



**Superior**  
**&** **Exciting Service**  
**Challenge!**

## ALPHA

*Tabletop Scanning Electron Microscope  
SEC Corporate Headquarters*

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# ALPHA

Tabletop  
Scanning Electron  
Microscope





## User Friendly Interface and Smart Tabletop SEM

Brand-new for 2023, the SNE-Alpha improves upon our existing lineup of tabletop SEMs by bringing optimized user convenience and improved, ultra-clear resolution.

- Software updates to five convenient automatic features make it easier to conduct analysis.
- New features, such as particle size analysis and 3D rendering expand the range of potential user applications.
- Faster vacuum speeds enable users to conduct rapid sample analysis and provide the very best performance at any given time.
- With a 40% dimension reduction in physical size, the SNE Alpha is our most convenient tabletop SEM for users with limited working space.



## 5nm Resolution 250,000x Magnification

### Best-in-class stage navigation functionality

- High-precision navigation movement with an error rate of less than 5  $\mu\text{m}$
- Standard, one-of-a-kind 5-axis motor stage

### Faster sample preparation time

- Vacuum 90 sec, Venting 15 sec
- 50% reduction in vacuum time

### A compact design with more powerful performance

- 300(W) x 465(D) x 600(H)
- 40% smaller than previous models

### A new third generation of software

- A new user interface with focus on user ease and convenience
- An enhanced automatic shooting mode
- A wider range of scalability
- Ability to scan larger areas
- Accurate 3D rendering
- \*Particle analysis

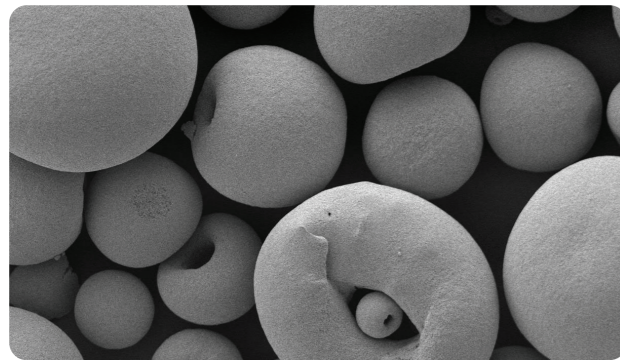




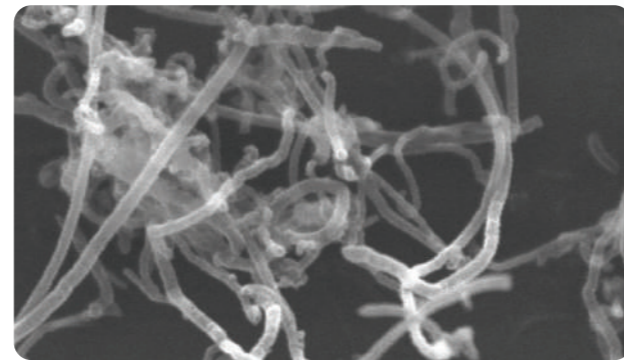
# High Performance Hardware

## Five nanometer resolution

- Experience 5 nm resolution: 250,000 times magnification higher than current best-in-class tabletop SEM
- Precise control of lens allows for optimal image capture without damaging samples



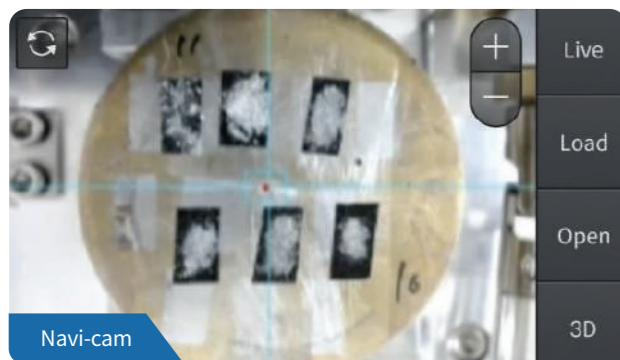
Polymer powders / 20,000x / 15kV



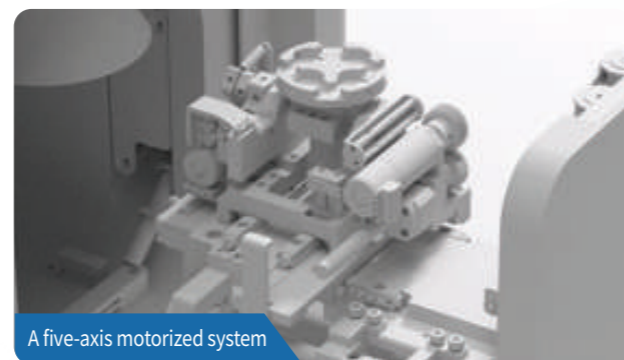
CNT / 150,000x / 30kV

## Five-axis motorized system

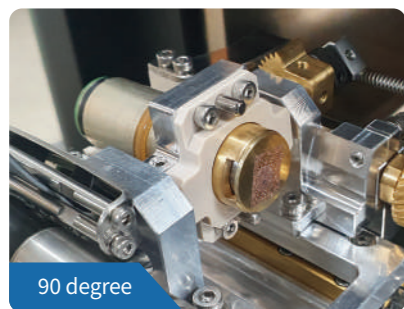
Faster and more accurate sample positioning is easier than ever thanks to the five-axis motorized system with approximately 5 um precision.



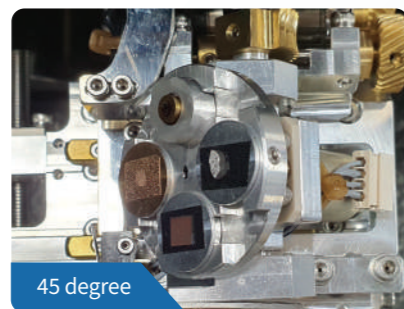
Navi-cam



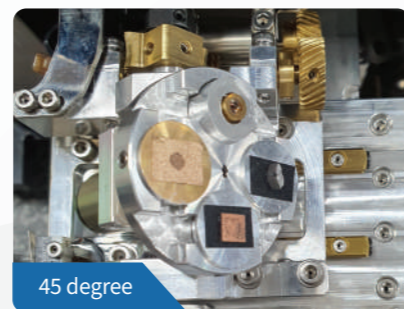
A five-axis motorized system



90 degree

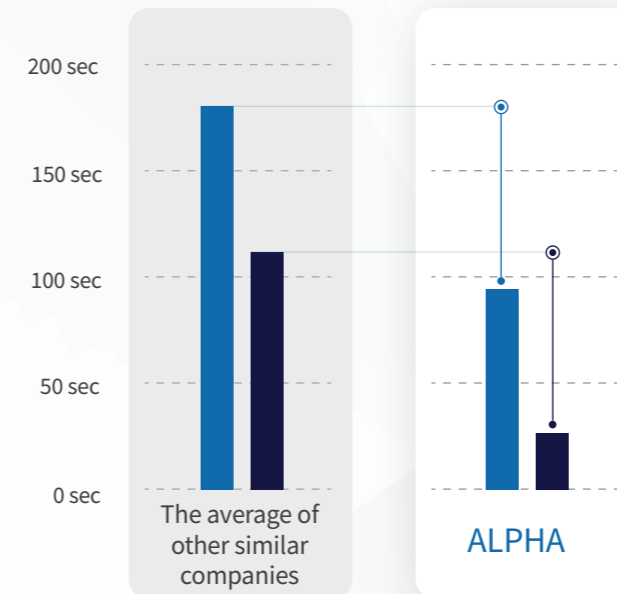


45 degree



45 degree

## Save Time Preparing Samples



- Save Time
- Save Energy
- Accomplish More

The average of other similar companies

- Vacuum release : 180 sec ↑
- Vent : 120 sec ↑

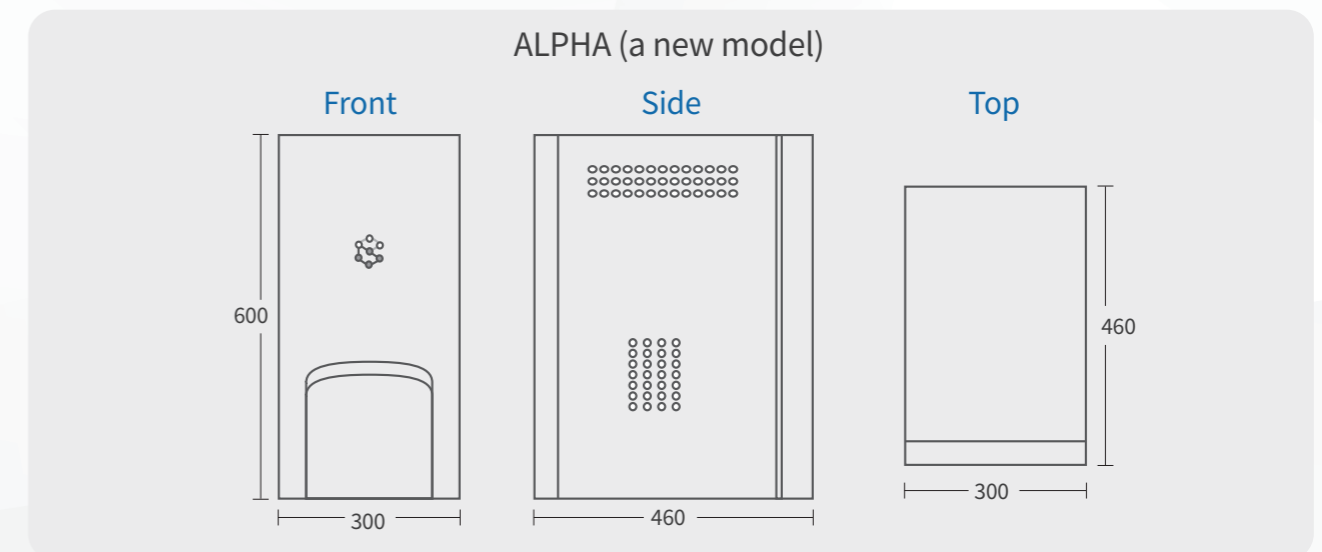
**ALPHA**

- Vacuum release : 90sec ↓
- Vent : 15sec ↓

## Compact Design

Uses less installation space thanks to its compact, well-laid-out design

- 40% dimension reduction compared to previous models
- With its more space-efficient configuration, the SNE Alpha can be installed in the smallest of laboratories with ease.
- 300(W) x 465(D) x 600(H)



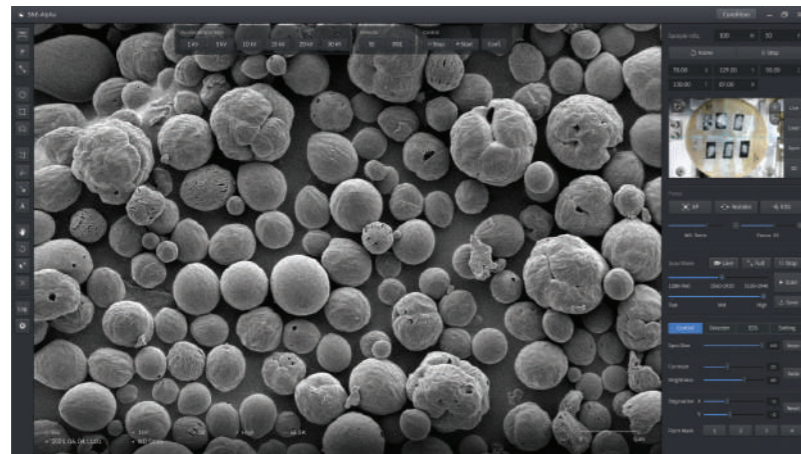


## Intelligent Software

### A new, third generation Nano-Eye

#### A dramatically enhanced interface

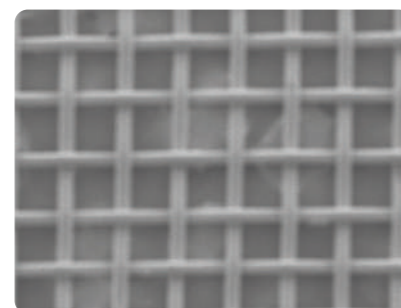
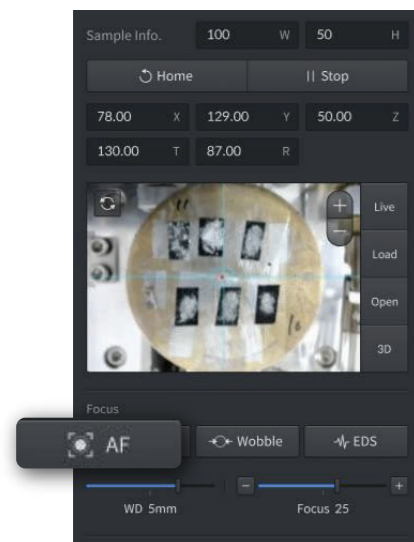
- Capture images with ease with a new and improved UI.
- With optimal adjustability, results can be viewed 60% faster than previous software.



· A larger screen and a more user-friendly interface

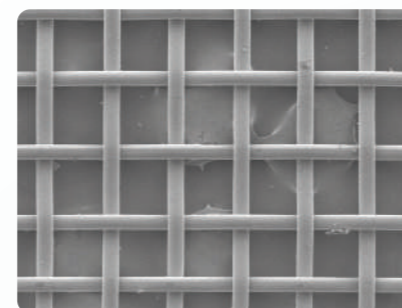
### Upgraded automatic functions

- The newly added Auto-Gun-Align allows users to capture images with ease.
- The enhanced Auto Focus enables users to pinpoint and capture desired images.



**No autofocus**

· Info : Mash / Mag. 2,000x / 20kV / SE

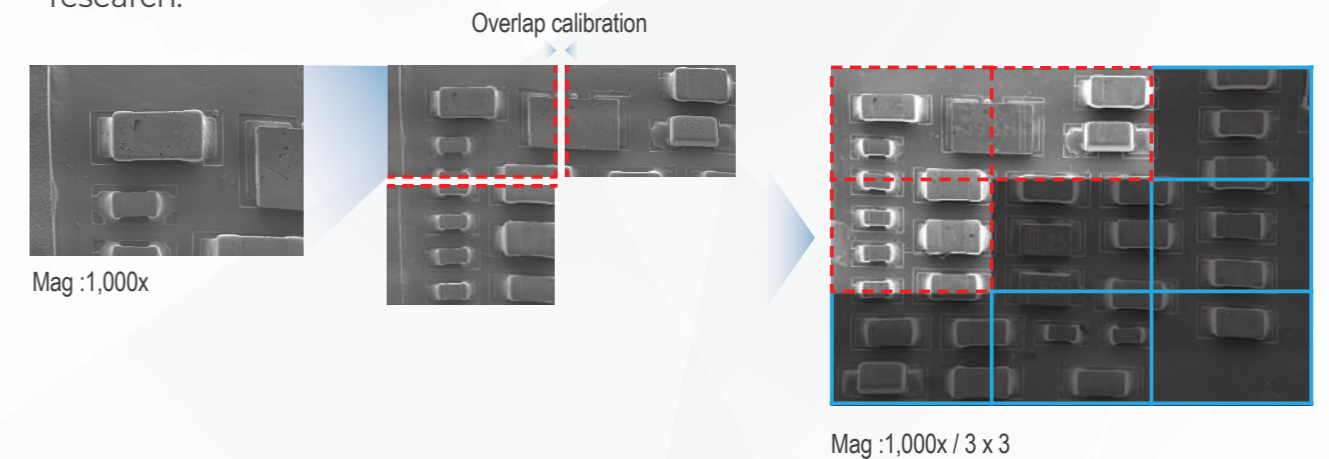


**With autofocus**

### Image Stitching

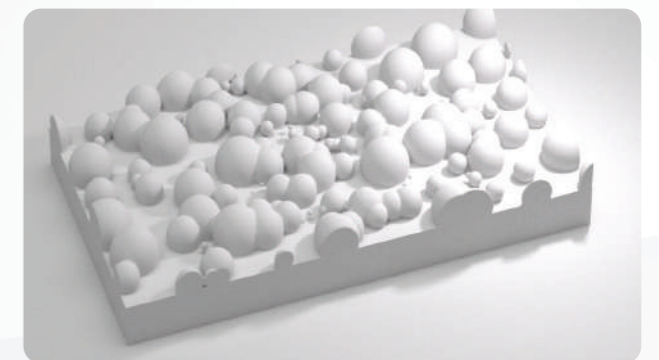
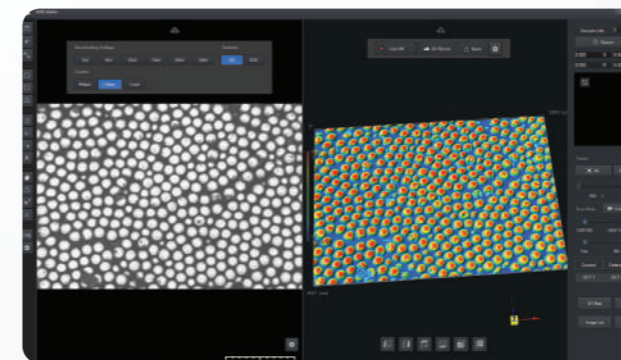
#### Capture a wider range of images

- Large area scans are required for turning large samples into images and analyzing them.
- Allows a larger area of the sample to be selected that could not previously be captured in a single SEM image.
- The function of large area scans enables both automatic image capture from multiple locations within specified areas and the analysis of wide areas and high resolution research.



### 3D rendering

- Inspect and analyze surface roughness of samples with ease and comfort with our newly equipped 3D rendering functions.
- Option : BSE





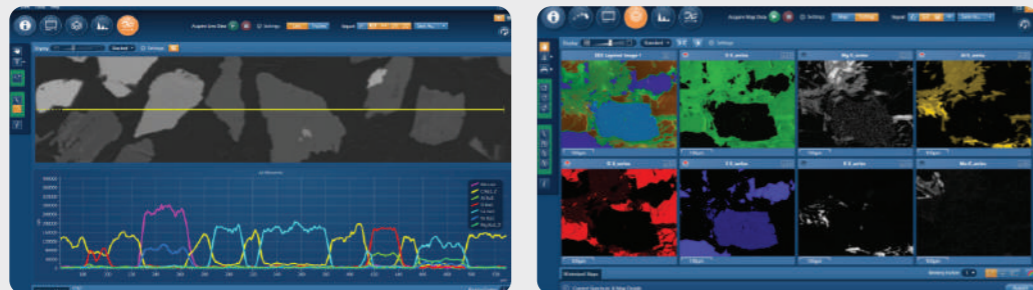
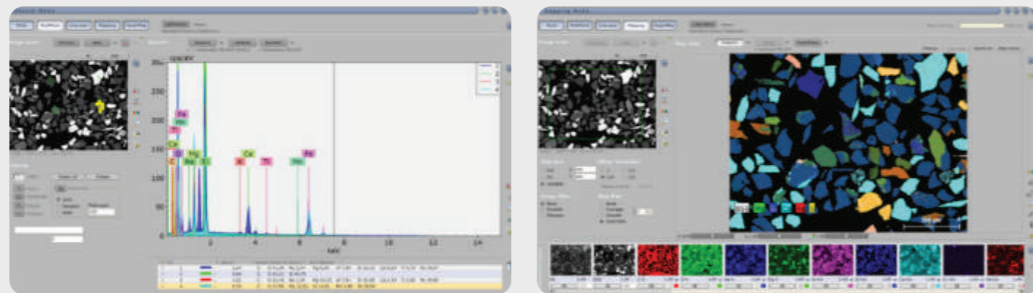
## Options

### EDS

An EDS (Energy Dispersive X-ray Spectrometer) device is mounted to an SEM to analyze the components of sample surface. It allows for qualitative/quantitative analysis by detecting characteristic X-rays generated when the electrons radiated from an electron microscope collide with samples. The compact EDS option, built in a space-efficient design, tailored for the SNE Alpha, features the same performance and analysis programs as a standard EDS.

#### Features :

- Uses SDD-type detectors
- Superior energy resolution enables analysis on light elements
- Produces reliable results on wt%, at% quantitative analysis
- Equipped with a fast, easy-to-control, convenient UI
- Main functions : qualitative/quantitative analysis, mapping line scans, report, etc.

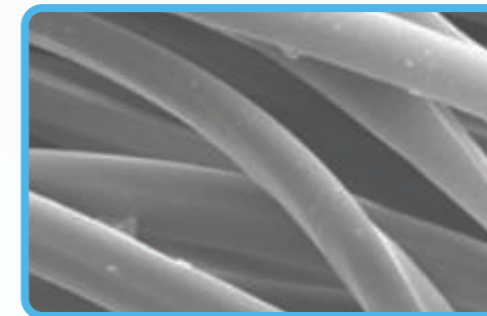


### Ion Sputter Coater

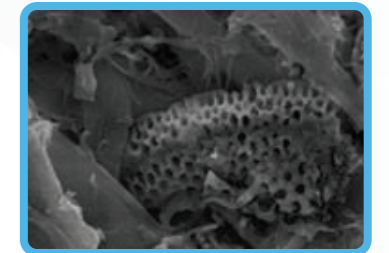
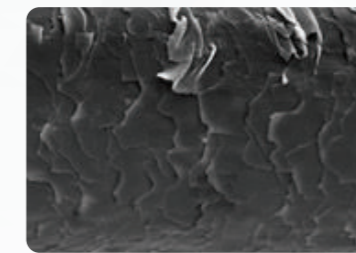


- An ion sputter coater is a pre-treatment, sample preparation device that applies a thin metal (Au/Pt) film to make a sample conductive. Increased conductivity allows users to obtain clearer images by increasing the amount of secondary scanning identified on the surface of the sample. An ion sputter coater is needed in order to examine non-conductive samples.
- Coating Target Au (gold) or Pt (platinum)

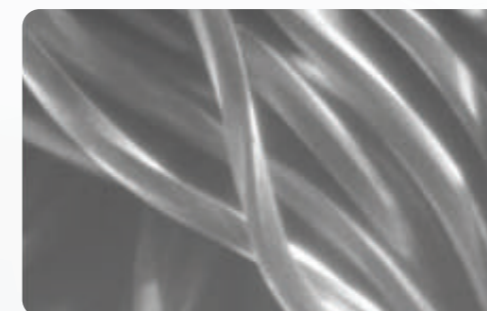
### Au Coating



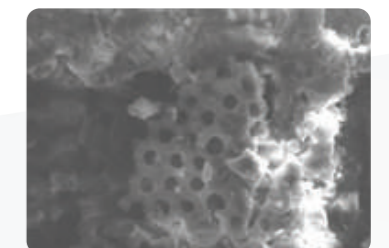
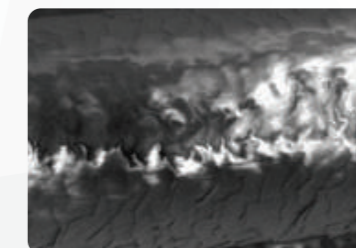
- Image comparison before and after coating samples



### Non Coating



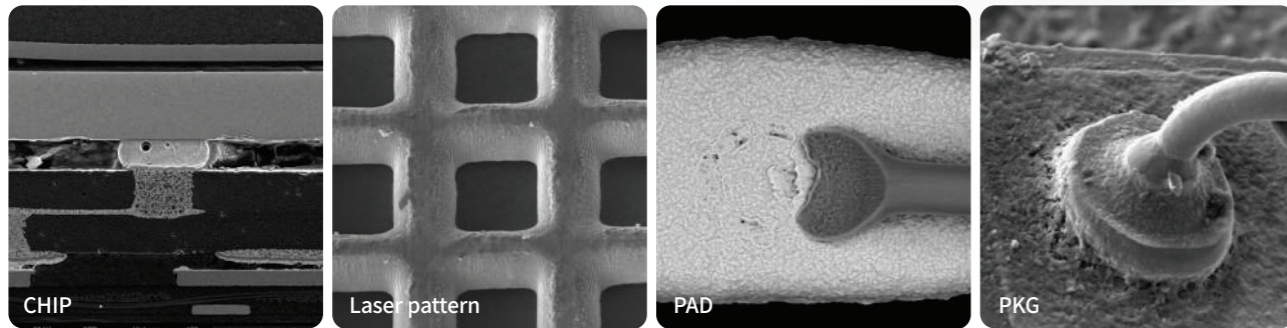
- Occurrence of beam charge-up (damage)



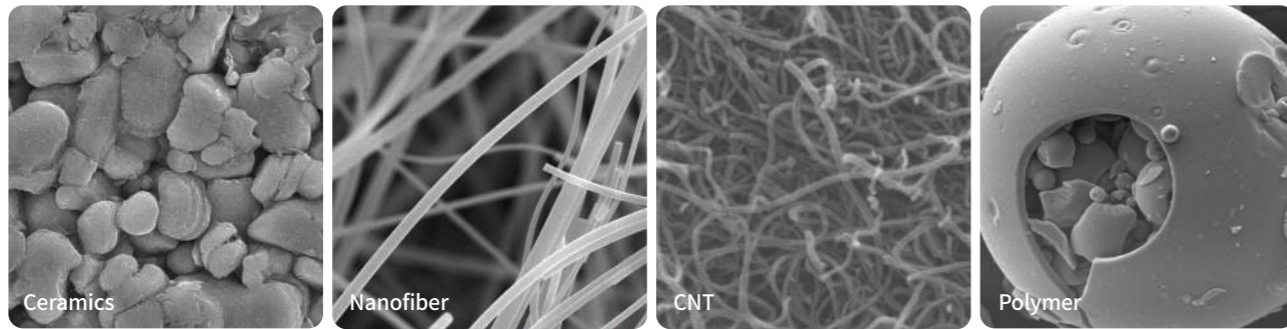


# SEM Application & Images

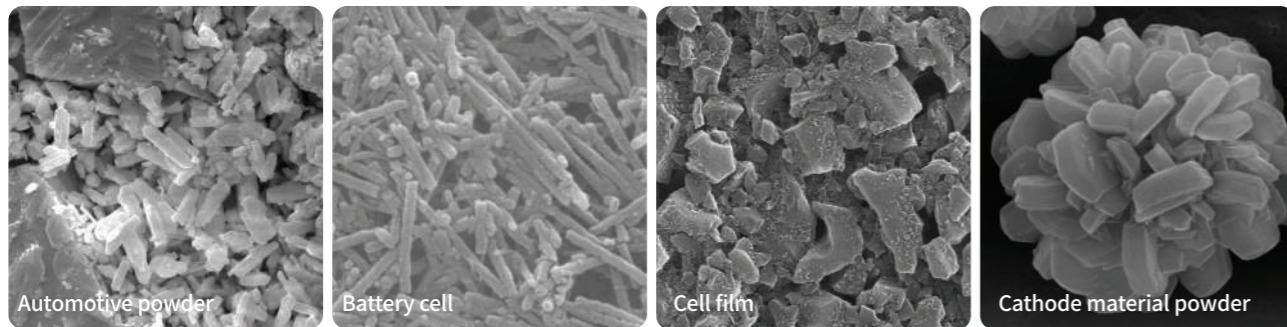
## Semiconductor & Electronics



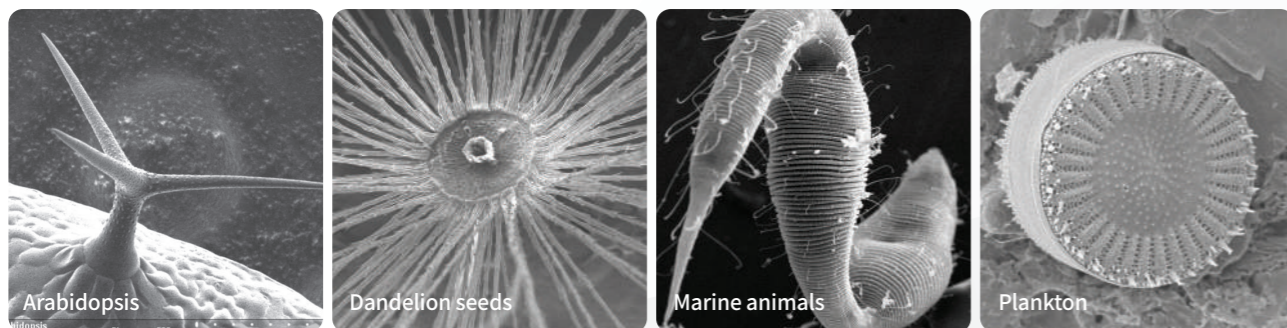
## Chemistry & Materials



## Cell

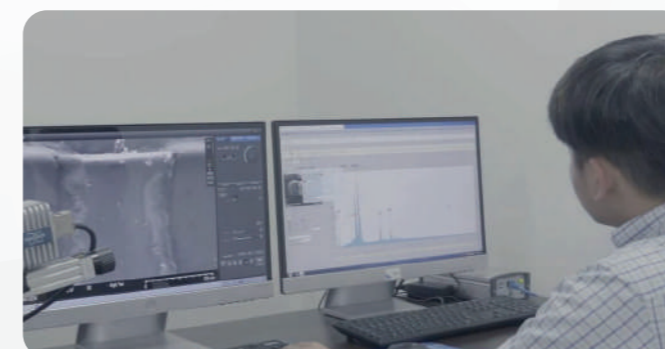


## BIO



# Specifications

SEM Specifications			
Magnifications	x30 ~ 250,000	Accelerating voltage	1 / 5 / 10 / 15 / 20 / 30 kV (6 step)
Resolution	5nm (30kV, SE)	Detector	Standard : Secondary Electron (SEI) Optional : Back scattered Electron (BSE)
Stage			
Stage system	Standard : X, Y, R, T, Z Fully Motorized system		
Stage traverse	X, Y : 40mm / R : 360° , Z : 0~40mm / T : -45~90°		
Maximum sample size	up to 80mm (Diameter) up to 40mm (Height)	Electron source	Pre-centered Tungsten filament cartridge
Display			
Frame memory	Live mode : 320*240 / 640*480 Photo Mode : 1280*960, 2560*1920, 5120*3840	Image format	BMP, JPEG, PNG, TIFF
vacuum system			
Vacuum mode	High / Low (BSE mode)	Vacuum pump	Rotary Pump + Turbo molecular pump
System specifications		Size/weight	
Item	Description	Item	Description
PC	Desktop PC Window 10	Main unit (motorized stage)	300(W)×460(D)×600(H)mm (78kg)
Monitor	24 inch	Controller Unit	256(W)×220(D)×90(H)mm (4kg)
		Rotary Pump	400(W)×160(D)×340(H)mm (24kg)
Optional accessories			
Back scattered Electron Detector (BSE)		EDS System	
Ion sputter coater		Particle analysis software (EDS Option)	
Installation conditions			
Item	Description		
Room temperature	15°C~30°C		
Humidity	70% or less		
Power supply(main unit)	Single phase 200~240V AC, 1KW, 50/60Hz		



Demo center  
in operation



Sample analysis requests can be made by filling in the application form for capturing images of samples subsequent to the scan of this QR code.