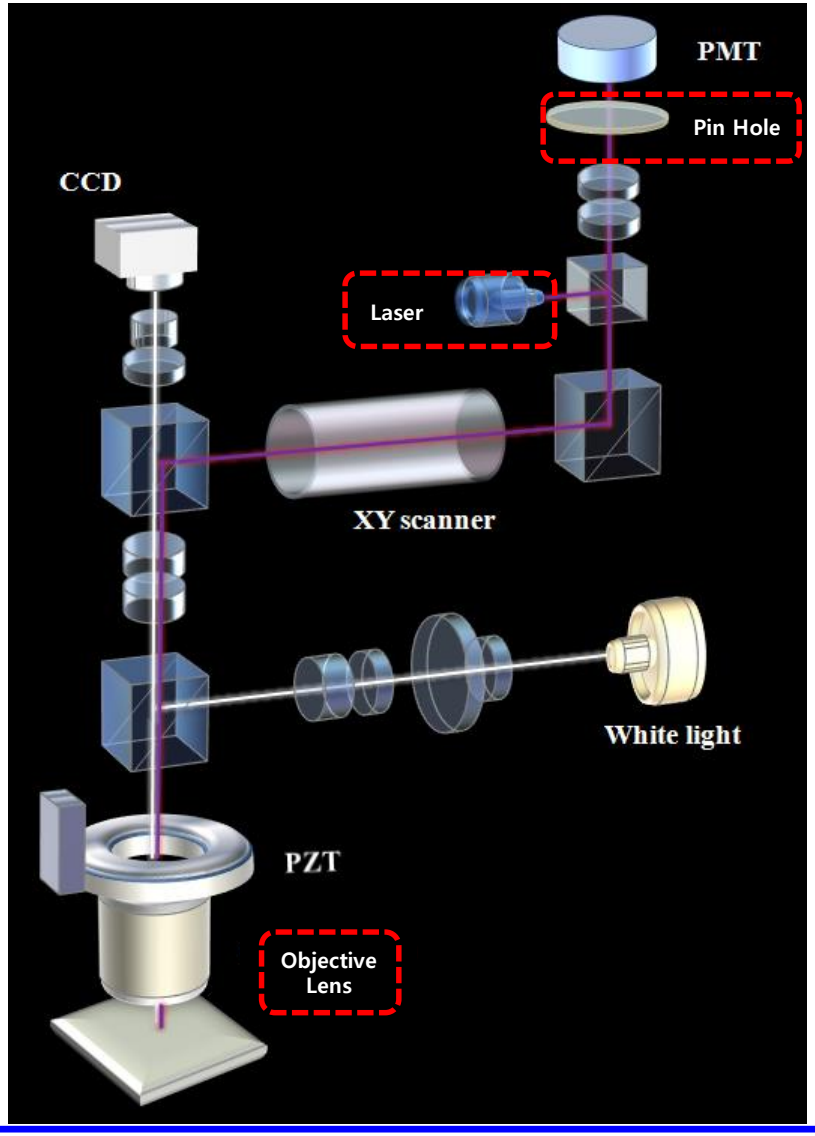
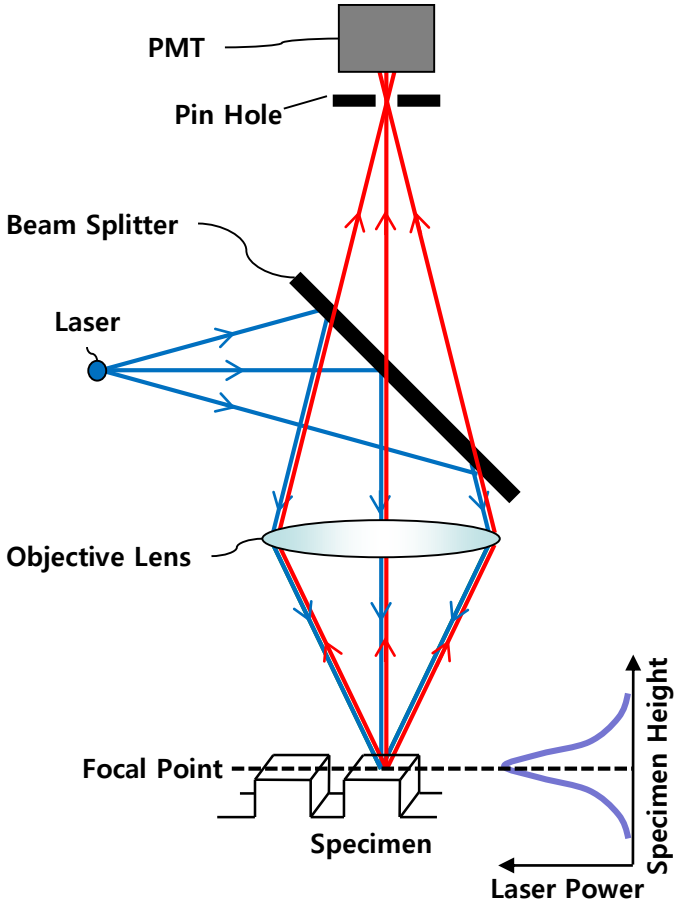
나노스코프시스템즈
Nanoscope Systems

PSS inspection by NS-3000

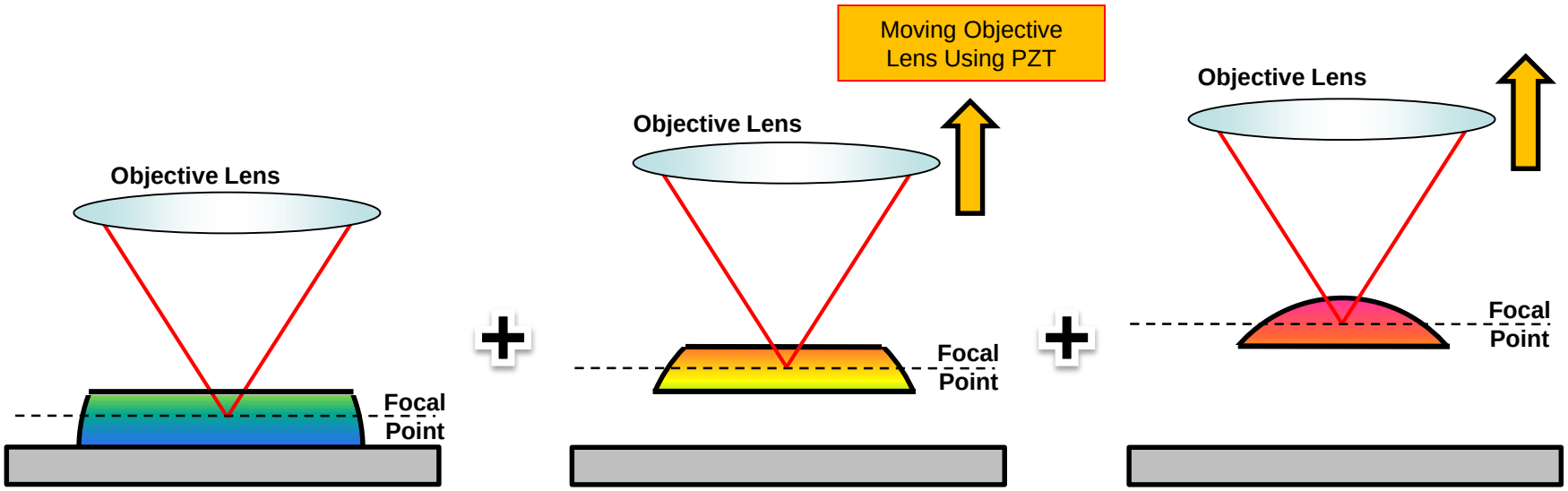
Configuration of Confocal Microscope

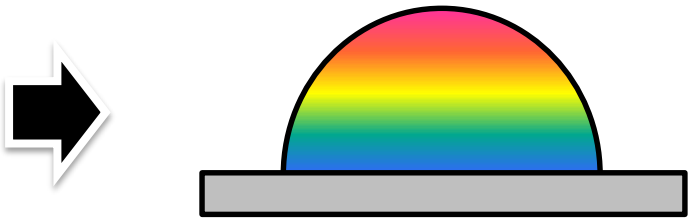




Laser power is being maximum when the specimen is at the focal point

Principle of 3D Measurement





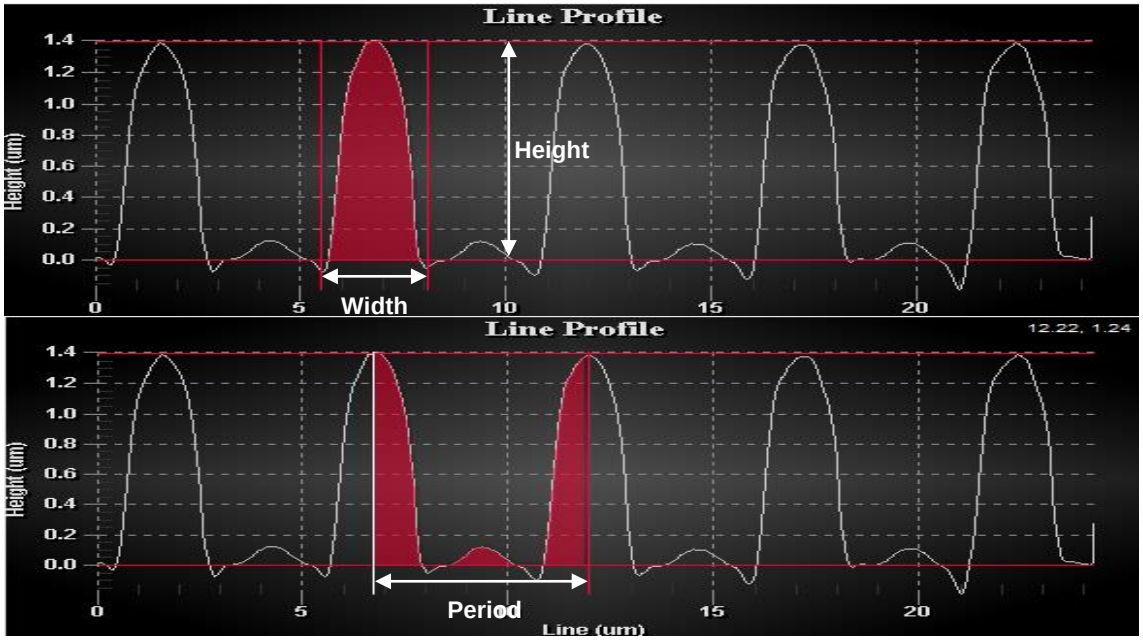
Result of 3D Measurement

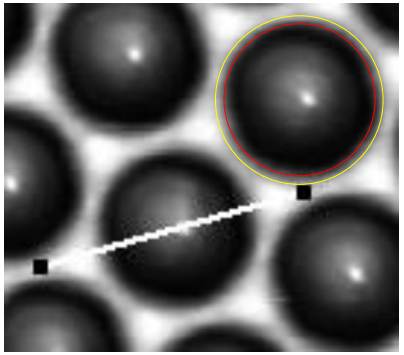
Making 3D Shape of specimen as collecting focal points by moving Objective Lens

Needs of Auto Analysis Program

◆Traditional Measuring of Bumps

❖Using Cursor, Measuring its Height, Width, Period



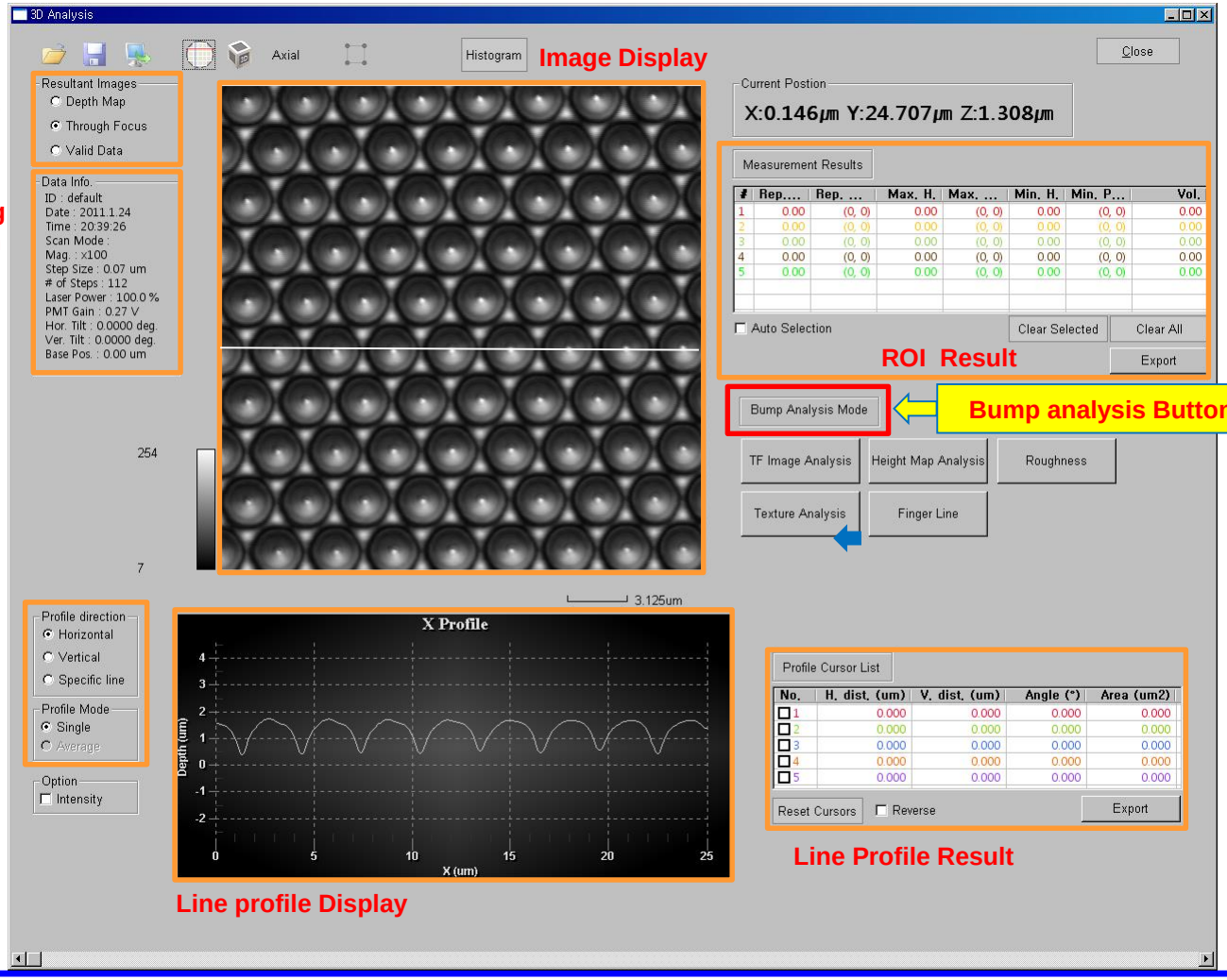


- It takes long time
- Result may be Different
- Can not Trust the result exactly

Automatic Measuring can make short-time inspection and exact result.

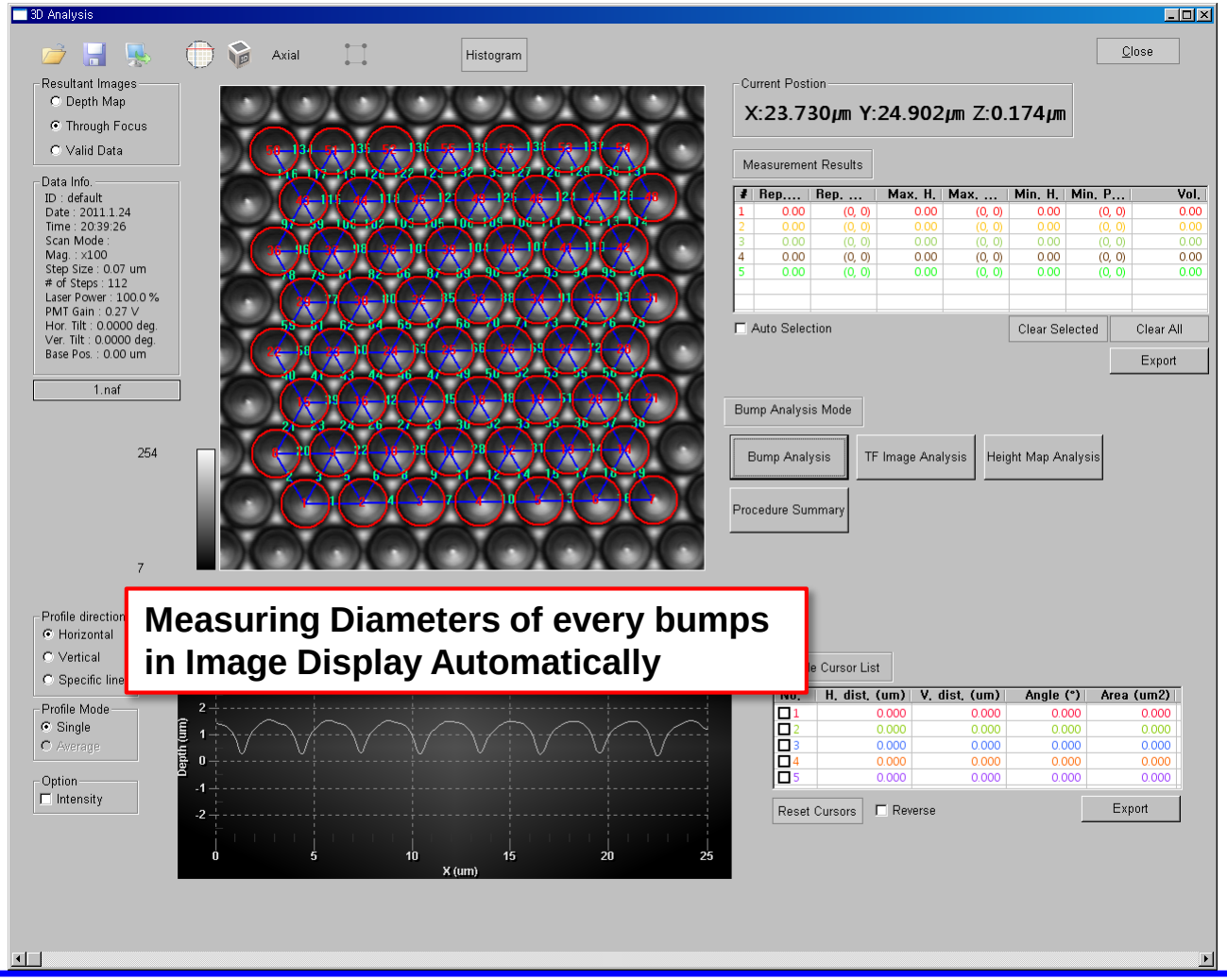
Auto Analysis of Sapphire Wafer Bump

◆Analysis Window of NSView Pro



Auto Analysis of Sapphire Wafer Bump

◆ Bump Width

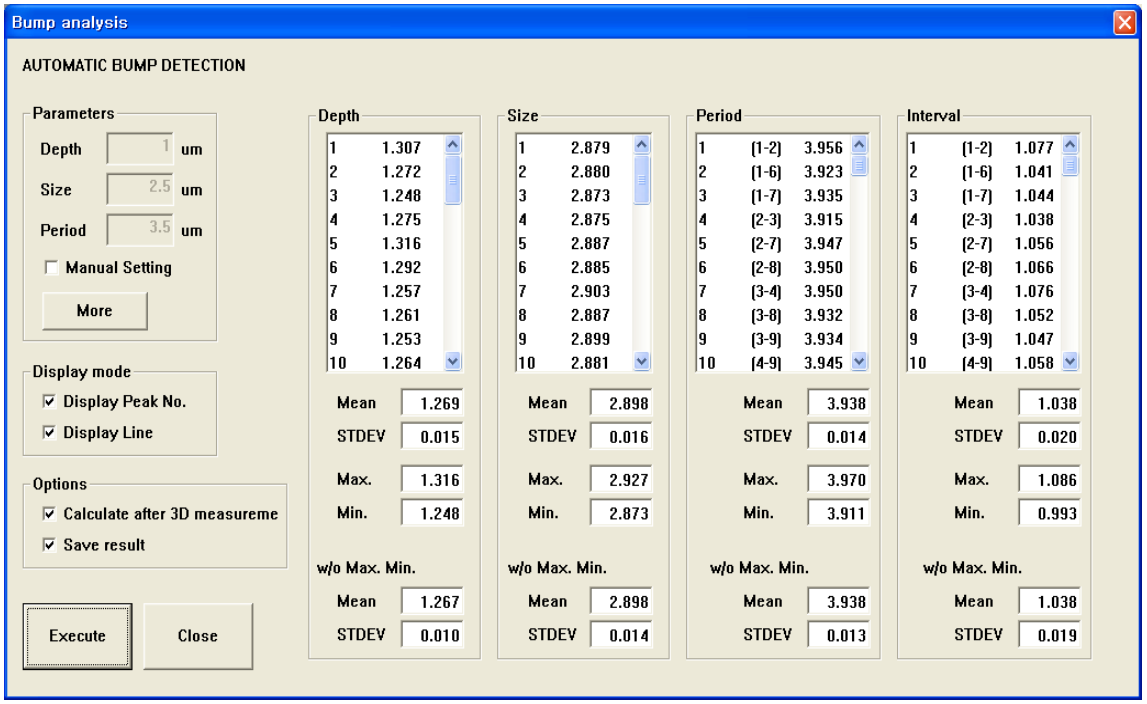


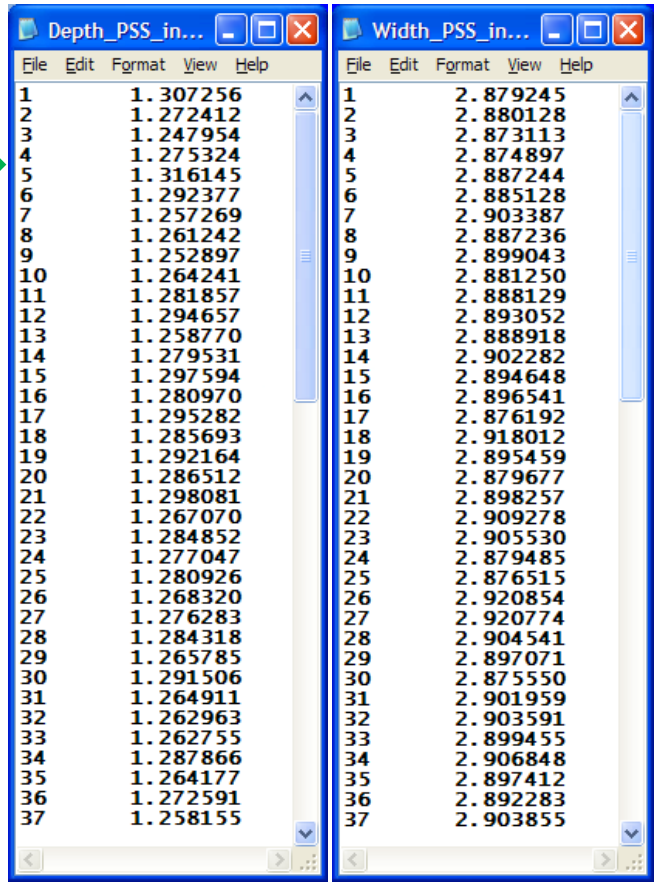
Auto Analysis of Sapphire Wafer Bump

◆ Display Result

❖ Result shows in the Bump analysis window

❖ Auto Save as a Text file

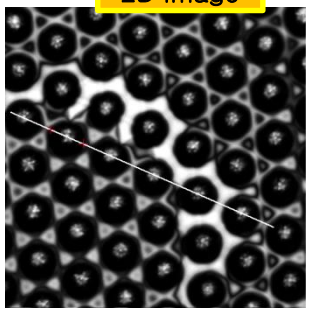




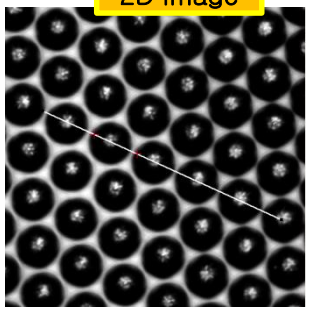
Numbering Every Bumps in FOV, Showing not only Height, Width and Period, but also Mean, Standard Deviation

Example of PSS Measurement

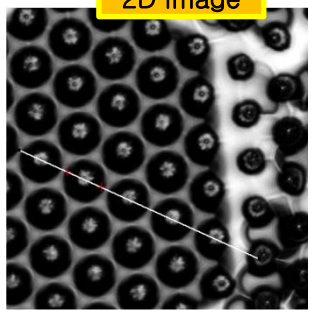
2D Image



2D Image

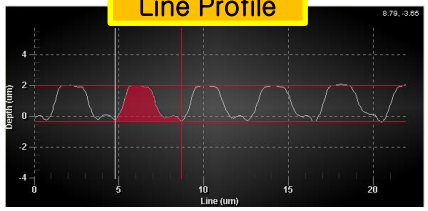


2D Image

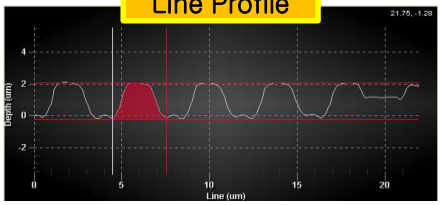


Line Profile

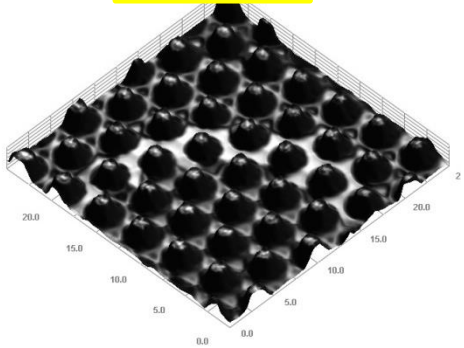
Line Profile



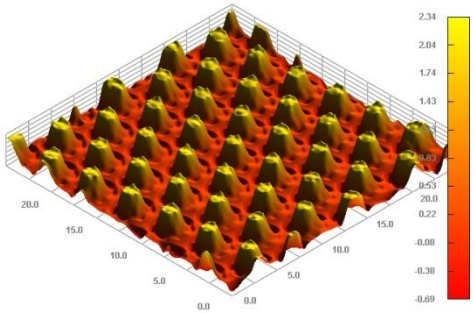
Line Profile



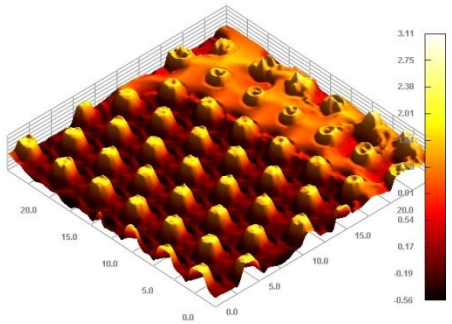
3D Image



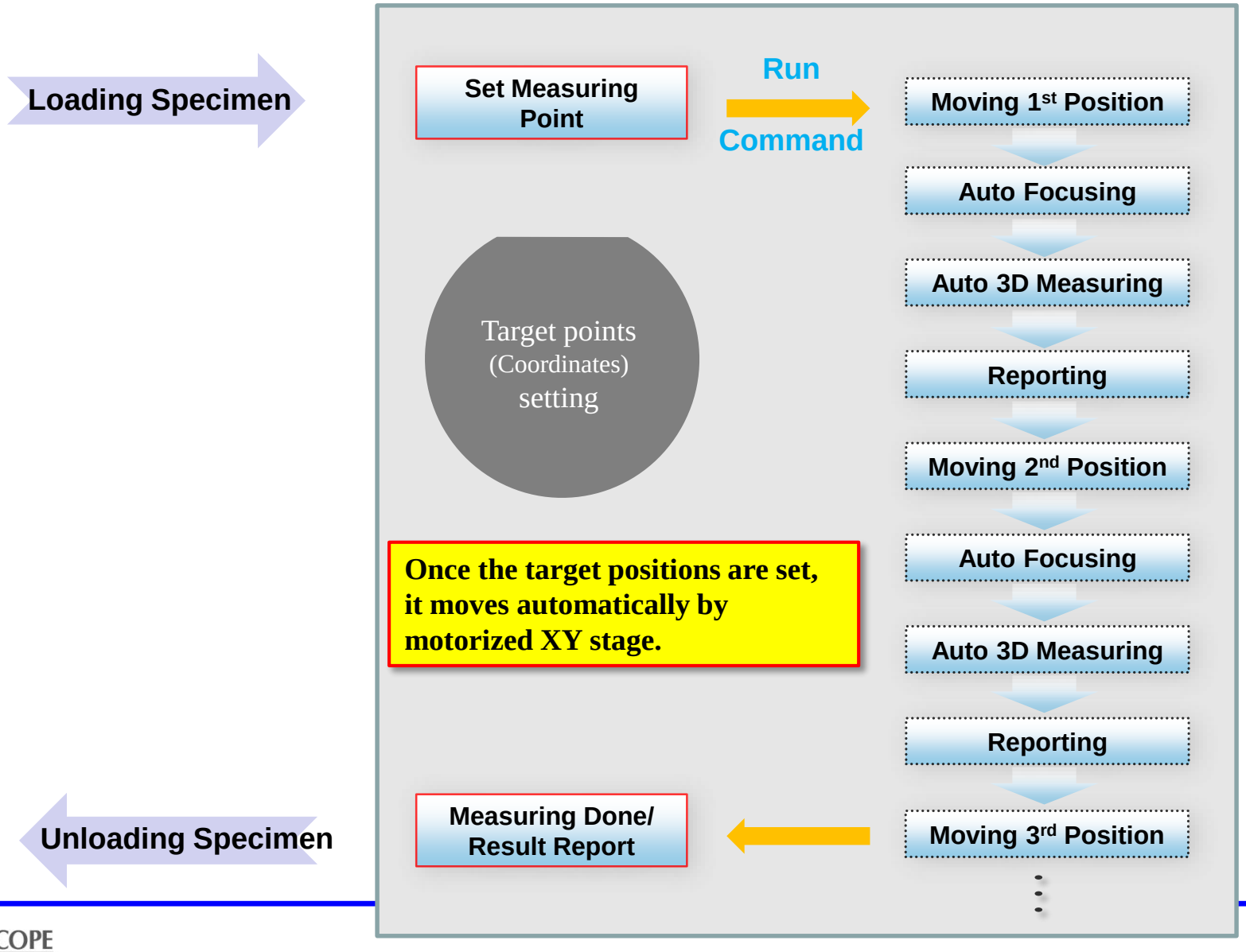
3D Image



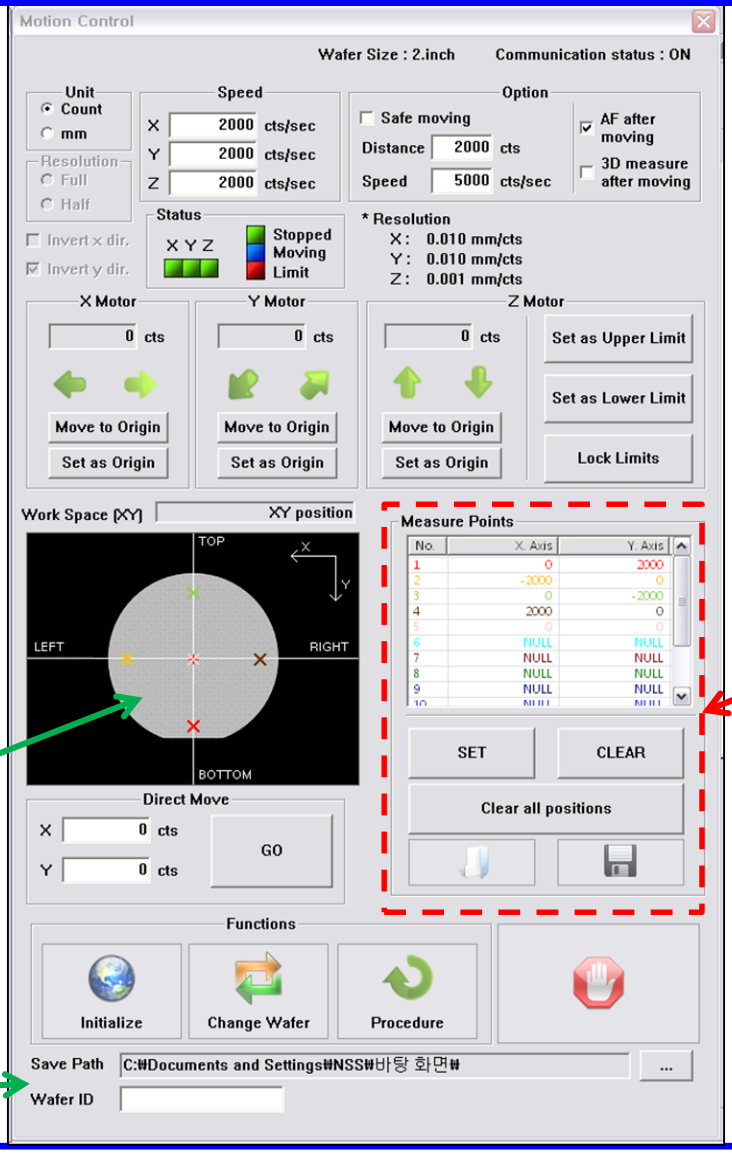
3D Image



Flow Chart of Auto Measurement



Measuring Point Setting S/W



Double Click the position where user wants in the program, Stage will move the point automatically.

User can set the positions in advance

Measurement results is saved in the file named here

Tact Time

5 Point Inspect Time : 50 Sec

Title	Tact time		
1 Point Measurement Time	4 sec	× 5 Points	20 sec
Stage Moving to Point to Point	4 sec	× 5 times	20 sec
Wafer L/Unloading	10 sec		10 sec
Tact Time / 1 Wafer			50 sec

- Data analysis and Transfer in Wafer unloading Process

Specification

Title		Specification
Tact Time		50sec/5 point (4sec/1 point)
Measuring Method		Confocal Method
Repeatability		20 nm (3σ,100X Objective Lens)
Lens Spec. **(100X Objective Lens)**	Mag.	Max 5,600 Times (24"Monitor, 5x optical zoom)
	Optical Zoom	1X ~ 5X
	F.O.V.	125 μm X 125 μm
	W.D.	0.3 mm
Head Unit	Confocal Scan Speed	30 frames/sec (512x512pixels)
	Vertical Scan Range	250 μm
	Vertical Resolution	10 nm
	Scan Actuator	PZT (piezo electric actuator)
	Feed Back	Capacitive sensor feedback control
	Illumination	Laser (wavelength 405 nm)
	Controller	Maker : PI piezo controller
X, Y, Z Stage	Velocity	10 mm/s
	Resolution	(X,Y) 0.1 μm / (Z) 0.5 μm
	Repeatability	(X,Y) ±0.1 μm / (Z) ±0.3 μm
	Driving Actuator	5 phase stepping motor
	Guide	Cross-roller guide
	Controller	Nanoscope MC stepping motor

System Dimension