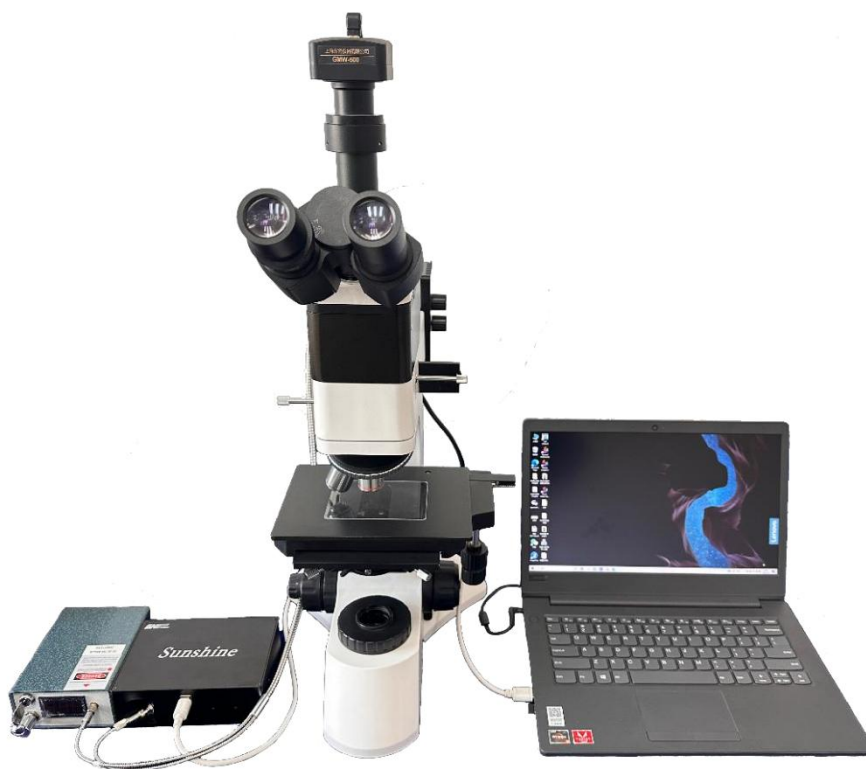


Micro Raman Spectrum Measurement System

The micro-Raman spectroscopy measurement system consists of a fiber spectrometer, a Raman frequency-stabilized laser, a Raman probe, and a microscope, all independently developed and produced by Changchun New Industries. By integrating an optimized confocal microscopic module with an advanced Raman measurement system, along with precise optical design compatible with infinity-corrected microscopic optics and flexible modular structural configuration, the system enables real-time imaging of micro-regions and acquisition of Raman spectra from samples. It assists users in rapidly testing and analyzing the microstructure and microscopic spectral information of samples.



Features

- Adjustable laser with stable frequency, avoiding wavelength drift and damage of samples.
- Optimization of the confocal module, ensuring that focal plane of the laser and view focal plane of the objective confocal.
- Detector with high stability, improving the spectral acquisition efficiency and accuracy.
- Modular design, self-assembly, simple operation and easy to carry.
- Wavelength range and resolution can be customized.

Application

- Identify microns impurities of the pills and describe the distribution.
- Distinguish the effective active ingredient and accessories in pills. Describing the distribution and density of occurrence.
- Positioning precisely the boundary of different particles in ore or arts.

- Describing and locating material contained within mineral or rock.
- The identification of trace material evidence, such as the drug, medicine, explosives, textile and so on.

◆ System Components:

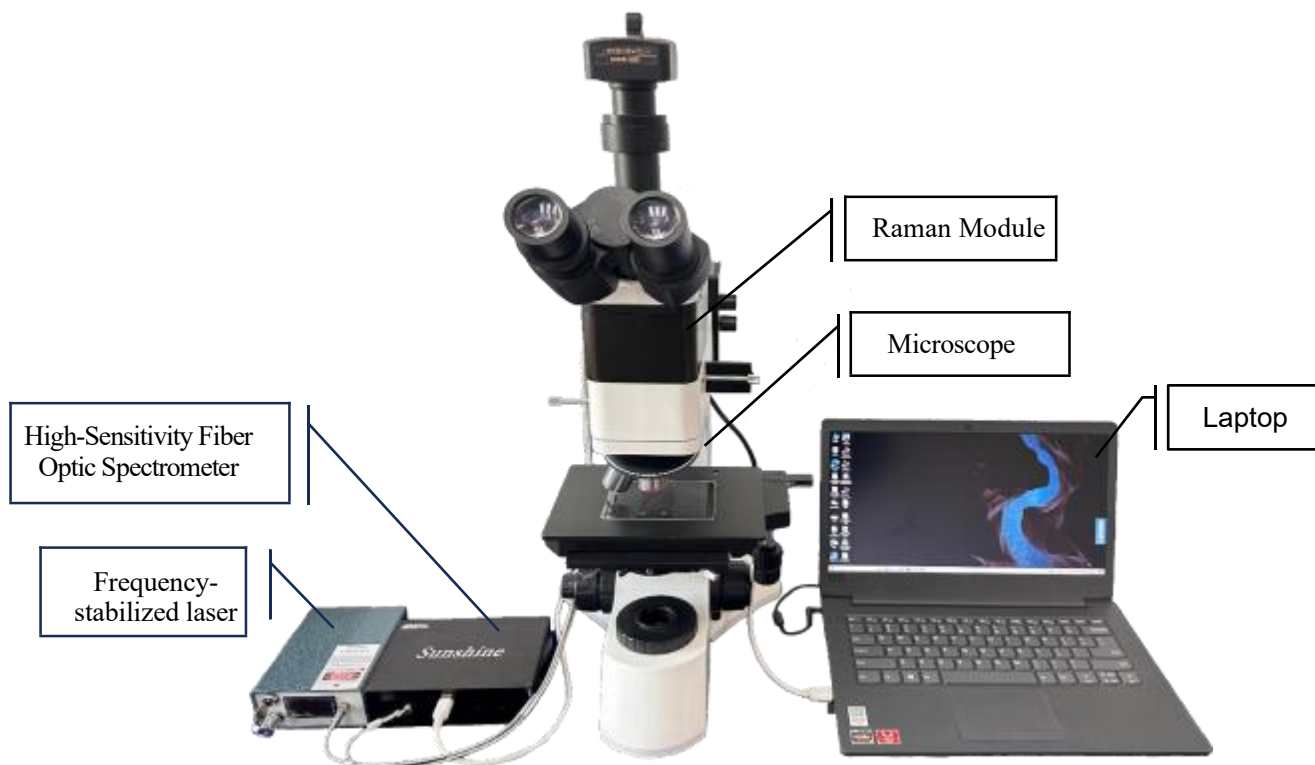


Figure 1 Micro Raman Spectrum Measurement System

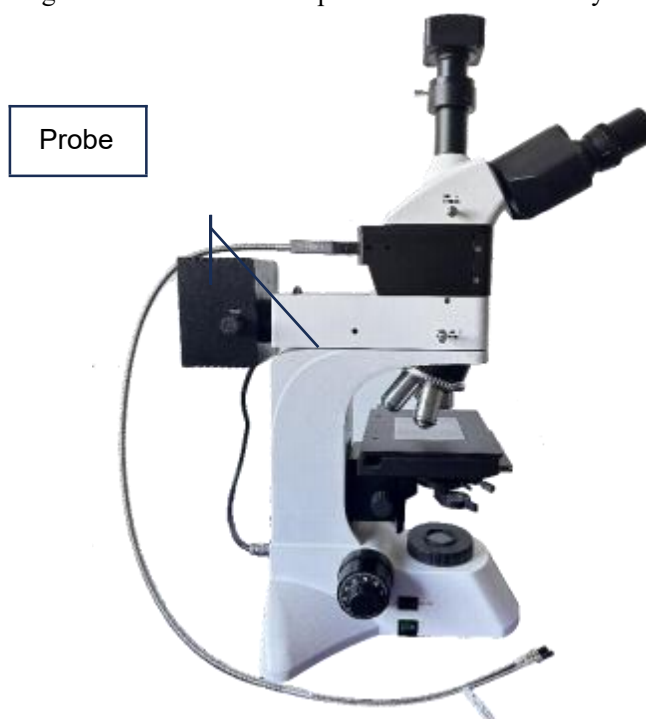


Figure 2 Microscope Side View



◆ **Product parameters:**

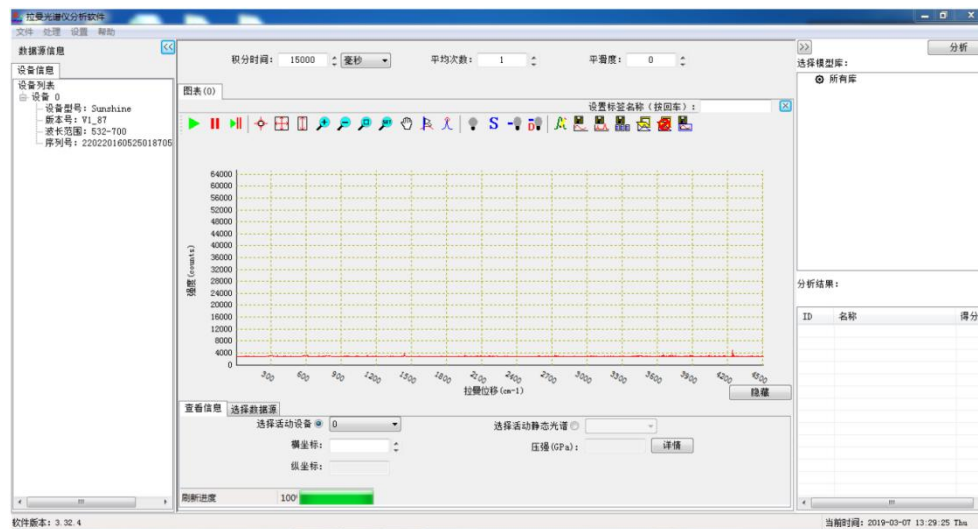
wavelength (nm)	405±0.5	488±0.5	532±0.5	633±0.5	785±0.3	830±5
Spectral line width (cm ⁻¹)	1.8	3.5/ 1.2	3.5/ 0.1	<0.7	<3.2	<28
Output power(mW)	1-500	1-150	1-1000	1-80	1-500	1-900
Optical resolution(cm ⁻¹)	8-12	8-12	8-12	8-12	5-8	5-7
Raman shift(cm ⁻¹)	300-3000	150-3000/ 450-3000	100-4500 /150-4500	125-3000	100-3648 /150-3648	100-2048 /200-2048
Amplitude noise (rms)	<1%	<1%	<0.5%	<1%	<0.5%,<1%	<1%
Operating mode	CW					
Power stability (rms, 4hrs)	<1% rms, over 4 hours					
Amplitude noise (rms)	<1% (rms, 1~20MHz)					
Warm-up time (minutes)	<5					
Working temperature (°C)	10-35					
Expected lifetime (hours)	10000					
Pixel number	2048 pixels					
Pixel size	14um×14um					
Spectrometer signal-to-noise ratio	1000:1					
Integration time	17ms-60s (Cooling temperature: 20°C below room temperature)					
	17ms~10s					
Fiber connector type	SMA905					
Working distance (mm)	7.5					
Material	Two permanently arranged single-core fibers (100um excitation optical fiber, 200um standard collector fiber), N.A.=0.22, metal sheath, fiber length 1m, SMA905 interface.					
Microscope Model	GMM-580					
Z-axis focusing system	Coarse and fine Coaxial focus Minimum graduation: 2μm, Limit stopper device					
X/Y Mobile stages size	210mm*140mm					
Stage moving range	75mm*50mm					
Camera	5 Megapixel Imaging System GMW500					



Microscope model	5X-100X (Optional)
Chip	CMOS, colorized, progressive scanning
Chip size	1/2.5 inch
Effective pixels	5 million
Pixel size	2.2μm*2.2μm
Maximum resolution (H×V)	2592*1944
Frame frequency	5fps@2592 ×1944 18fps@1280×960 60fps@ 640 ×480
Exposure time	0.21~2000ms
Noise of amplitude	40.5dB
Operating temperature (°C)	-10 ~ 50
Data interface	High speed USB2.0
Lens mount	Standard C-mount
Software	Spectral Analysis Software / Raman Analysis 2.0 Software
Operating system	Windows XP/Win7、8、9、10、11 (32-bit and 64-bit)
Warranty	1year



Software interface:



Software Features:

Multi-language interface options (Chinese/English)

Custom library for Raman spectra and qualitative analysis of samples

Adjustable integration time, number of averages, and smoothing level

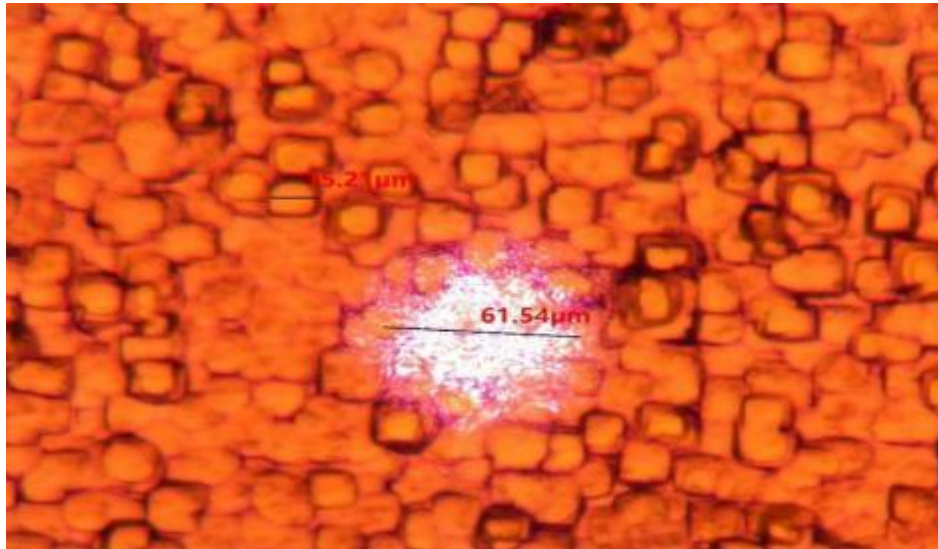
Automatic peak detection

Support for displaying multiple peak profiles in a single graph

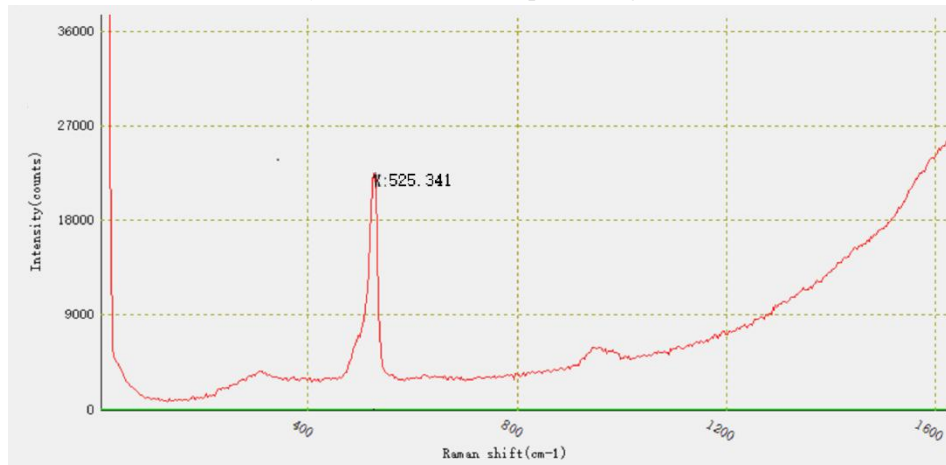
Customizable colors and backgrounds for graphs, axes, gridlines, text, and spectral lines

Data storage (.txt format)

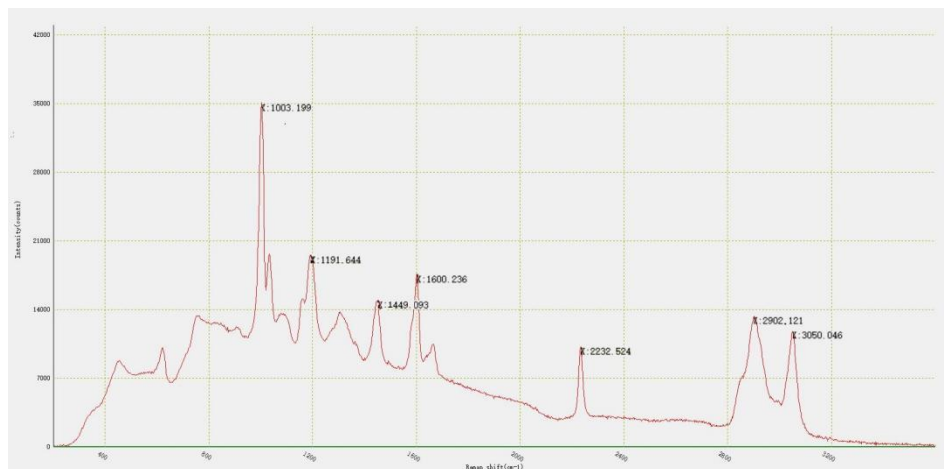
Product Test Spectrum:



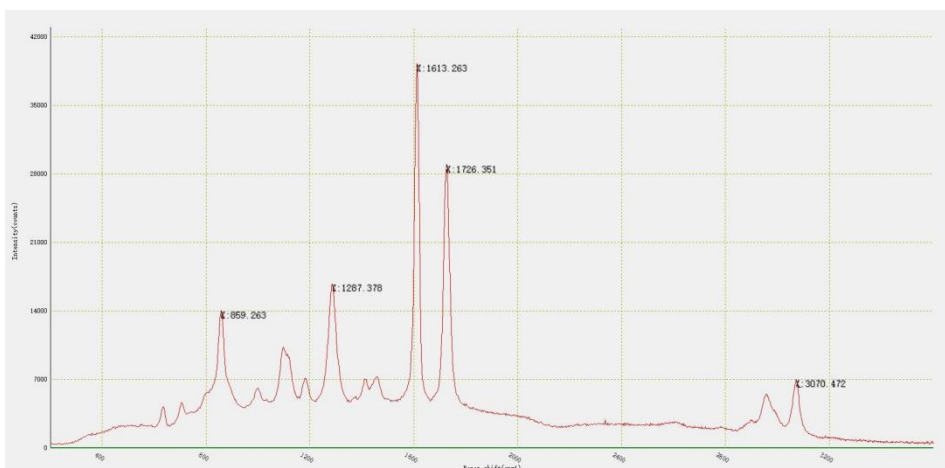
Monocrystalline silicon sample testing



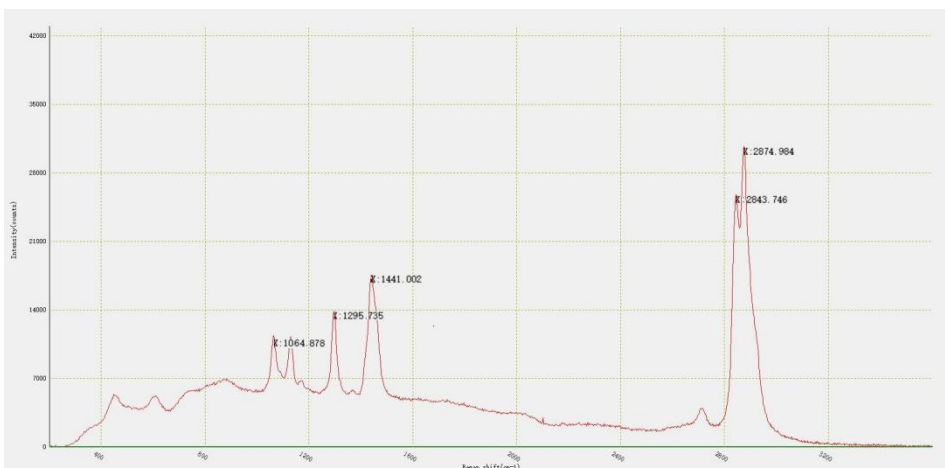
Raman spectrum of monocrystalline silicon



Polystyrene-(PS)



Polyethylene terephthalate-(PET)



High-density polyethylene - (HDPE)

Typical Customer Applications:

Xihua University employed Changchun New Industries' 785 nm micro-Raman spectrometer for research in Surface-Enhanced Raman Spectroscopy (Fig. a).

Nanjing Normal University utilized Changchun New Industries' 785 nm micro-Raman spectrometer for biological cell studies.。

