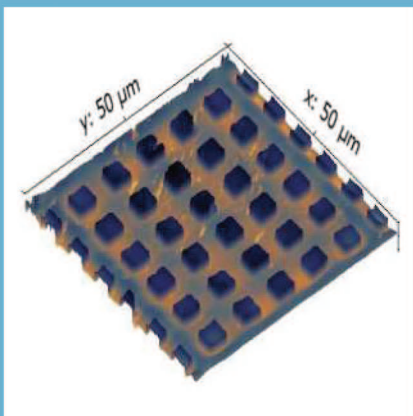
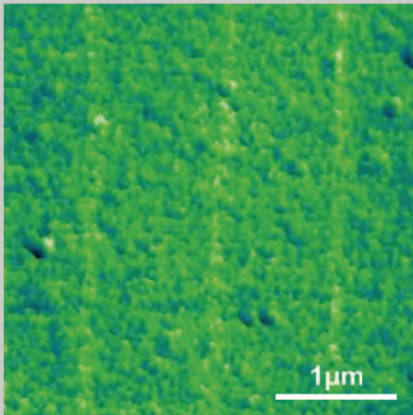
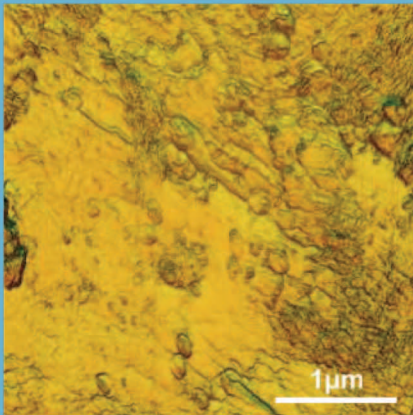


# 最新型的原子力显微镜

## State-of-the-Art Atomic Force Microscope



美国ACST公司最新开发的原子力显微镜（AFM）具备简单易使用和高稳定性等优点。AFM是一种真正意义上的多学科计量学工具，并且具备工业标准。AFM不仅仅对于纳米学科的初学者来说是简单易懂的，而且也适合科研人员的高等研究工作。

主要功能：高分辨纳米级形貌成像及力学特性测试

应用范围：在纳米尺度下对金属、半导体、陶瓷、有机物、高分子、生物体等样品的表面进行原位形貌的观测及力学等物性的测试

- 模式：振动、非振动、相位和横向力显微镜
- 50-微米扫描范围
- X轴和Y轴位移的精度: 1 nm开环
- Z轴位移的精度 < 0.075nm

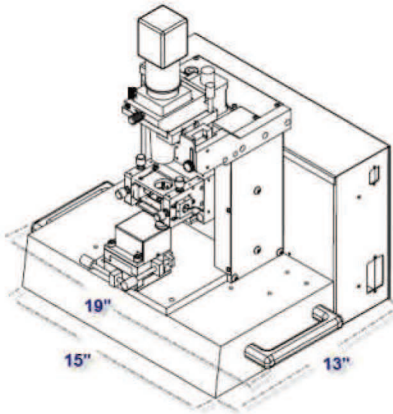
- ★ 3个兆像素CCD相机实时成像  
(45X - 400X)
- ★ X-Y 扫描线性范围60μm
- ★ 简易的探针装填

选配:

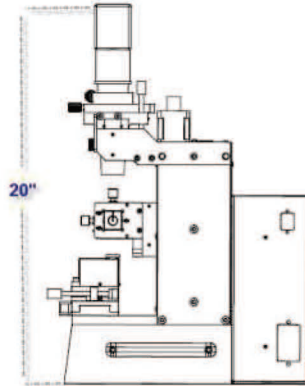
- ★ 环境控制腔
- ★ 导电AFM



## 仪器规格



前视图 ( A )



侧视图 ( B )

尺寸	英制	公制	图片
宽度	15"	38.10 cm	A
加把手宽度	19"	48.26 cm	A
厚度	13"	33.02 cm	A
高度	20"	50.80 cm	B

## 技术参数

### Digital Data Input Output 数据导出导入

• Connection	USB
• Scanning DAC	
Number	2
Bits	24
Frequency	7 kHz
• Control DAC	
Number	2
Bits	14
Frequency	2 kHz
• ADC	
Number	8
Bits	14
Frequency	48 kHz

### Analog Electronics 模拟电子学

• Vibrating Mode	
Freq Range	2 kHz – 800 kHz
Output Voltage	10 Vpp
Demod. Freq	TBD
• Z Feedback	
Type	PID
Bandwidth	> 3 kHz
Sample Hold	Yes
Voltage	0-150 V
• XY Scan	
Voltage	0 – 150 V
bandwidth	> 200 Hz
Pan & Zoom	22 Bits
• Tip Approach Cutoff	> 20 μ sec.

### Sample Holder 样品托

• Type	Magnet
• Max Lateral Dimensions	1 inch
• Max. Height	0.25 inch

### XY Translator

• Range	25.4 mm
• Resolution	2 μ
• Type	Bearing - spring loaded
• Lock Down	Yes

### 50 Micron xyz Scanner xyz 扫描头

• Type	Modified tripod
• XY Linearity	< 1%
• XY Range	> 50 μ
• XY resolution	< 10 nm closed loop < 1 nm open loop
• XY Actuator type	Piezo
• Sensor type	Strain Gauge
• Z Range	> 16 μ
• Z Linearity	< 5%
• Z sensor noise	< 5 nm
• Z feedback noise	< 0.2 nm*
• Z Actuator Type	Piezo
• Z Sensor type	Strain Gauge

### Z Motion Z 位移

• Type	Direct Drive
• Range	25 mm
• Drive Type	Stepper Motor
• Min. Step Size	330 nm
• Slew Rate	8 mm/minute
• Limit Switch	Top, Bottom
• Control	Software – rate, step size

### Light Lever AFM Force Sensor 力学传感器

• Probe Types	Industry standard
• Probe insertion	Manual – probe exchange tool
• Probe holding mechanism	Clip
	Vibrating mode piezo
	Electrical connector to probe
• Laser/Detector adjustment range	+/- 1.5 mm
• Adjustment resolution	1 micron
• Minimum Probe to Objective	25 mm
• Laser Type	670 nm diode, < 5 mw
• Detector	
Type	4 quadrant
Band Width	> 500 kHz
Signals Transmitted	TL, BL, TR, BR
Gain	Lo, High Settings
• Probe sample angle	10 degrees

### Software 软件

• Environment	Lab VIEW
• Operating System	Windows 7
• Image Acquisition	Real Time Display (2 of 8 channels)
• Control Parameters	
PID	Yes
Setpoint	Yes
Range	Yes
Scan Rate	Yes
Image Rotate	0 and 90 degrees
• Laser Align	Yes
• Vibrating Freq. Display	Yes
• Force Distance	Yes
• Tip Approach	Yes
• Oscilloscope	Yes
• Image Store Format	Industry Standard
• Image Pixels	16 X 16 to 1024 X 1024
• H.V. Gain Control	XY and Z
• Real time display	Line Level, Light Shaded, Grey Color Pallet System Window
• Calibration	
• Probe Center	Yes

### Video Microscope

	最小缩放	最大缩放
视野	2 X 2 mm	300 X 300 u
分辨率	20 μ	1.5 μ
工作距离	114 mm	114 mm
放大倍数	45 X	400X

• Computer	Industry Standard Computer
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