

High sensitivity, High resolution 532nm Portable Raman Spectrometer

ATR3110-532

Feature:

- Ultra-high sensitivity FFT-CCD TE-cooled;
- low noise circuit;
- High stable narrow band laser;
- Powerful embedded software;
- Fluorescent background eliminate;
- Peak finding and displaying;
- User friendly human-machine interface;
- USB 2.0 port

Application:

- Bioscience
- Material science
- Pharmaceutical engineering
- Forensic analysis
- Agriculture and food safety
- Gemstones identification
- Environmental science
- **Graphene**
Nano materials

Description:

ATR3110-532 portable Raman spectrometer fit to field work. With high reliable measuring accuracy, excellent low stray light condition, it enables a wide range of application, especially in sectors of biochemical analyzer, public safety, food safety, pharmaceutical engineering etc. The multi-function software facilitated the spectral analysis process in application. The remote experiment through internet access makes the test item much easier.

ATR3110-532 built-in excellent algorithm, which can identify substances at ease, meanwhile it can add one's own spectral data.

A user-friendly interface for both technical & non-technical users to make their job easier. High-quality hardware configuration and robust multivariate algorithms guarantee accurate, uniform and reliable results detected.

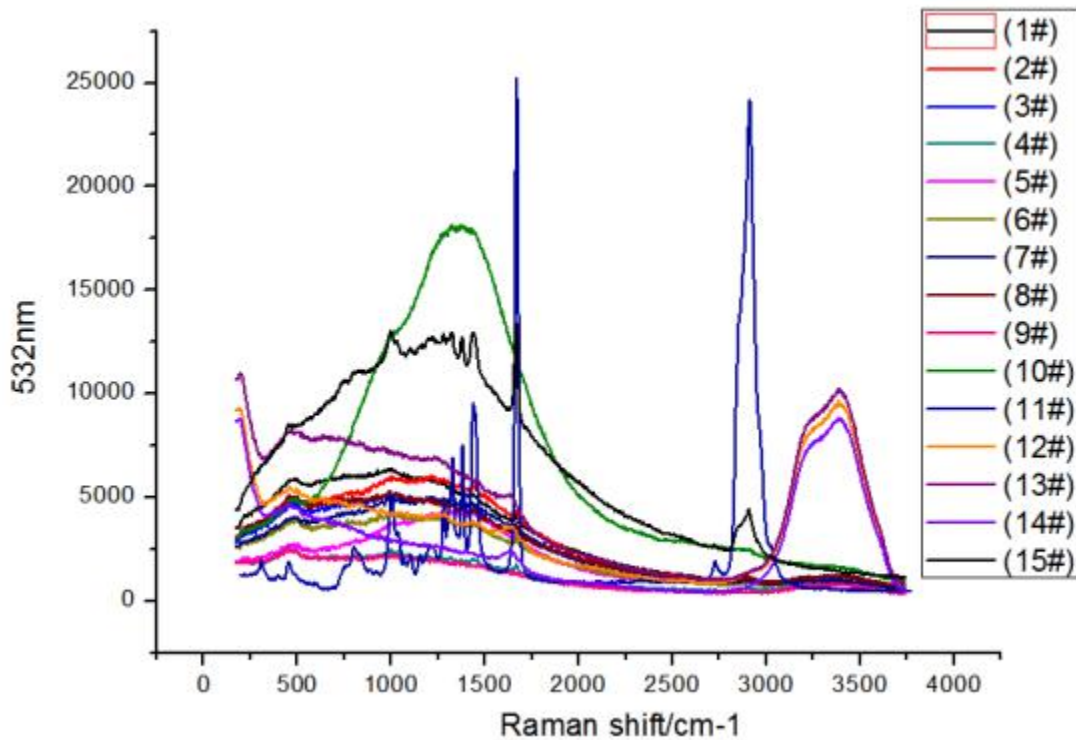


1. Parameters

ATR3110 -532 System	
Interface	USB 2.0
Integration time	1ms - 120s
Power voltage	DC 5V(+/-5%)
Operating Temp	-10~40 °C
Operating humidity	< 95%
Dimension(L*W*H)	33×26×14 cm ³
Weight	5 Kg
Reliability	
Spectral stability	$\sigma / \mu < 0.5\%$ (COT 8 hours)
Temp stability	Spectral shift $\leq 1 \text{ cm}^{-1}$ (10-40°C)
Variation of intensity (in 5 ~ 40 °C)	$< \pm 5\%$
Optical parameters	
Spectral range (cm-1)	200-3300cm-1
resolution (cm-1)	8cm-1
SNR	>1500:1
Entrance slit	f/4 C-T crossed optical path
Optical system	98 mm for incidence and output
Detector	
Item	Ultra-high sensitivity, quick cooled-CCD
Temp cooled down to	-5°C
Detector range	200-1100 nm
Effective pixels	2048*64
Dynamic range	>10000: 1
Pixel size	14 × 200 μm
Exciting Laser	
Central wavelength	532nm (+/-0.5nm)
FWHM	$\leq 0.1 \text{ nm}$
Power output	$\geq 100 \text{ mW}$
Power stability	$\sigma / \mu < \pm 0.5\%$
Raman probe	
Operating distance	3 mm
Rayleigh scattering resistance	OD>8
Numerical Aperture	0.3
Aperture	7mm

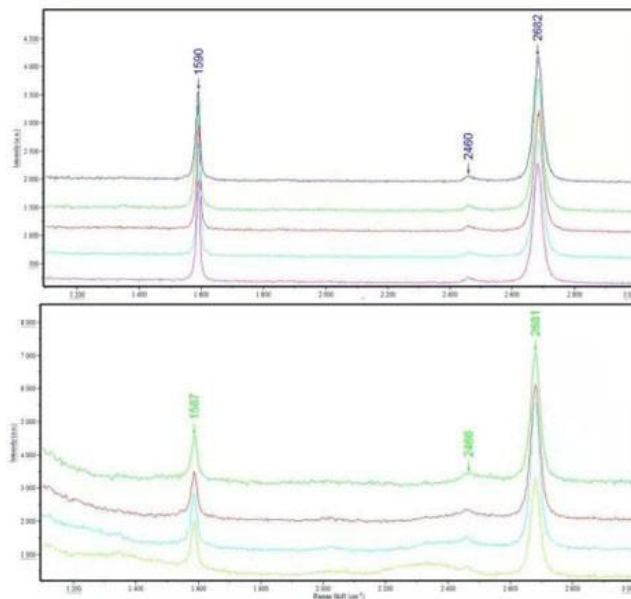
Remarks: measuring method based on ASTM E2529-06;

2. Performance Examples



1. Spectru2m of 15 nanomaterials added SERS by 532nm Raman spectrometer

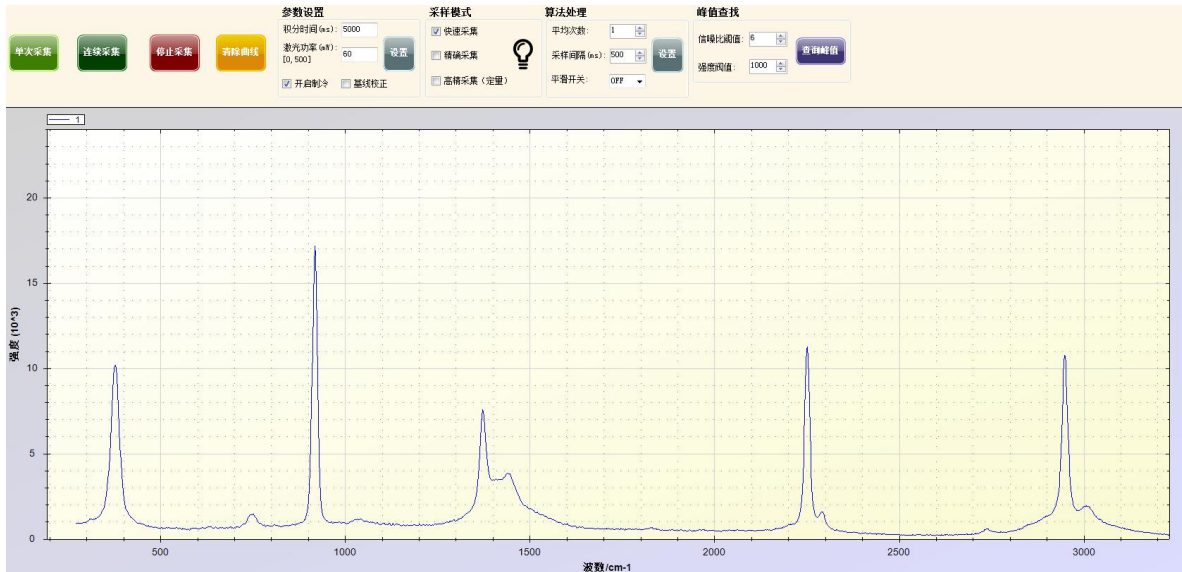
Graphene Raman Signal Collect



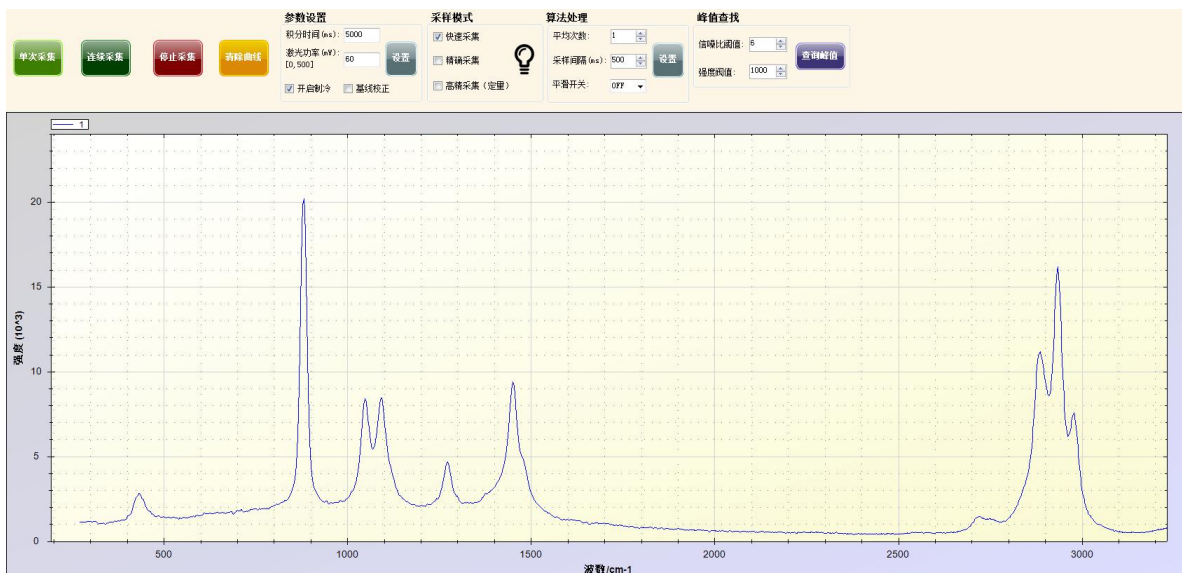
Sample: Graphene, scan 5 points
 Instrument: Xplora Plus
 Scan condition: 532nm, 10%, 1sec, 1times, 1200T,
 Intensity rate of 2682cm-1: 1590cm-1 equals 1.165

Sample: Graphene, scan 4 points
 Instrument: **Optosky 532nm**
 Scan condition: 532nm, 100%, 20sec, 2times,
 Intensity rate of 2681cm-1: 1587cm-1 equals 2.51

3 Li in Xiamen University use Xplora Plus detect graphene, and Optosky 532 can detect graphene well.

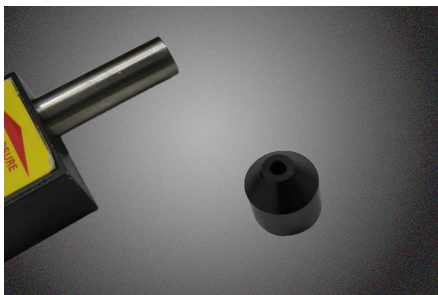


4 ATR3130-532 spectral measured (sample: acetonitrile, laser power: 60mW, integration time:5s)

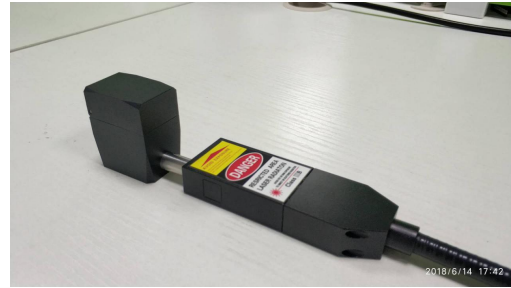


5 ATR3130-532 spectral measured (sample: Ethanol, laser power: 60mW, integration time:5s)

3. Measuring Attachments



6 Solid, powder measurement probe



7 Fluid sample cell (Thermo bottle)



8 Fluid sample cell (Liquid chromatography bottle) (Optional)




9 Raman probe gun (optional)

Raman Spectrometer Technology


- Focus on developing Raman spectrometer for 20-year.
- China National Standards drafter of Raman spectrometer
- In 2016 launch the first generation handheld Raman spectrometer,
- In 2017 launch the dual-band Raman spectrometer
- In 2020, launch the triple-band Raman microscope
- In 2021, launch the quadriband scientific-grade Raman microscope
- ISO, CE, FDA Approval, Police Approval, API Approval
- Originate in Chinese Academic of Science University and Xiamen University



10 Optosky Raman Spectrometer Milestones


















Raman Spectrometer



Scientific-Grade Raman Microscope
Quadriband
ATR8800 Series

Large Raman Spectrometer

Miniature Raman Spectrometer

 Triple-Band Raman Microscope ATR8500 Series	 Raman Microscope ATR8300 Series	 All-Auto & High Throughput ATR8000	
 ATR3110	 ATR3000 Portable or Benchtop Raman	 ATR3000FD	 ATR 3200
 ATR6600 Pro	 ATR6600 Handheld Raman Analyzer	 ATR6500CH	 ATR6500
 Mini-Raman ATR1600	 Teaching Raman ATR1200	 Mini portable Raman ATR2500	 Exclusive Raman

11 Optosky Raman Spectrometer Family

4. Company Profile

Optosky company is a first-class spectroscopy solution provider, with the headquarter locates in the 7th floor of the research institute of the Chinese Academic of Science at an area of 2500 square meter in Xiamen city where successfully held the international 9th BRICK summit in 2017. The subsidiary company locates in Wuhu city with an area of 2035 square meters.

The company founder Dr. Hongfei, Liu graduated Doctor degree from the Chinese Academic of Science and postdoctoral degree from Xiamen University, by integrating both of top Universities' spectroscopy technology background into Optosky company aiming at developing the leading spectroscopy equipment in the world.

The company bases on unique technologies of Optomechanics, Spectroscopy Analysis, Process Weak Optical and Electrical Signals, Cloud Computing, and have been developed wide products line of the competitive Raman spectroscopy instruments, micro spectrometer, hyperspectral imager, field spectroradiometer, fluorescence spectroscopy, LIBS etc. Driven by advanced technologies and products, Optosky brand has been well-known to customers all over the world.

Optosky company base on technology innovation, market-driven direction, customer first, provides first-class products and services, and one-stop solutions to many fortune 500 companies in many industries. The company received praise from different industry companies, as well as many innovative intellectual properties, software copyright, qualification certification, and winner awards over hundred numbers.

Optosky receives top class A introduced the high-tech company to international Xiamen city, the national high-tech and new innovative technology company award. The founder Dr. Hongfei Liu receives the innovation talent award by the ministry of science and technology.

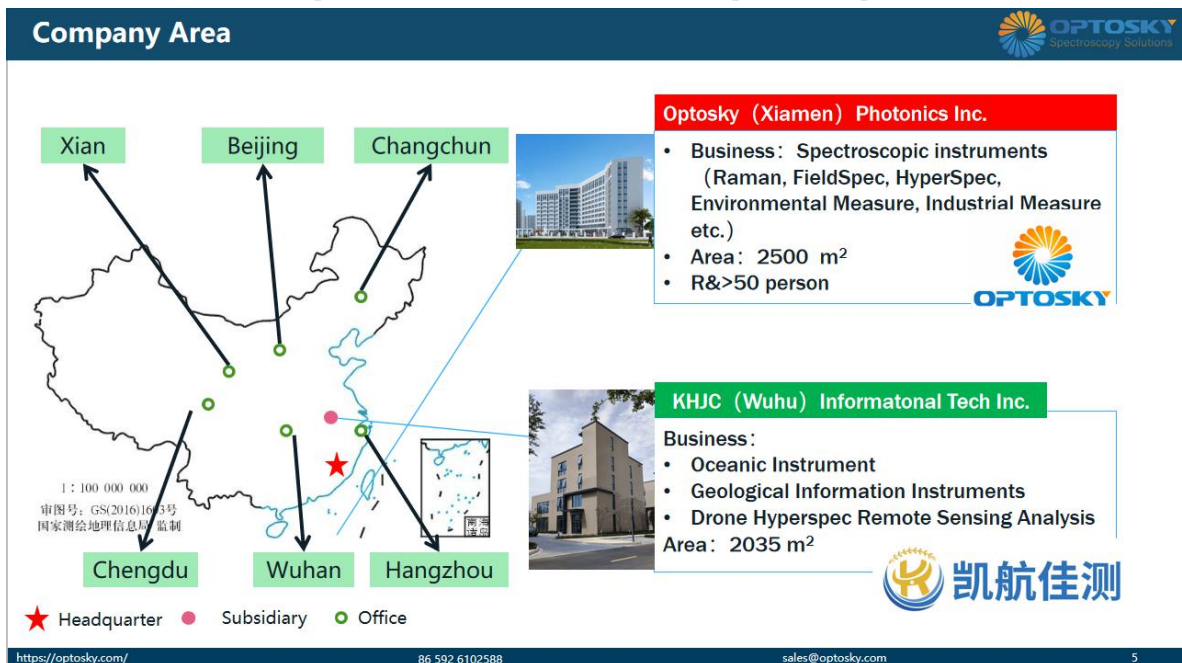
The company is currently conducting the exclusive project of major industrialization national oceanic administration with a total fund of five million us dollars. The company in charge of drafting national industry standard of VNIR and SWNIR Field Spectroradiometer, and six national standard drafters, including China National Standard Drafter for Hazmat detector based on Raman spectroscopy, China National Standard Drafter for Buoy-type Monitor eco-environment, China National Standard Drafter for water quality monitor in the unmanned boat, China National Standards drafter for online water quality monitor by spectroscopy, China National Standard Drafter for UV-absorbent measure fabrics.

The company has over 70 IPs and over 20 innovative patents.

The company received ISO9001:2015 certification, CE certification, Police Administration Certification, FDA approval compliant, IQOQPQ compliant.



12 Optosky (Xiamen) Photonics Inc. Company Headquarter



Company Area

Optosky (Xiamen) Photonics Inc.

- Business: Spectroscopic instruments (Raman, FieldSpec, HyperSpec, Environmental Measure, Industrial Measure etc.)
- Area: 2500 m²
- R&>50 person

KHJC (Wuhu) Informatonal Tech Inc.

Business:

- Oceanic Instrument
- Geological Information Instruments
- Drone Hyperspec Remote Sensing Analysis

Area: 2035 m²

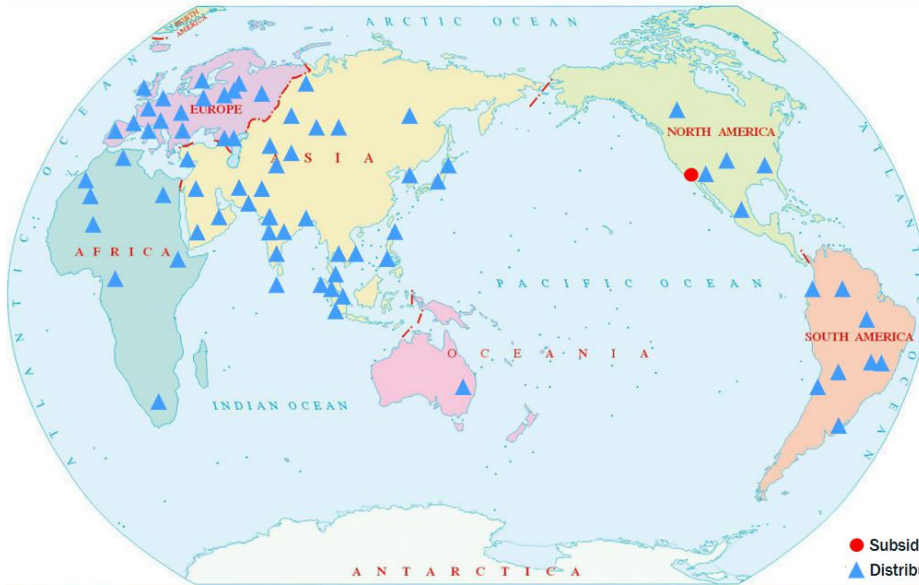
★ Headquarter ● Subsidiary ○ Office

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审图号: GS(2016)103号
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13 Optosky Company Area

Oversea Market Shares




Export to
53 countries


>230
Distributors


31%
Sales Share

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14 Oversea Market Shares

Optosky Chair and Draft National Standards Lists:



Chair Drafter
National Industry Standard Of VNIR & SWNIR
Field Spectroradiometer



China National Standard
Drafter for Buoy-type Monitor
eco-environment

China National Standard
Drafter for water quality
monitor in unmanned boat



China National
Standard
Drafter for
Raman
spectrometer

China National
Standard Drafter for
Hazmat detector
based on Raman
spectroscopy



China National Standards
drafter for online water
quality monitor by
spectroscopy

China National Standard Drafter
for UV-absorbent measure fabrics

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15 Optosky Chair and Draft National Standards Lists.

Qualification

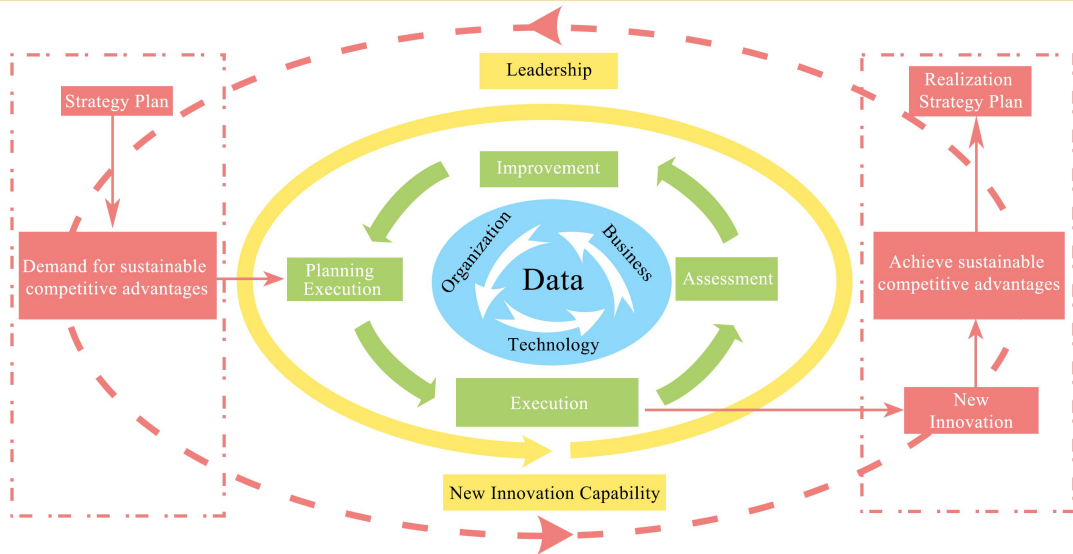


 ISO9001:2005	 GB/T 23001 Informationization & Innovation	 CE, RoHS, LVD 17 models	 Police Approval 11 models
 GB/T 29490 IP implementation	 5 Innovative patents	 35 patents new utility design	 32 Software copyright

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16 Qualification

Informationization & Industrilization Fusion Management System



17 GB/T 23001_ Informationization & Industrilization Fusion Management System

Co-Founder—Dr. Hongfei Liu



Postdoctoral Hongfei Liu

- Selected "Innovative Talent" by Science and Technology ministry
- Top Class A Talent by Xiamen City
- CCTV Science & Technology Interview
- Fortune 500 experience in Agilent, II-VI

Honors

- Selected by science & technology ministry as "Innovation Talent"
- CCTV Science & Technology Interview
- Top Class A Talent credited by Xiamen City
- **Innovation Hero**

Education

- PhD • Chinese Science of Academic • Prof. Gui-Lin Chen, Originator in spectroscopy
- Postdoctoral • Xiamen University • Prof. Zhong-Qun Tian guided by the SERS founder M.Fleischmann

Career

- Engineer → R&D Manager → GM
- **Agilent**, Leader of instrument, Fortune 500 company, Job: engineer
- II- VI Incorporated (Nasdaq: IIVI) leader in optical & electrical industries, Job: GM of Instrumentation and Automation

Academic

- University graduate tutor
- obtain more than 60 IPs, more than 10 Innovation patents;
- Publish more than 20 papers, 2 recorded SCI, 8 recorded EI



Selected "Innovative Talent" by Science and Technology ministry



Top Class A Talent by Xiamen City



Founder & Tutors

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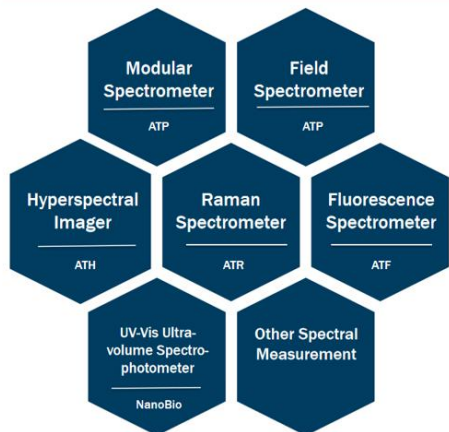
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18 Optosky's Co-founder_Dr. Hongfei Liu

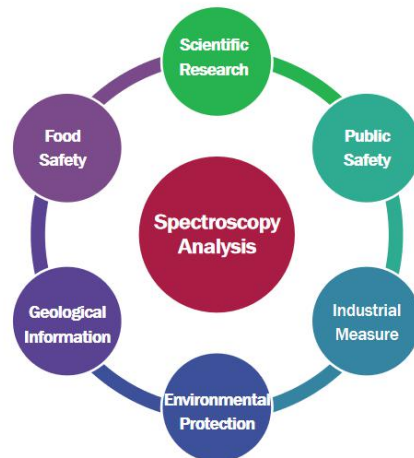
Category & Application



Category



Application




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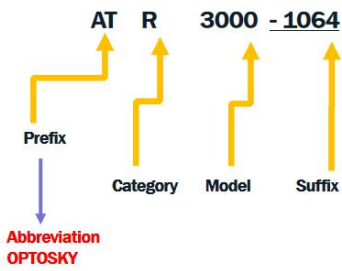
19 Category & Application



Model Name Rule

Model Name Rule:

- Prefix
- Category
- Model
- Suffix



- **ATR** - Raman Spectrometer
- **ATP** - Micro Spectrometer
- **ATH** - Hyperspectral Imager
- **ATF** - Micro Fluorescence Spectrometer
- **ATL** - LIBS
- **ATW** - Water
- **ATE** - Environment Protect
- **ATFD** - Food Safety
- **GA** - Public Safety (**Gong An**)
- **GF** - Gas Monitor (**Gas Finder**)
- **GY** - Industrial Monitor (**Gong Ye**)

eg:

- Raman Microscope: ATR8300MP-1064
- Hyperspectral Imager: ATH9500

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20 Model Name Rule