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precise Micro-Spectroscopy

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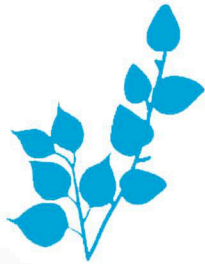
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precise Micro-Spectroscopy

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precise Micro-Spectroscopy

Digital imaging  
photoluminescence spectroscopy  
Raman spectroscopy  
Absorption-transmission spectroscopy  
Reflectance spectroscopy



## Microspectrophotometer

Micro-spectroscopy and digital imaging  
multiple techniques in one device



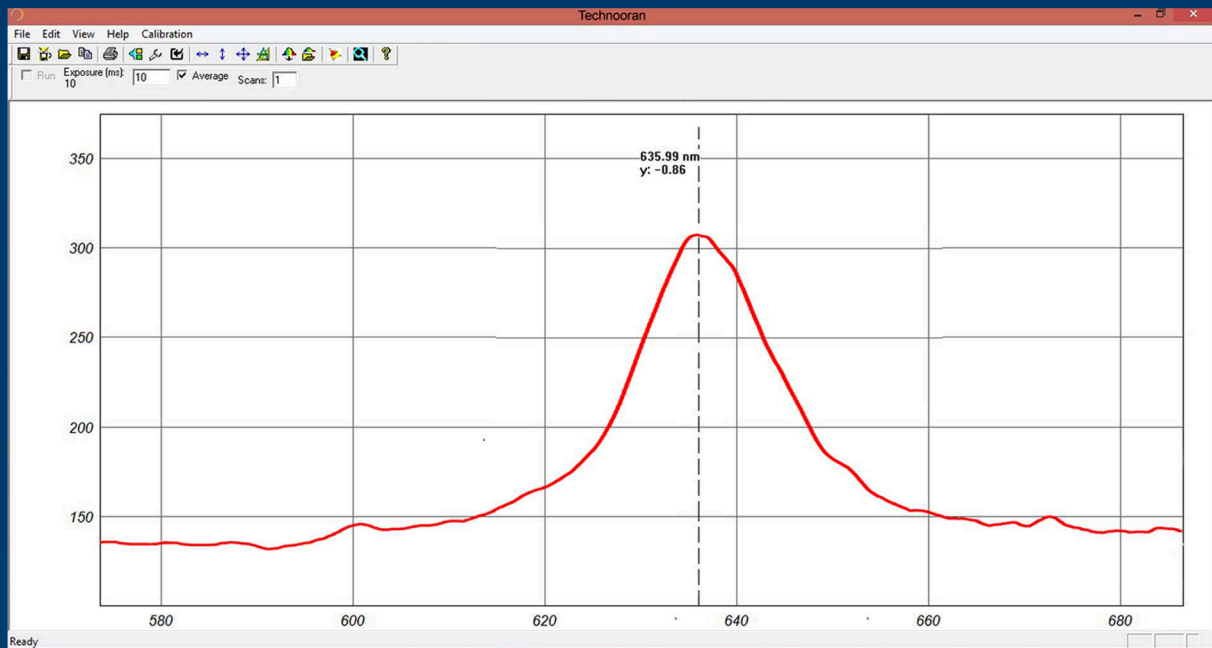
# Microspectrophotometer

Microspectrophotometers are easily applied in many different fields and are found in both scientific laboratories and production facilities. It can easily switch between different spectroscopic and microscopic methods and ensure the accuracy and repeatability of the data.

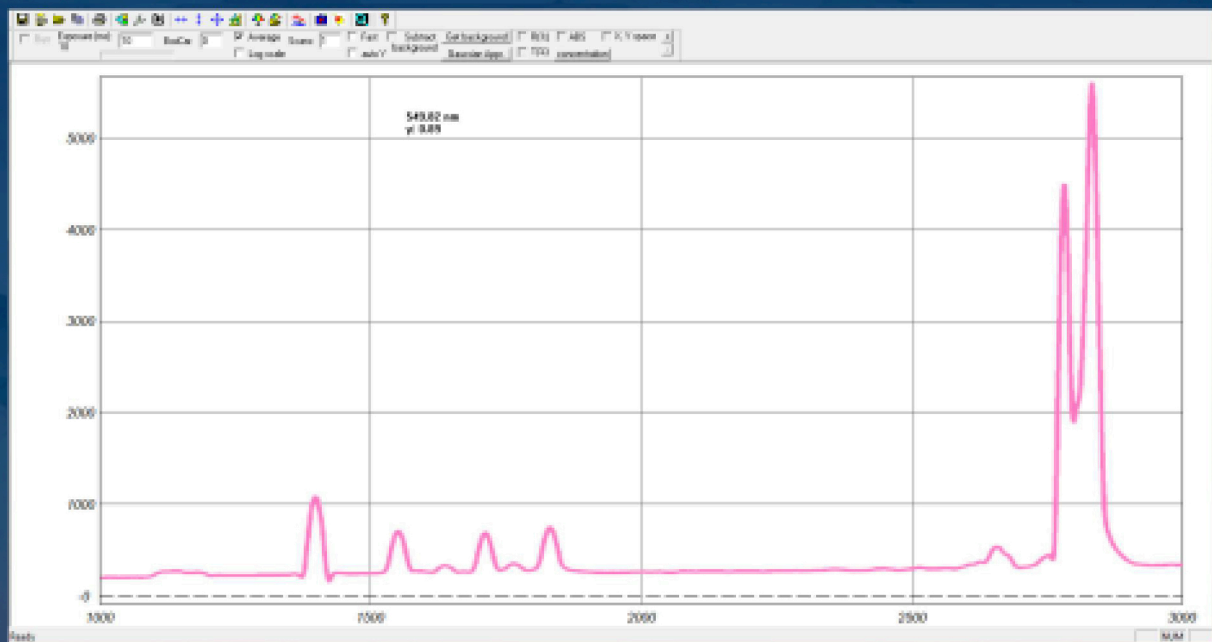
This instrument combines a spectrophotometer with an optical microscope.

- A device for simultaneous imaging and spectroscopy of transparent and opaque samples with micron dimensions concentrations in three phases of solid, liquid and gas
- It can be configured to measure the transmittance, absorbance, reflectance, Raman, fluorescence and photoluminescence microspectra of small sample areas in addition to a digital imaging system

# Spectrum



- PL spectrum of WS2 thin film acquired by Technoran microspectrophotometer

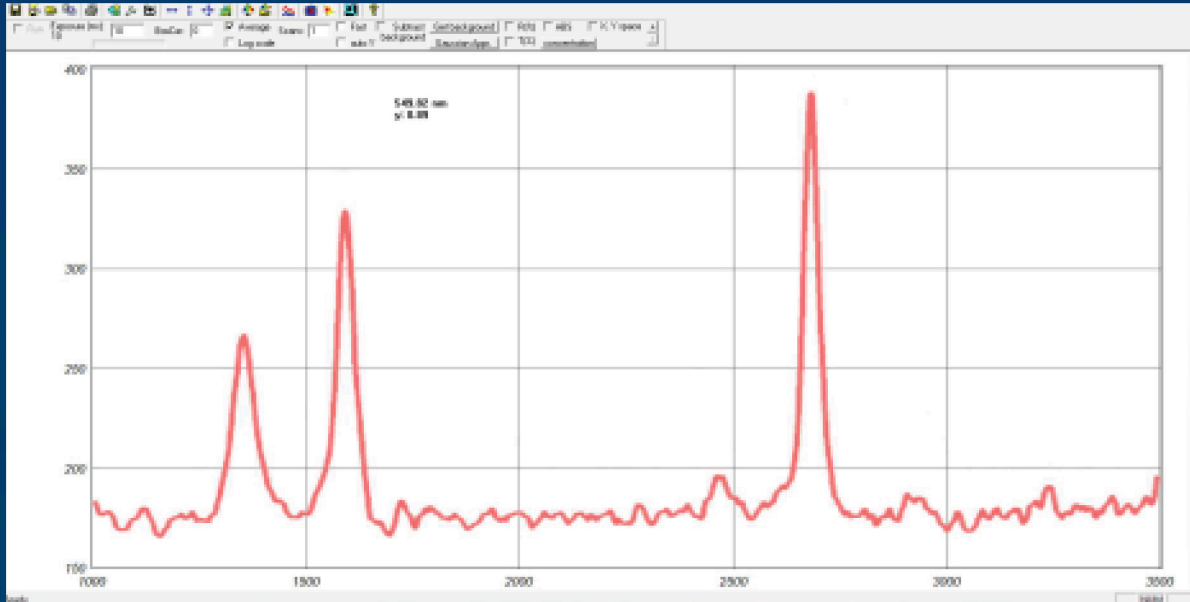


- Raman spectrum of Cyclohexane solution acquired by Technoran microspectrophotometer



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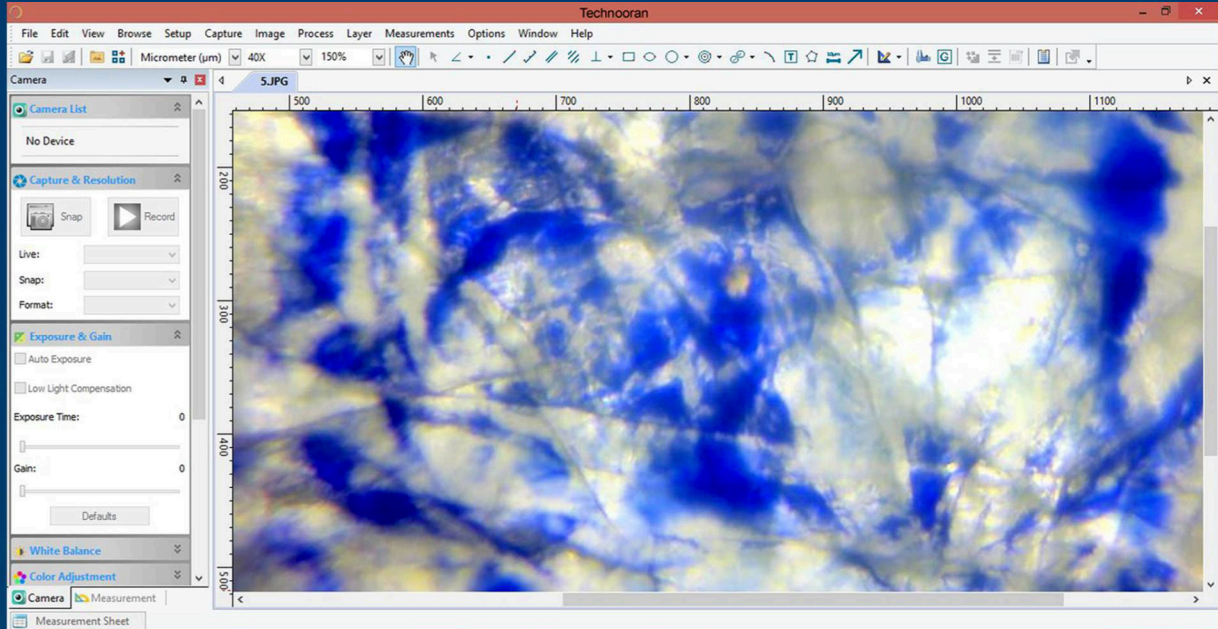


Raman spectrum of single layer graphene acquired by Technooram microspectrophotometer

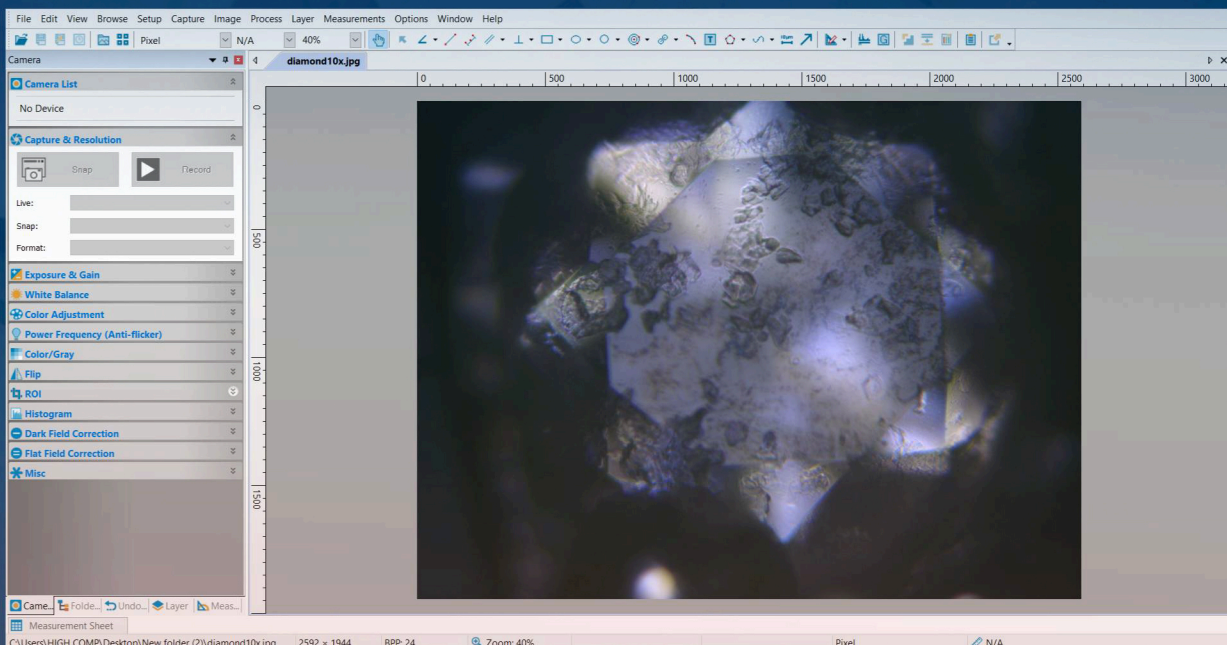


Raman spectrum of diamond acquired by Technooram microspectrophotometer

# Image



➤ The reflection image of the blue pen line with 400 times magnification recorded by Technoran microspectrophotometer

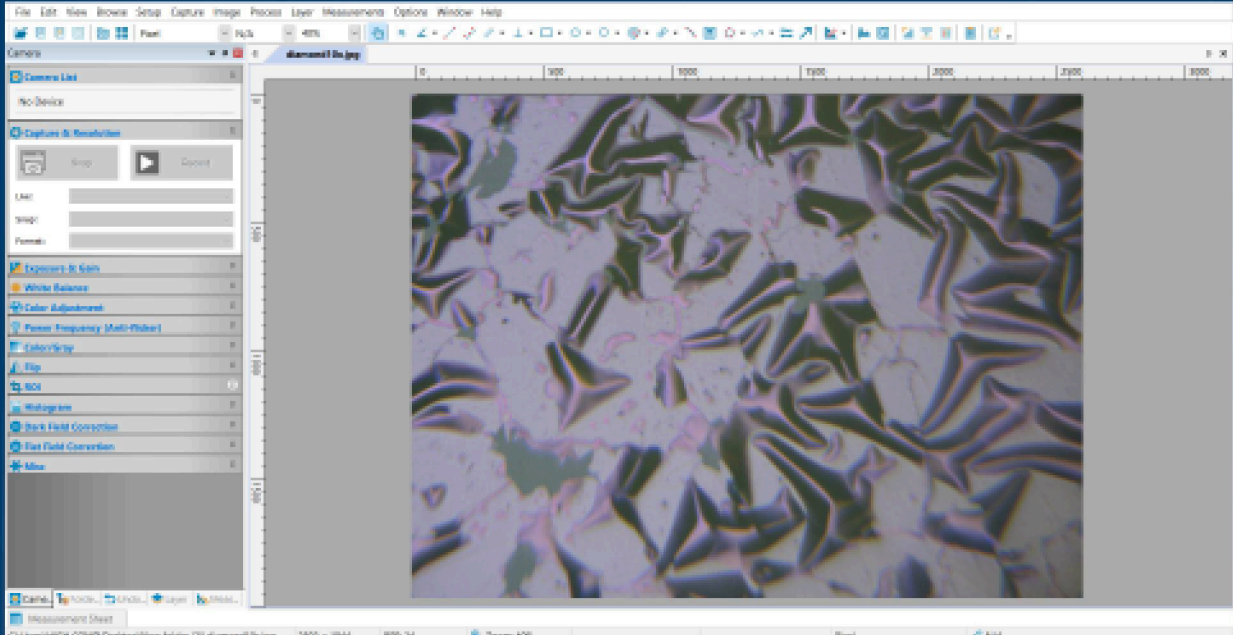


➤ The reflection image of the diamond gem with 100 times magnification recorded by Technoran microspectrophotometer

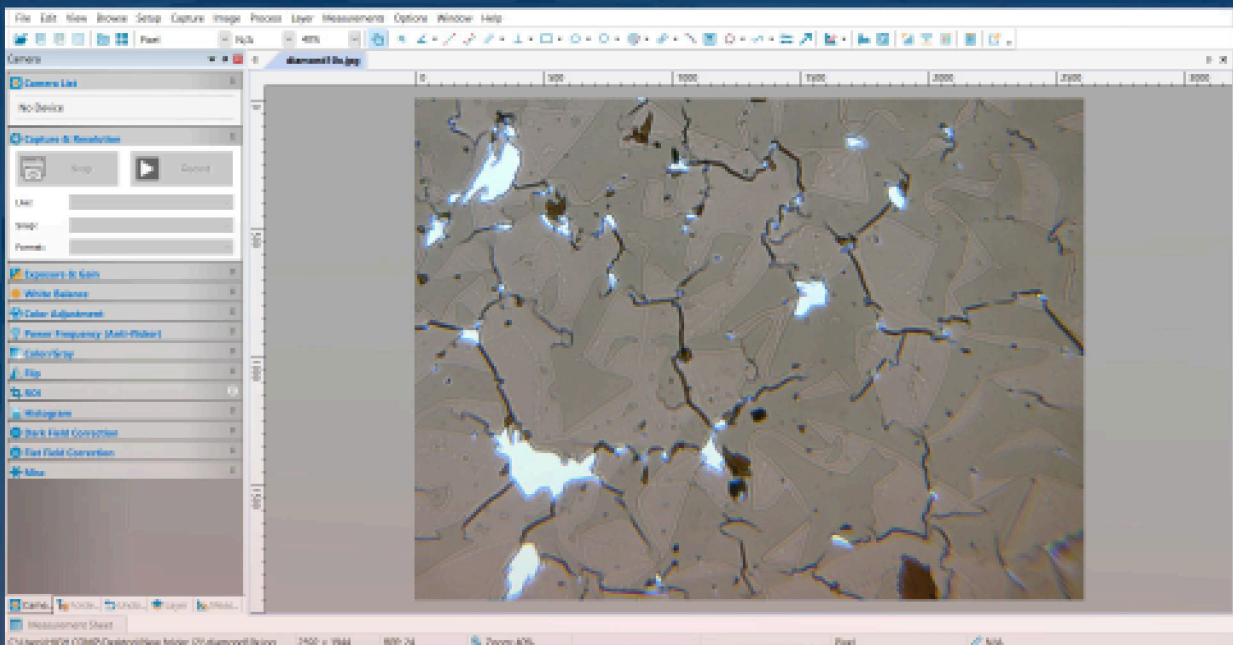


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➤ The **transmission** image of the DLC on slide with 100 times magnification recorded by Technoaran microspectrophotometer



➤ The **reflection** image of the DLC on slide with 100 times magnification recorded by Technoaran microspectrophotometer



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## Microspectrophotometer (Raman) (absorption-transmission-reflection)

Technical specification (Abs-Tra-001)

Lamp range	200 - 900 nm
Spectral range	200 - 1100 nm
Spectral resolution	< 2 nm
Microscopic range	79 (X) x 52 (Y) x 22 (Z) mm
Microscopic interval	<10 microns
Spectroscopy time	2.5 ms - 10 s
Detector	CCD linear array 3648 pixel
Transmission spectroscopy mode	✦
Reflective spectroscopy mode	✦
Transmission imaging mode	✦
Reflective imaging mode	✦
Microscope model	Upright
Microscopic object lens	4x, 40x, 60x, 100x
Microscopic ocular lens	10x
Microscope magnification	40x, 400x, 600x, 1000x
Digital camera accuracy	5 megapixel
Software	Connect to PC
Computer operating system	Win 7, 8, 8.1 & 10



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## Microspectrophotometer (absorption-transmission)

Technical specification (Abs-Tra-002)

Lamp range	400 - 700 nm
Spectral range	200 - 1100 nm
Spectral resolution	< 2 nm
Microscopic range	79 (X) x 52 (Y) x 22 (Z) mm
Microscopic interval	<10 microns
Spectroscopy time	2.5 ms - 10 s
Detector	CCD linear array 3648 pixel
Transmission spectroscopy mode	✦
Transmission imaging mode	✦
Microscope model	Upright
Microscopic object lens	4x, 40x, 60x, 100x
Microscopic ocular lens	10x
Microscope magnification	40x, 400x, 600x, 1000x
Digital camera accuracy	5 megapixel
Software	Connect to PC
Computer operating system	Win 7, 8, 8.1 & 10



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## Microspectrophotometer (PL)

Technical specification (MicroPL-003)

Laser wavelength	532 nm
Laser model	Lorem Ipsum DPSS Nd:YAG (cw)
Laser power	200 mW
Lamp range	300-900 nm
Spectral range	300-900 nm
Spectral resolution	1 nm
Spectroscopy time	2.5 ms - 10 s
Detector	CCD linear array 3648 pixel
Reflective spectroscopy mode	✦
Reflective imaging mode	✦
Transmission spectroscopy-imaging mode	✦
Microscope model	Upright
Microscopic object lens	4x, 40x, 60x, 100x
Microscopic ocular lens	10x
Microscope magnification	40x, 400x, 600x, 1000x
Digital camera accuracy	5 megapixel
Software	Connect to PC
Computer operating system	Win 7, 8, 8.1 & 10



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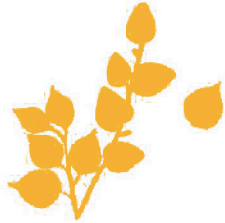
## Microspectrophotometer (Raman)

Technical specification (Ram-532-004)

Laser wavelength	532 nm
Laser model	DPSS Nd:YAG (cw)
Laser power	200 mW
Raman spectral range	150 $\text{cm}^{-1}$ - 4000 $\text{cm}^{-1}$
Spectral resolution	0.7 nm ( 10 $\text{cm}^{-1}$ )
Spectroscopy time	8 ms - 3600 s
Detector	Back-thinned TE Cooled 1044 x 64 element CCD array
Reflective spectroscopy mode	✦
Reflective imaging mode	✦
Transmission imaging mode	✦
Microscope model	Upright
Microscopic object lens	4x, 10x, 40x, 60x
Microscopic ocular lens	10x
Microscope magnification	40x, 100x, 400x, 600x
Digital camera accuracy	5 megapixel
Software	Connect to PC
Computer operating system	Win 7, 8, 8.1 & 10



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## Microspectrophotometer (PL)

Technical specification (MicroPL-005)

Light source wavelength range	200 - 900 nm
Spectral range	200 - 1100 nm
Spectral resolution	< 2 nm
Microscopic range	79 (X) x 52 (Y) x 22 (Z) mm
Microscopic interval	<10 microns
Spectroscopy time	2.5 ms - 10 s
Detector	CCD linear array 3648 pixel
Transmission spectroscopy mode	✦
Reflective spectroscopy mode	✦
Transmission imaging mode	✦
Reflective imaging mode	✦
Microscope model	Upright
Microscopic object lens	4x, 40x, 60x, 100x
Microscopic ocular lens	10x
Microscope magnification	40x, 400x, 600x, 1000x
Digital camera accuracy	5 megapixel
Software	Connect to PC
Computer operating system	Win 7, 8, 8.1 & 10



Noora 300  
High-resolution Spectrometer

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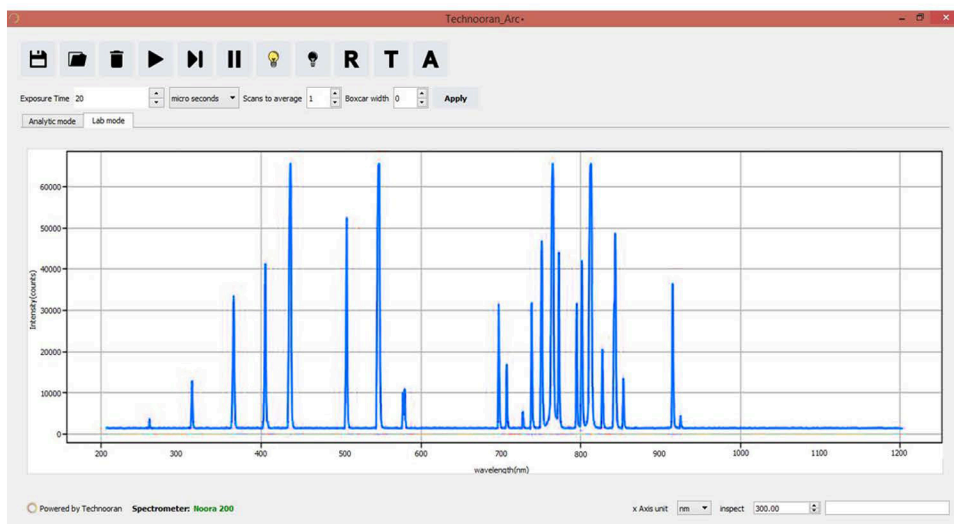
High resolution  
Generation of spectrometer with new technology

Small dimensions

Fully customizable based on the choice of spectral  
resolution and spectral performance range



# Mini spectrometer



Sample of mercury lamp spectrum acquired with Noora spectrometer  
in the range of 200-1100 nm with resolution of 1.5 nm

- ◀ Nanotechnology
- ◀ chemistry
- ◀ biology
- ◀ geology
- ◀ calorimetry
- ◀ food industry
- ◀ agriculture
- ◀ pharmacology
- ◀ oil and polymer industry

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# 200

Technical specification (Noora 200)

Detector	Toshiba TCD1304DG linear CCD array
Detector range	200-1100 nm
Pixels	3648 pixels, pixel size of 8 $\mu\text{m}$ x 200 $\mu\text{m}$
Entrance aperture	5, 10, 25, 50, 100 or 200 $\mu\text{m}$ wide slits
Fiber optic connector	SMA 905
Wavelength range	200-1100 nm (Grating dependent)
Optical resolution	1-2 nm FWHM
Signal-to-noise ratio	550:1 (at full signal)
Interface	USB 2.0 high-speed, 480 Mbps
Dimensions	105 x 95.5 x 62.5 mm <sup>3</sup>
Weight	650 g



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# 300

Technical specification (Noora 200)

Detector	Toshiba TCD1304DG linear CCD array
Detector range	300-1100 nm
Pixels	3648 pixels, pixel size of 8 $\mu\text{m}$ x 200 $\mu\text{m}$
Entrance aperture	5, 10, 25, 50, 100 or 200 $\mu\text{m}$ wide slits
Fiber optic connector	SMA 905
Wavelength range	300-1100 nm (Grating dependent)
Optical resolution	1-2 nm FWHM
Signal-to-noise ratio	550:1 (at full signal)
Interface	USB 2.0 high-speed, 480 Mbps
Dimensions	105 x 95.5 x 62.5 mm <sup>3</sup>
Weight	650 g

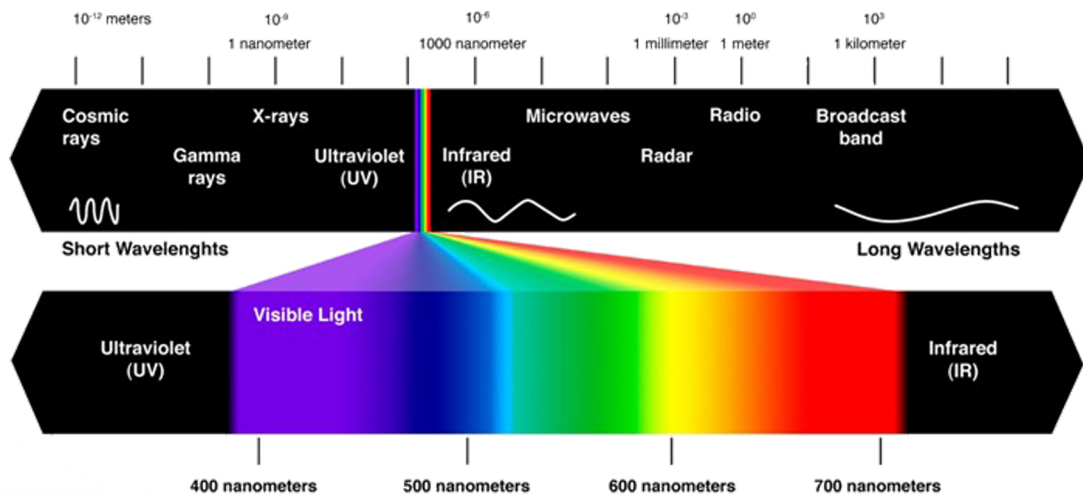


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- High Radiant Power
- Ease of Installation and Use
- Wide Spectral Range in Different Models
- Possibility of Adjusting the Radiant Power
- Stabilized Operation
- Customization Capability
- Standard Fiber Optic O/P



## Stabilized Light Sources (UV-Vis-NIR)



Selectable spectral range, depending on intended use, from ultraviolet to near infrared

- > NanoTechnology
- > Chemistry
- > Biology
- > Geology
- > Calorimetry
- > Food Industries
- > Agriculture
- > Pharmacology
- > Oil & Polymer Industries

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## Deuterium stable light source

Technical specification (UV Nooran D30)

Maximum nominal radiant power	30W
Maximum power consumption	70W
Life span	2000Hours
Color temperature	2600K
Wavelength range	200nm-700nm
Power	220VAC
Fiber connection	SMA905
Test time	5 mins
Operating temperature	0-45 C
Working humidity	5-95%



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## Halogen-tungsten light source

Technical specification (V Nooran TH20)

Maximum nominal radiant power	20W
Maximum power consumption	60W
Life span	
Color temperature	2800K
Wavelength range	360nm-2.4um
Power	220VAC
Fiber connection	SMA905
Test time	5 mins
Operating temperature	0-60 C
Working humidity	5-95%



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## UV-Vis-NIR

### Tungsten deuterium halogen stable light source

Technical specification (UV-Vis-NIR Nooran DTH20)

Maximum nominal radiant power	15W
Maximum power consumption	70W
Life span	2000Hours
Color temperature	2600K
Wavelength range	190nm-2.5um
Power	220VAC
Fiber connection	SMA905
Test time	5 mins
Operating temperature	0-60 c
Working humidity	5-95%



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Technooran Catalog





Technooran Website

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