Below this, a secondary bar contains buttons for "Image Area", "Collect Spectrum", and "Report". On the right side of the interface, there is a user profile icon for "mykola" and a "Switch User" button, along with "EDAX" branding and "Smart Insight" text. The main display area shows a dark, grayscale image of a sample with a bright, diagonal line of light. A scale bar at the bottom of the image indicates "100 um". To the right of the main image is a smaller inset window showing a 3D model of the EDAX instrument. The bottom status bar provides technical parameters: "Input CPS: 187", "Dead Time: 0.0", "Takeoff: 34.0", "Working Distance: 15.0", "Magnification: 1000", and "kV: 20.0". The Windows taskbar at the very bottom shows the system clock as "4:52 PM" and the "Address" field.

Enter all specification and put the time to 200 sec. Select a square on a flat area and press **Collect Spectrum**. You can stop the spectrum before 200 sec if you are satisfied.

TEAM : Texture & Elemental Analytical Microscopy

Spectrum Only | Point Analysis | Mapping | Line Scan | Review Data | Report Design

Image Area | Collect Spectrum | Report

Clear | Point Mode | Multi | Draw Type: Normal | EV/Chan: 10 | Amp Time: 0.48 | Limit By: Live | Seconds: 200 | Delete all Sites | Advanced

mykola

EDAX  
Smart Insight

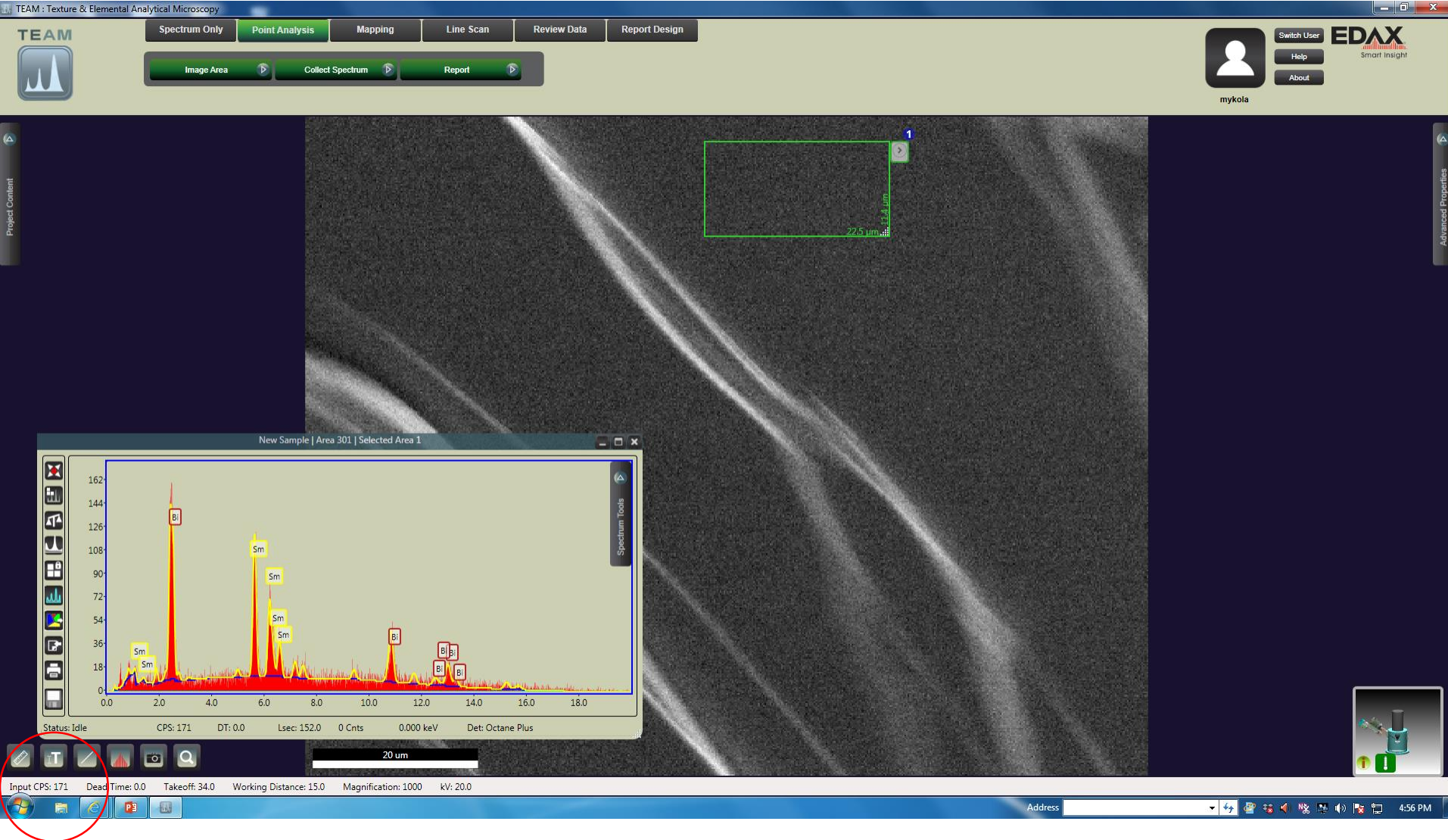
Project Content | Advanced Properties

20  $\mu\text{m}$

Input CPS: 456 | Dead Time: 0.4 | Takeoff: 34.0 | Working Distance: 15.0 | Magnification: 1000 | kV: 20.0

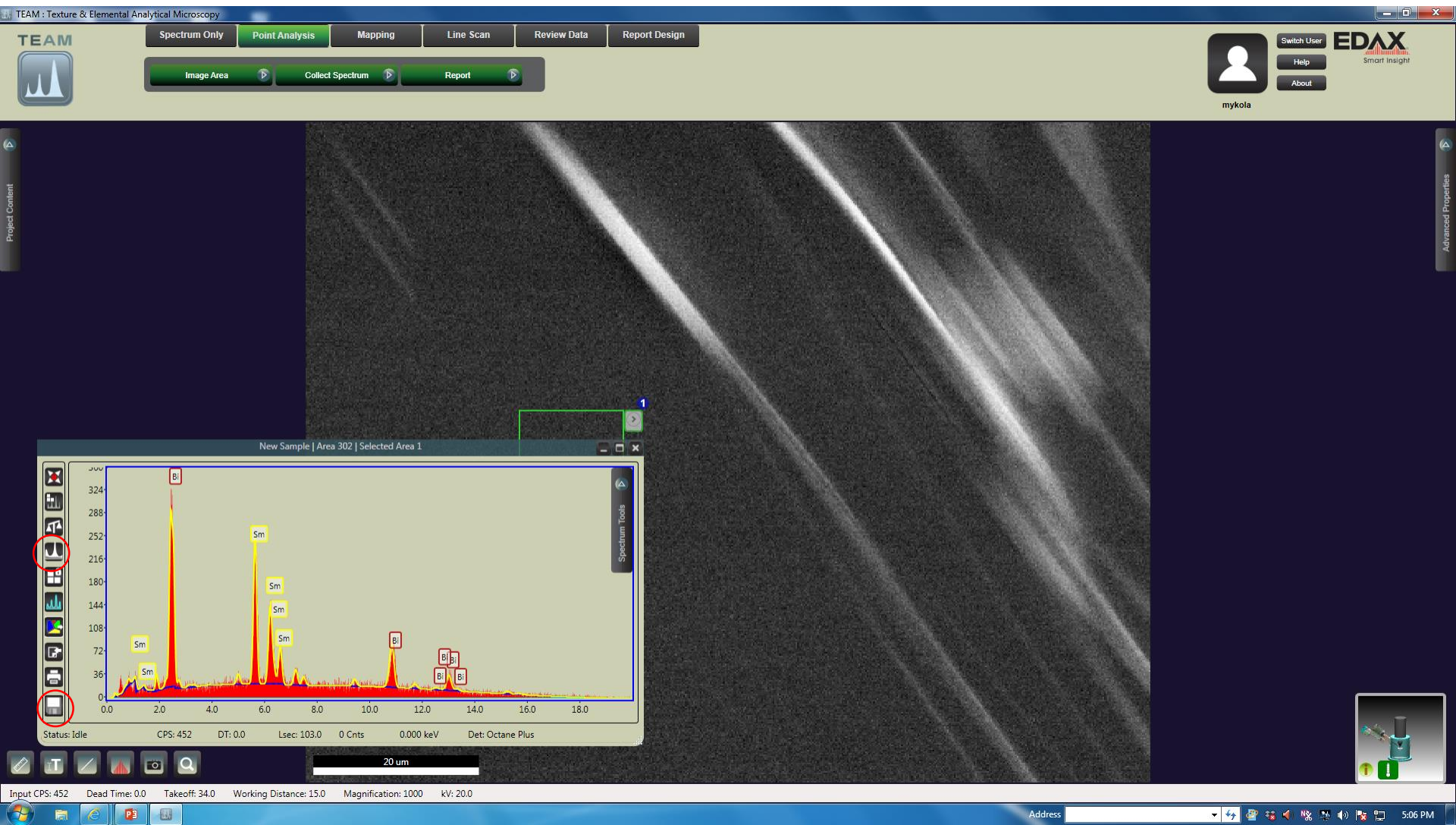
Address | 5:04 PM

If CPS is above 400, you can collect up to 1k intensity. If CPS is less than 200, you can stop at 300-500. If CPS is lower than 100, something is not right.



If CPS (Counts Per Second) is too low, go on the gun control on the microscope and change the alignment until you get maximum counts

Adjust background, right click zooms in a particular area, mouse roll zooms in and out of general areas, left click selects a new background and then you can extend or shrink it.  
Click again on the spectrum to exist this mode.



Don't forget to save your changes at each step

Click on the periodic table and select elements. On the ZAF table, make sure to select the larger peaks (for example Sm L instead of M).

TEAM: Texture & Elemental Analytical Microscopy

TEAM

Spectrum Only | Point Analysis | Mapping | Line Scan | Review Data | Report Design

Image Area | Collect Spectrum | Report

mykola

EDAX  
Smart Insight

The image displays the EDAX TEAM software interface. At the top, there are navigation tabs for 'Spectrum Only', 'Point Analysis', 'Mapping', 'Line Scan', 'Review Data', and 'Report Design'. Below these are buttons for 'Image Area', 'Collect Spectrum', and 'Report'. The user's name 'mykola' is visible in the top right corner. The main window shows a dark image of a sample with a green box indicating a selected area. Below this is a spectrum plot titled 'New Sample | Area 302 | Selected Area 1'. The plot shows several peaks, with the most prominent ones labeled 'Bi' and 'Sm'. A '20 um' scale bar is visible below the plot. To the right of the spectrum plot is a 'Possible EDS Elements' dialog box. This dialog box contains a periodic table where the 'O' (Oxygen) and 'Sm' (Samarium) elements are highlighted. Below the periodic table are buttons for 'Auto ID', 'Possible', 'Required', and 'Forbidden'. To the right of the periodic table is a 'ZAF List Selection' dialog box. This dialog box has two radio buttons: 'Use for Quant' (selected) and 'Use for Mapping/Line'. Below these are three columns of radio buttons for 'Elements', 'K', 'L', and 'M'. The 'O' element is checked under 'Elements', and the 'L' radio button is selected for 'O'. Below this is a 'Peak List Selection' section. At the bottom of the dialog box are buttons for 'Add All', 'Clear All', 'OK', and 'Cancel'. The bottom status bar shows 'Input CPS: 492', 'Dead Time: 0.6', 'Takeoff: 34.0', 'Working Distance: 15.0', 'Magnification: 1000', and 'kV: 20.0'. The Windows taskbar at the very bottom shows the system clock as 5:11 PM.

Project Content

Advanced Properties

1

New Sample | Area 302 | Selected Area 1

Spectrum Tools

Status: Idle | CPS: 492 | DT: 0.6 | Lsec: 103.0 | 130 Cnts | 5.750 keV | Det: Octane Plus

20 um

Input CPS: 492 | Dead Time: 0.6 | Takeoff: 34.0 | Working Distance: 15.0 | Magnification: 1000 | kV: 20.0

Address

5:11 PM

**Possible EDS Elements**

H																			He								
Li	Be													B	C	N	O	F	Ne								
Na	Mg													Al	Si	P	S	Cl	Ar								
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn			Ga	Ge	As	Se	Br	Kr								
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd			In	Sn	Sb	Te	I	Xe								
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg			Tl	Pb	Bi	Po	At	Rn								
Fr	Ra	Ac																									
														Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
														Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

Auto ID | Possible | Required | Forbidden

Add All | Clear All

OK | Cancel

**ZAF List Selection**

Use for Quant | Use for Mapping/Line

Elements | On/Off | K | L | M

Peak List Selection

Look at the quantitative results and change the selected elements or background until you are satisfied

TEAM: Texture & Elemental Analytical Microscopy

TEAM

Spectrum Only | Point Analysis | Mapping | Line Scan | Review Data | Report Design

Image Area | Collect Spectrum | Report

mykola

EDAX  
MultiMaster  
Smart Insight

Project Content

Advanced Properties

eZAF Smart Quant Results

File Quant Method View Tools

Drag a column header here to group by that column

Element	Weight %	Atomic %	Error %	Net Int.	K Ratio	Z	R	A	F
Bi M	33.60	26.69	8.01	29.21	0.2511	0.9547	1.0492	0.7739	1.0115
Sm L	66.40	73.31	7.43	34.55	0.6511	1.0254	0.9811	0.9554	1.0010

New Sample | Area 302 | Selected Area 1

Status: Idle | Input CPS: 515 | DT: 0.2 | Lsec: 103.0 | 130 Cnts | 5.750 keV | Det: Octane Plus

20 um

Input CPS: 515 | Dead Time: 0.2 | Takeoff: 34.0 | Working Distance: 15.0 | Magnification: 1000 | kV: 20.0

Address

5:15 PM



Choose “save as”, select folder, give a name, and it will save everything including EDX data.

The screenshot displays the TEAM software interface for Texture & Elemental Analytical Microscopy. The top navigation bar includes tabs for Spectrum Only, Point Analysis, Mapping, Line Scan, Review Data, and Report Design. Below this are buttons for Image Area, Collect Spectrum, and Report. The user profile 'mykola' is visible in the top right corner.

The main window shows a dark-field micrograph of a sample. In the bottom-left corner, an EDX spectrum is displayed with peaks labeled for Bi and Sm. The spectrum's y-axis ranges from 0 to 324, and the x-axis ranges from 0.0 to 18.0. A red circle highlights the 'Save As' button in the spectrum's toolbar.

A 'Save As' dialog box is open, showing the save location as '04092018'. The dialog contains a table with columns for Name, Date modified, and Type, and a message stating 'No items match your search.' The file name is 'HYY-156' and the save as type is 'Image Files (\*.png;\*.bmp;\*.jpg;\*.tif)'. The 'Save' button is highlighted.

At the bottom of the interface, the status bar shows: Input CPS: 445, Dead Time: 0.4, Takeoff: 34.0, Working Distance: 15.0, Magnification: 1000, kV: 20.0. The Windows taskbar at the very bottom shows the system clock at 5:17 PM.

Press on report to save a word report document

The screenshot displays the TEAM software interface. At the top, the title bar reads "TEAM: Texture & Elemental Analytical Microscopy". The main menu includes "Spectrum Only", "Point Analysis", "Mapping", "Line Scan", "Review Data", and "Report Design". A secondary menu below it contains "Image Area", "Collect Spectrum", and "Report", with the "Report" button circled in red. To the right, there is a user profile icon for "mykola" and the EDAX logo with the tagline "Smart Insight".

The central area shows a large grayscale image of a sample with diagonal lines. In the bottom-left corner, a spectrum analysis window is open, titled "New Sample | Area 302 | Selected Area 1". The spectrum plot shows intensity versus energy (keV) from 0.0 to 18.0. Several peaks are labeled with "Sm" (Samarium) and "Bi" (Bismuth). The status bar at the bottom of the spectrum window indicates: "Status: Idle", "CPS: 488", "DT: 0.6", "Lsec: 103.0", "130 Cnts", "5.750 keV", and "Det: Octane Plus".

At the bottom of the main interface, a status bar provides technical details: "Input CPS: 488", "Dead Time: 0.6", "Takeoff: 34.0", "Working Distance: 15.0", "Magnification: 1000", and "kV: 20.0". A scale bar indicates "20 um". The Windows taskbar at the very bottom shows the system clock as "5:19 PM".

# Save as word document on Desktop/taftilab/your folder

The screenshot shows a 'Report-Viewer' application window with two pages. Page 1 is titled 'EDAX TEAM' and 'New Project'. It lists the author as 'mykola', creation date as '4/9/2018', and sample name as 'New Sample'. Below this is 'Area 302' with a grayscale image of a material surface. A red box on the image is labeled 'Selected Area 1'. A 'Notes' section is present below the image. Page 2 is also titled 'EDAX TEAM' and shows 'Selected Area 1'. A 'Microsoft Word 2007 File' dialog box is open over the report, showing the 'Desktop' location. The file list includes various .docx files and folders. The 'File name' field contains 'Report.docx' and the 'Save as type' is set to 'Microsoft Word 2007 files (\*.docx)'. The 'Save' button is highlighted.

Report-Viewer

Print Open Save Close

EDAX TEAM Page 1

New Project

Author: mykola  
Creation: 4/9/2018  
Sample Name: New Sample

Area 302

Selected Area 1

Notes:

EDAX TEAM Page 2

Selected Area 1

Microsoft Word 2007 File

Desktop

Organize New folder

Name	Size	Item type	Date modified
a-z.huang - Shortcut	2 KB	Shortcut	1/10/2018 9:11 PM
BC200.docx	1,660 KB	Microsoft Word D...	5/18/2017 11:05 AM
Li2O2-2.docx	1,664 KB	Microsoft Word D...	2/23/2017 1:11 PM
Li2O2-1.docx	1,643 KB	Microsoft Word D...	2/23/2017 12:56 PM
SiFe-2.docx	1,810 KB	Microsoft Word D...	1/21/2017 12:41 PM
SiFe.docx	1,561 KB	Microsoft Word D...	1/21/2017 12:30 PM
0513-5.docx	1,664 KB	Microsoft Word D...	5/13/2016 11:18 AM
0513-4.docx	1,676 KB	Microsoft Word D...	5/13/2016 11:14 AM
0513-3.docx	1,683 KB	Microsoft Word D...	5/13/2016 11:03 AM
0513-2.docx	1,593 KB	Microsoft Word D...	5/13/2016 11:01 AM
0513-1.docx	1,701 KB	Microsoft Word D...	5/13/2016 10:33 AM
Cu.docx	1,568 KB	Microsoft Word D...	7/27/2015 5:19 PM
MengdiEDX		File folder	3/31/2018 12:20 PM
Xiaolin		File folder	3/29/2018 4:27 PM
Tafti Lab		File folder	3/27/2018 3:48 PM
Bryan		File folder	11/22/2017 11:18 ...
MMNE_2		File folder	11/1/2017 10:58 AM
Jingru		File folder	10/20/2017 3:50 PM
Yumin		File folder	8/1/2017 5:43 PM
jeol		File folder	5/11/2017 1:59 PM

File name: Report.docx  
Save as type: Microsoft Word 2007 files (\*.docx)

Hide Folders Save Cancel

Page 1 of 2

Address 100% 5:18 PM

# Select mapping for color maps

The screenshot displays the TEAM software interface for Texture & Elemental Analytical Microscopy. The top navigation bar includes tabs for Spectrum Only, Point Analysis, Mapping (highlighted with a red circle), Line Scan, Review Data, and Report Design. Below this are buttons for Image Area, Collect Spectrum, and Report. The user profile 'mykola' and the EDAX logo are visible in the top right.

The main window shows a grayscale image of a sample with diagonal streaks. A green box highlights a region of interest. An inset window titled 'New Sample | Area 302 | Selected Area 1' displays an energy-dispersive X-ray (EDS) spectrum. The x-axis represents energy in keV (0.0 to 18.0), and the y-axis represents counts (0 to 324). The spectrum shows several peaks labeled with 'Sm' (Samarium) and 'Bi' (Bismuth). The status bar at the bottom of the inset window provides technical details: Status: Idle, CPS: 463, DT: 0.4, Lsec: 103.0, 130 Cnts, 5.750 keV, Det: Octane Plus.

At the bottom of the main interface, a scale bar indicates 20 μm. The Windows taskbar at the very bottom shows the system time as 5:20 PM.

Select a 20x20 nor 30x30 um area for color maps. Dimensions of the selected area appear in green.

The screenshot displays the TEAM software interface for Texture & Elemental Analytical Microscopy. The main window shows a grayscale image of a surface with diagonal features. A green rectangular box highlights a selected data region. The dimensions of this region are shown in green text: 21.21 μm horizontally and 20.28 μm vertically. A scale bar at the bottom left indicates 20 μm. The software's top menu includes options like Spectrum Only, Point Analysis, Mapping, Line Scan, Review Data, and Report Design. The bottom status bar provides technical parameters: Input CPS: 449, Dead Time: 0.0, Takeoff: 34.0, Working Distance: 15.0, Magnification: 1000, and kV: 20.0. The user's name 'mykola' is visible in the top right corner.

Before collecting a map, select Data Type to be **Elements to Phase**

The screenshot displays the TEAM software interface for Texture & Elemental Analytical Microscopy. The main window shows a grayscale SEM image of a material surface. A dropdown menu is open over the 'Data Type' field, with 'Element To Phase' selected. The interface includes a top navigation bar with tabs for 'Spectrum Only', 'Point Analysis', 'Mapping', 'Line Scan', 'Review Data', and 'Report Design'. Below this is a control bar with 'Image Area', 'Collect Map', and 'Report' buttons. The 'Data Type' dropdown is currently set to 'Phase To Element', and the 'Element To Phase' option is highlighted in the dropdown list. Other options in the dropdown include 'Counts Per Second', 'CPS Deviation', and 'Field Of View'. The right sidebar contains a 'Phase Mapping' section with options for 'Use Selected Phases', 'Phase Library List', and 'Currently Sel. Phases'. The bottom status bar shows technical parameters: Input CPS: 1221, Dead Time: 0.2, Takeoff: 34.0, Working Distance: 15.0, Magnification: 1000, kV: 20.0. The Windows taskbar at the bottom shows the system clock at 1:50 PM.

Check the confirm element box immediately, otherwise you cannot adjust the elements in the next step.

The screenshot shows the TEAM software interface. At the top, the title bar reads "TEAM: Texture & Elemental Analytical Microscopy". The main menu includes "Spectrum Only", "Point Analysis", "Mapping" (highlighted), "Line Scan", "Review Data", and "Report Design". Below the menu is a toolbar with "Image Area", "Collect Map" (highlighted with a red box), and "Report". On the right, there is a user profile for "mykola" and the EDAX logo with the tagline "Smart Insight".

The central area displays a scanning image with a "Map Starting" dialog box overlaid. The dialog box contains the following text:

**Map Starting**

Mapping duration approximately 39 Hrs 57 Mins / 9566 Frames, but you can stop the data collection at any time.

Surveying collection region before commencing. This will take no longer than 30 seconds. Click Collect Map button to abort collection.

Elements found so far: TcL, PoM, Sml

Confirm elements after preview

At the bottom of the image, there is a scale bar labeled "20 um" and a status bar with the following information: "Input CPS: 434", "Dead Time: 0.2", "Takeoff: 34.0", "Working Distance: 15.0", "Magnification: 1000", "kV: 20.0". The Windows taskbar at the very bottom shows the system tray with the time "5:23 PM".

Now you can adjust the elements for the color maps. Use ZAF to select the collect lines (the ones with higher intensity)

TEAM: Texture & Elemental Analytical Microscopy

TEAM

Spectrum Only | Point Analysis | Mapping | Line Scan | Review Data | Report Design

Image Area | Collect Map | Report

mykola

EDAX  
MultiElement  
Smart Insight

Switch User | Help | About

Status: Idle    CPS: 439    DT: 1.4    Lsec: 29.5    36 Cnts    5.730 keV    Det: Octane Plus

Data Region 21.21  $\mu$ m

Possible EDS Elements

H																				He						
Li	Be																				B	C	N	O	F	Ne
Na	Mg																				Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr									
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe									
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn									
Fr	Ra	Ac																								

Auto ID | Possible | Required | Forbidden

Add All | Clear All

OK | Cancel

ZAF Peak Selection

20  $\mu$ m

Input CPS: 441    Dead Time: 1.1    Takeoff: 34.0    Working Distance: 15.0    Magnification: 1000    kV: 20.0

Address

5:23 PM



By clicking on the right menu, you can choose to view single elements, overlay if element, or the image.

The screenshot displays the TEAM software interface for Texture & Elemental Analytical Microscopy. The top navigation bar includes tabs for Spectrum Only, Point Analysis, Mapping, Line Scan, Review Data, and Report Design. A status bar shows 'Collecting 29/3244' and a 'Report' button. The user profile 'bahramif' is visible in the top right.

The central area features a large SEM image of a textured surface with a 20 μm scale bar. To the left, three circular charts provide analysis data:

- Progress Chart:** A gauge showing total progress, with a red needle pointing to approximately 10%.
- Phases Chart:** A pie chart showing elemental composition with segments for SeK, SrL, and BiM.
- Elements Chart:** A circular gauge showing selected analysis options: E2P, CPS, CPSσ, P2E, RGB, NET, OVLY, SEM, and Time: 10:44:45, 11.9 FT.

On the right side, a vertical menu allows users to toggle different views:

- Overlay
- CPS Map
- Overlay on Image
- Field of View

Buttons for 'Clear All', 'Show All', and 'Hide' are located below the menu. The bottom status bar displays technical parameters: Input CPS: 1217, Dead Time: 0.2, Takeoff: 34.0, Working Distance: 15.0, Magnification: 1000, kv: 20.0, Queue: 1, CPS Drift: Frame -0.6% / Total 0.0%, Time Remaining: 10:44:45.

By pressing on the image it will save it to the destination folder. See page 5 on how to select the destination folder.

TEAM : Texture & Elemental Analytical Microscopy

Spectrum Only | Point Analysis | Mapping | Line Scan | Review Data | Report Design

Image Area | Collecting 6/3598 | Report

Switch User | EDAX | Help | About

bahramif

Project Content

Phases

Elements

Time : 12:00:22  
12.0 FT

20 um

Input CPS: 1208 | Dead Time: 0.1 | Takeoff: 34.0 | Working Distance: 15.0 | Magnification: 1000 | kV: 20.0 | Queue: 1 | CPS Drift: Frame -1.1% / Total -0.8% | Time Remaining: 12:00:22

Address | 2:12 PM

Press on **collecting** to end it. With good CPS (>500), you will need 30 to 50 frames. Use a high current (9) if your sample is metallic or if it is coated to increase CPS.

TEAM : Texture & Elemental Analytical Microscopy

Spectrum Only | Point Analysis | Mapping | Line Scan | Review Data | Report Design

Image Area | Collecting 27/3598 | Report

Switch User | EDAX | Help | About

bahramif

Project Content

Phases

SeK | SrL | BiM

Elements

E2P | CPS | CPS $\sigma$  | PZE | RGB | NET | OVLY | SEM

Time : 11:56:14  
11.9 FT

20  $\mu$ m

Overlay

CPS Map

Overlay on Image

Field of View

Clear All | Show All | Hide

Input CPS: 1270 | Dead Time: 0.0 | Takeoff: 34.0 | Working Distance: 15.0 | Magnification: 1000 | kv: 20.0 | Queue: 1 | CPS Drift: Frame -1.8% / Total 0.8% | Time Remaining : 11:56:13

Address | 2:16 PM

Make sure to log out in the end. Select your name and terminate your session, and eventually log out. Double check your name to make sure your name appears on a gray background. If your name is highlighted in green, it means you are still logged on and keeping the system busy.

Write in the log book your name, start, and end time. Add comments if necessary.