

Broadband hyperspectral spectrometer (300nm~11μm)

ATP9110

Features

- Maximum band range: 300 nm~11μm
- High sensitivity, the highest quantum efficiency of the detector is 60%, and the near-infrared sensitivity is 40% higher than that of traditional PDA detectors
- The measurement speed is fast, time for a single sampling less than 10 seconds
- Optical fiber probe measurement, light weight, flexible use
- Built-in anti-secondary diffraction coating and filter, high accuracy
- Dynamic dark current correction to reduce the influence of thermal noise
- Display the inclination angle of the probe, and the laser indicates the detection position, convenient for adjustment
- Portable, special carrying case, easy to carry
- PC software control mode

Application

- Geological research, prospecting
- Remote sensing measurement
- Crop monitoring
- Forest research, oceanographic research

Description

ATP9110 spectrometer (field spectroradiometer) is the latest product of Optosky (Aopu Tiancheng) company. Monitoring, forest research, oceanographic research and other fields of application.

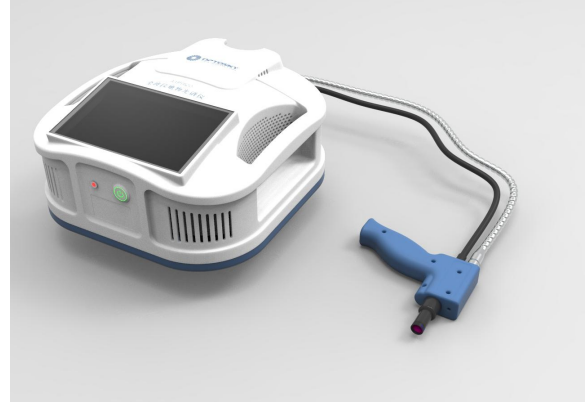
High cost performance, fast and accurate measurement, simple operation, and easy to carry. It is equipped with a powerful software package. In addition to reflectance measurement, it can also be used for radiometry, photometry and colorimetric measurements.

Model	Describe
ATP9110-25	Normal resolution,300~2500nm
ATP9110-25H	High resolution,300~2500nm
ATP9110-17	High resolution,300~1700nm
ATP9110-50	300~5000nm, Ultra-broadband surface object spectrometer
ATP9110-110	300nm~11μm, Ultra-wideband surface object spectrometer (missing5~5.5μm)
ATP9110TP	With 7 inch capacitive touch screen,
ATP9110Plus	With light intensity compensation
ATP9110Pro	With spectral compensation





ATP9110 Series Appearance



ATP9110TP Series Appearance



ATP9110 Plus/Pro Series Appearance



Physical picture



Physical picture



Physical picture

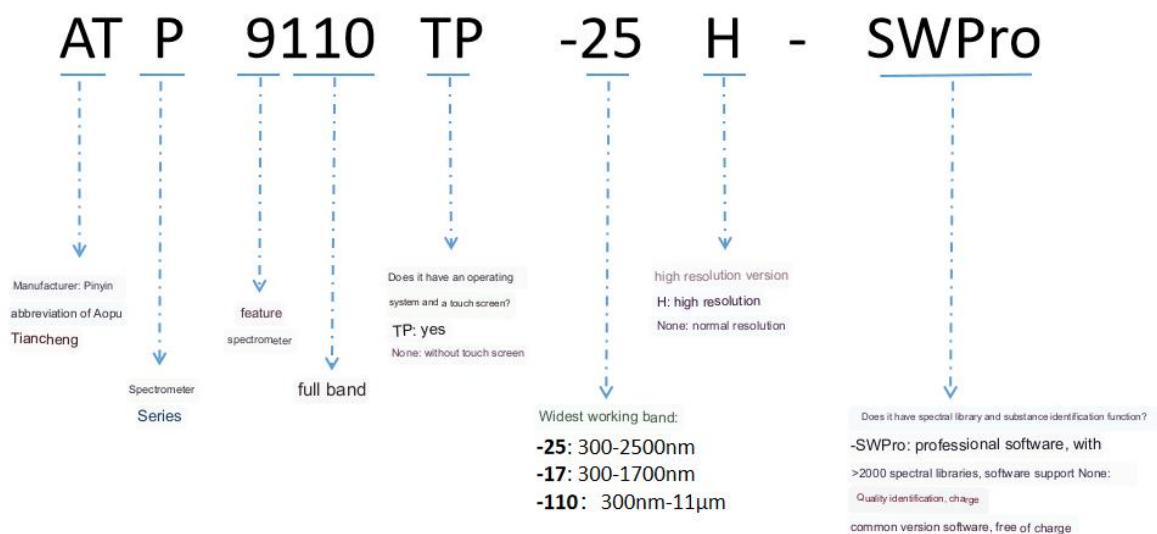


Scenarios used in the wild



The use scene of ATP9110TP spectrometer

1. Naming rules and selection guide



For example:

ATP9110-25H-SWPro: 300-2500nm, high resolution, professional software, no touch screen

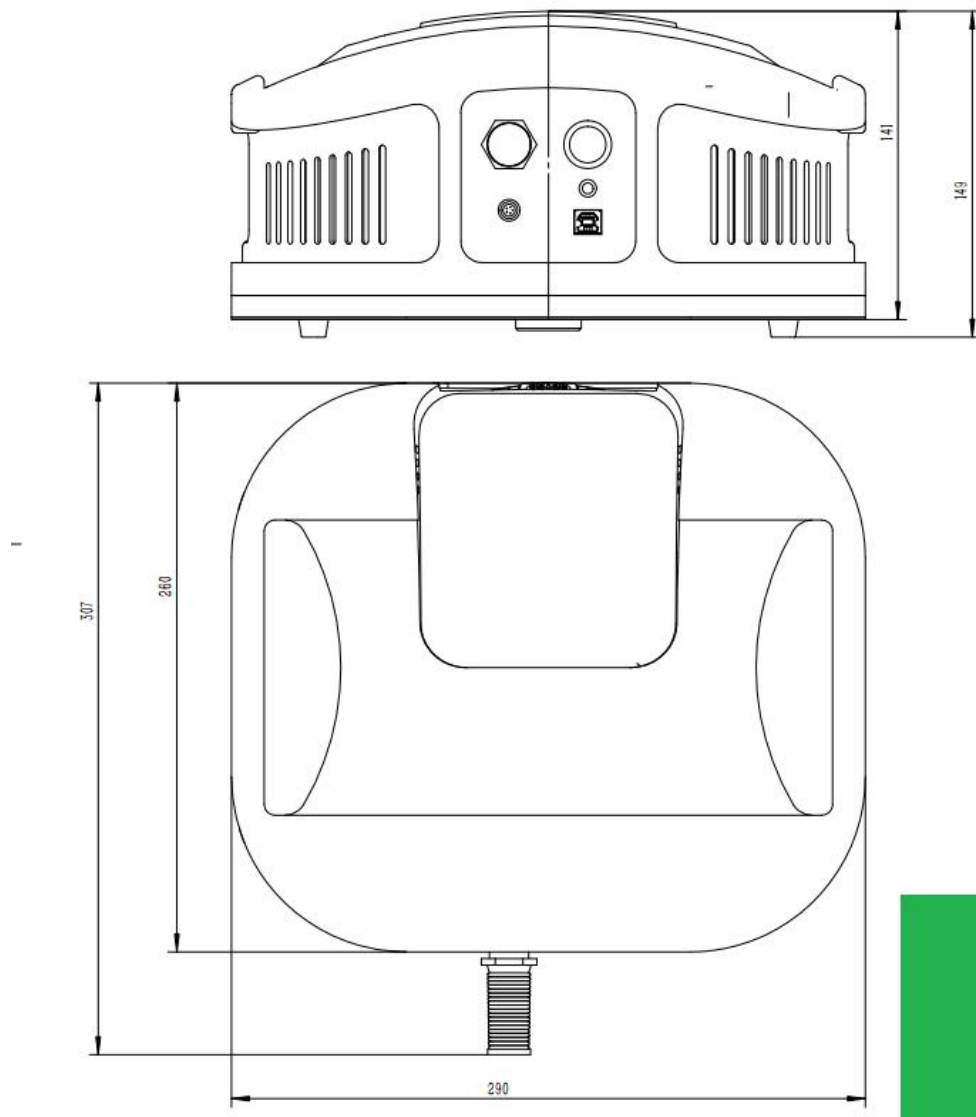
ATP9110TP-25-SWPro: 300-2500nm band, normal resolution, professional software, touch screen and operating system

2. Performance

Optical Parameters					
Model	ATP9110-17	ATP9110-25	ATP9110-25H	ATP9110-50	ATP9110-110
Spectral Range	300~1700nm	300~2500nm		0.3~5μm	0.3~11μm
Spectral Resolution	1.2~2.7nm @756nm 3~5nm @1550nm	1.2~2.7nm @756nm 7~12nm @1550nm	1.2~2.7nm @756nm 3~5nm @1550nm 5~8nm @2100nm	1.2~2.7nm @756nm 7~12nm @1550nm 30nm @2.5~5μm	1.2~2.7nm @756nm 7~12nm @1550nm 30nm @2.5~5μm 50nm @5.5~11μm
Spectral Channels	2560	2560	3072	/	
Detector	Linear Array Sensor + InGaAs Sensor	Linear Array Sensor + InGaAs Sensor	Linear Array Sensor + InGaAs Sensor + InGaAs Sensor	Linear Array Sensor + Pyroelectric Sensor	
Wavelength Repeatability	±0.1nm@VIS, ±0.5nm@SWIR, ±3nm@MWIR				
Wavelength Accuracy	±0.5nm@VIS, ±1.1nm@SWIR, ±5nm@MWIR				
Input	1.5m Fiber Bundle (25° FOV), Optional front lens to change FOV, Fiber length selectable				
FOV	Small FOV lenses, 1°/8°/15°/25° optional				
Indicator Laser Wavelength	650nm				
Indicator Laser Power	5mW				
Maximum Radiance	VNIR 2× Solar, SWIR 10× Solar				
SNR	300~1000nm: >800, 1000~2500nm: >16000				

Spectral Sampling Interval	0.5nm				
Spectral Averaging Times	Up to 100,000 times				
Electrical Parameters					
Integration Time	1ms~10s				
Data Output Interface	USB 2.0				
Geolocation	Built-in GPS				
Sensors	Gyroscope, Temperature & Humidity Sensor, Altitude & Pressure Sensor				
Power Supply	External Li-ion battery pack, optional external 12V/car power supply				
Battery Life	>3H (outdoor operation), battery replaceable				
Storage Temperature	-20°C~+65°C				
Operating Temperature	-20~50oC				
Operating Humidity	< 90%RH (non-condensing)				
Physical Parameters					
Protection Rating	IP54				
Dimensions (mm)	290×290×141mm	290×290×141mm	350×300×170mm	350×300×170mm	350×300×170mm
Weight	5.1 Kg	5.1Kg	6.5Kg	6.5 Kg	6.5 Kg

3. Product dimensions picture



Dimensions of ATP9110



ATP9110H-25、ATP9110-50、ATP9110-110 Physical appearance drawing

4. Measured spectrogram

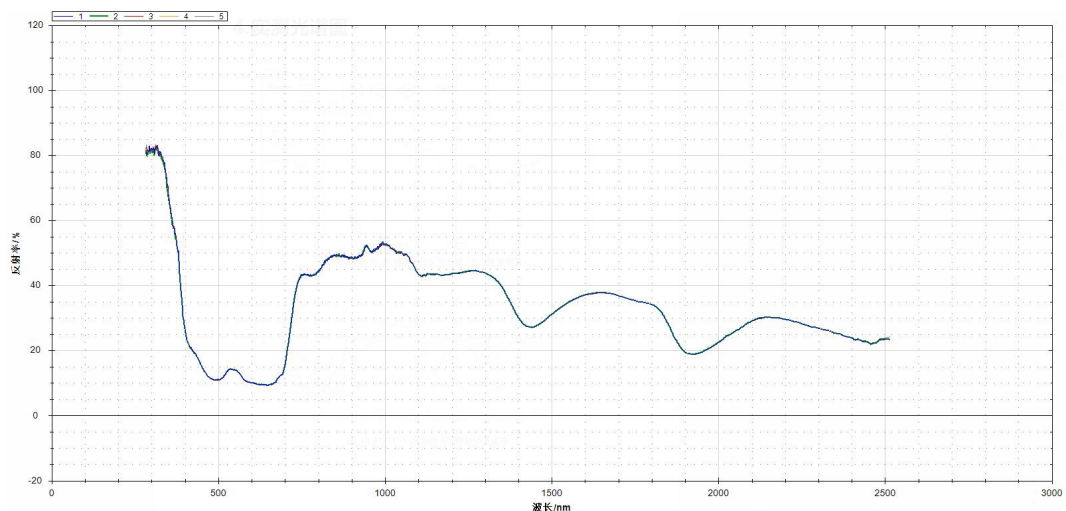


Figure 5 ATP9110-25 Measured Reflectance Spectrum of Green Leaf (5 Repeated Measurements)

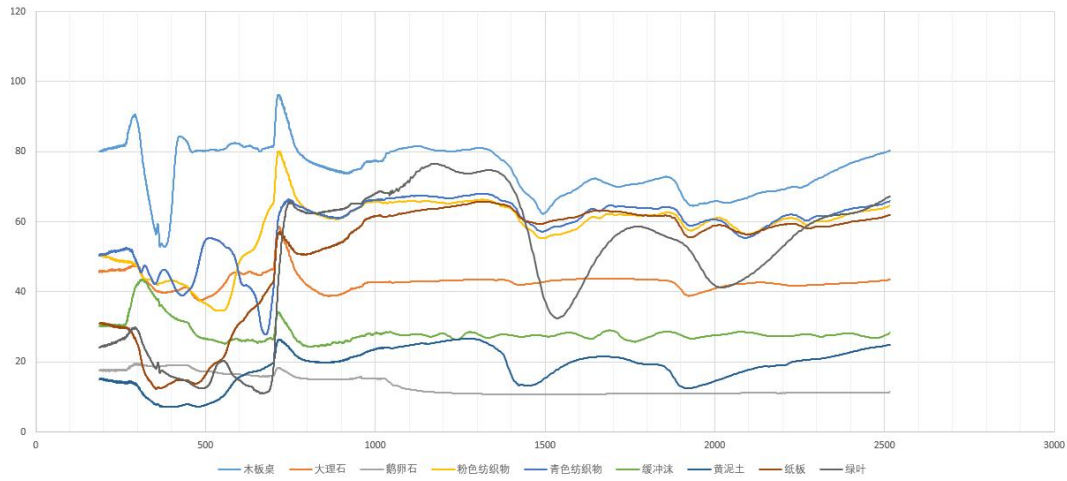


Figure 6 ATP9110-25 Measured Spectral Graphs of Different Materials

5. On-site pictures of ATP9110





ATP9110 outdoor measurement pictures

6. Measuring accessories

No.	Product	Product Description	Qty.
1	Battery Charger	12V, 5A	1
2	Lithium Battery	12V	2
3	USB Data Cable	1.5 米	1
4	Pistol Grip Connecting Cable	1.5 米	1

Product data information is current as of publication data. Products conform to specifications per the terms of Optosky Standard warranty.

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5	Metal Dust Cap	/	1
6	FOV Lens	25°	1
7	White Reference Panel	95%	1
8	USB Flash Drive	64G	1
9	Cosine Lens	/	1

7. Other application methods of ATP9110



The application of ATP9110 mounted on the UAV

8. Fieldspec spectrometer series products

> Ground Object Spectrometer



Handheld ground object spectrometer (300-1100nm)

- ATP9100F: Display detection area
- ATP91: Standard version

Number of bands: 2048

High resolution: 1.5nm

Directly display the detection area

5.5 inch capacitive touch screen

laser pointing

13-megapixel auto-focus camera

Built-in lithium battery, battery life>6h



Full-band surface object spectrometer

- ATP9110-25 : 300-2500, 10nm resolution
- ATP9110-25H : 300-2500nm, 5nm
- ATP9110-17 : 300-1700 nm, 5nm
- ATP9110-50 : 300nm-5μm
- ATP9110-110 : 300nm-11μm

- The widest wavelength range up to: 300nm-11μm
- high resolution;
- 抑制 Cold Backside Illuminated Detector
- Two-stage cooled InGaAs detector;
- Automatic dynamic dark current correction;
- Automatic wavelength drift locking function



ATP9110TP

Full-band surface object spectrometer

- ATP9110TP-25 : 300-2500, 10nm resolution
- ATP9110TP-25H : 300-2500nm, 5nm
- ATP9110TP-17 : 300-1700 nm, 5nm

- Have all the functions of ATP9110
- HD capacitive touch screen
- Android operating system, can store >100,000 spectra
- WiFi, Bluetooth remote control
- Built-in battery life > 3 hours, the battery can be replaced



ATP9101

Miniature Ground Object Spectrometer (350-940nm)

- Pixels: 1024 pixels
- High resolution: 2.5nm
- Weight only 120g
- laser pointing
- Built-in lithium battery, battery life time>5h
- bluetooth connection
- Suitable for course teaching



Hyperspectral imager full range



ATH1010 series
Push-broom hyperspectral imager
(maximum range: 0.4-2.5 μm)



ATH1500 series
Frame type hyperspectral imager
(maximum range: 0.4-5 μm)



full band
400-1700nm or
400-2500nm full-band hyperspectral imager

- Domestic hyperspectral imager
- Independent Intellectual Property



ATH9000 series
UAV-borne
hyperspectral imaging system



ATH8000 series
Laboratory plain scanning
hyperspectral imaging system



ATH6000 series
Portable
hyperspectral imaging system



ATH5000 series
Highway
Hyperspectral Imaging System



ATH3000 series
Turntable
Hyperspectral Imaging System



ATH2000 series
Handheld
Hyperspectral Imaging System

9. Company Profile

Optosky company has been providing first-class spectroscopy solution with 20 year, with the headquarter covers a area of 2500 square meter with 50 engineers in Xiamen city where held the international 9th BRICK summit in 2017. Another R&D research centers locates in Wuhu city with 30 engineers covering an area of 2035 square meters.

The company founder & CEO Dr.Hongfei,Liu received Doctor degree in Chinese Academic of Science and postdoctoral degree in Xiamen University, by cooperating with two top Universities' spectroscopy technology to integrate into Optosky company aiming at developing global leading spectroscopy solution provider.

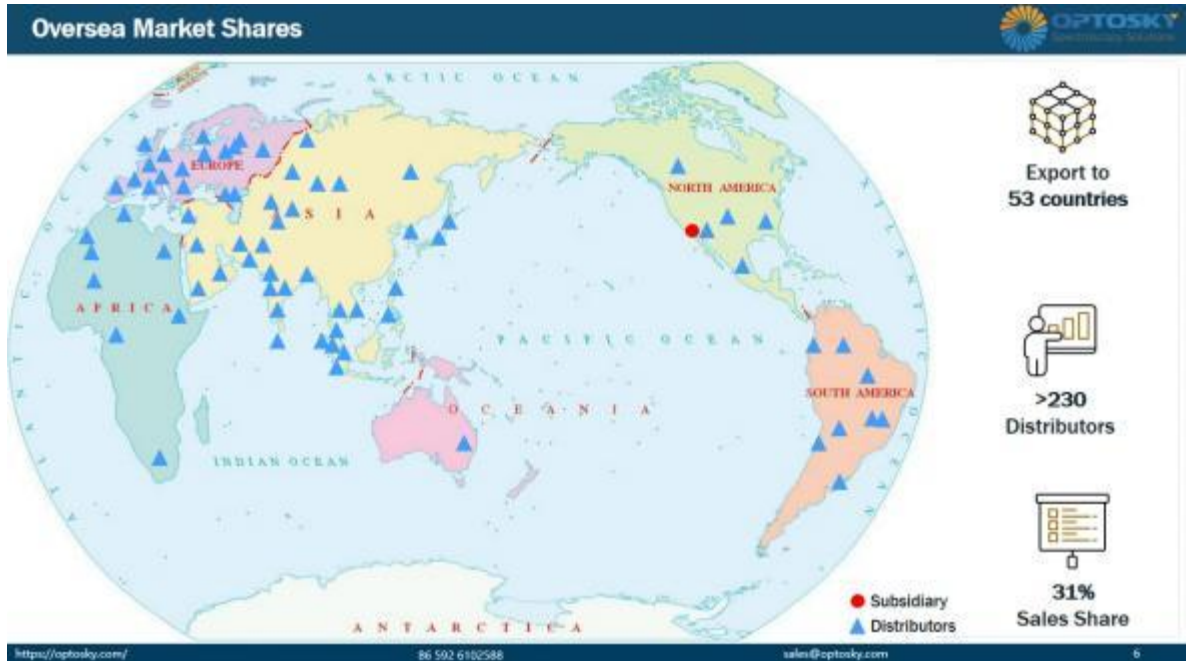
The company technology bases on Optomechanics, Spectroscopy Analysis, Process Weak Optical and Electrical Signals, Cloud Computing, and have been developed wide products line of Raman spectroscopy products, micro spectrometer, hyperspectral imager, field spectroradiometer, fluorescence spectroscopy, 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 innovation, 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 leading industrial companies, as well as many innovative intellectual properties, software copyright, qualification certification, and winner awards over hundred numbers.The company has received over 26 IPs, 35 innovative patents, and 32 copy rights.

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. Optosky company in charge of drafting 7 Chinese National Standards (GB) , including VNIR and SWNIR Field Spectroradiometer, Hazmat detector based on Raman spectroscopy, Buoy-type Monitor eco-environment, water quality monitor in the unmanned vessel, online water quality monitor by spectroscopy, UV-absorbent measure fabrics etc.

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



Overseas 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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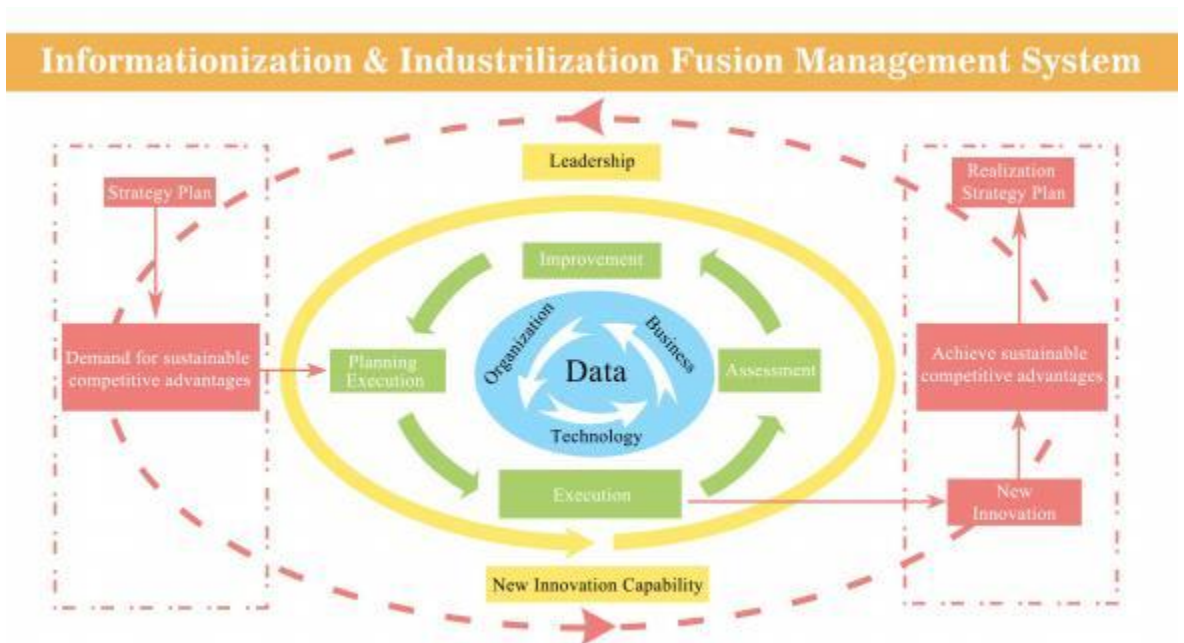
Optosky Chair and Draft National Standards Lists

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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Qualification



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. Guo-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: IVI) 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

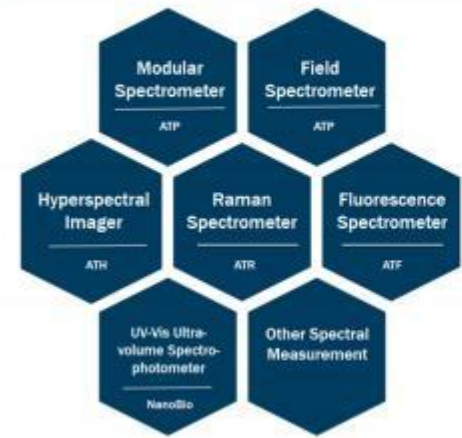
Founder & Tutors

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Optosky's Co-founder_Dr. Hongfei Liu

Category & Application

Category



Application



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