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[Life Science \(https://andor.oxinst.com/products/life-science-and-microscopy-solutions\)](https://andor.oxinst.com/products/life-science-and-microscopy-solutions)

[Physical Science \(https://andor.oxinst.com/products/physical-science-solutions\)](https://andor.oxinst.com/products/physical-science-solutions)

Spectrographs for UV, NIR & SWIR

[OEM \(https://andor.oxinst.com/oem-solutions\)](https://andor.oxinst.com/oem-solutions)
[Resources](#)
[Support \(https://andor.oxinst.com/service-and-support\)](https://andor.oxinst.com/service-and-support)

Andor's range of highly versatile spectrographs provide high resolution, high throughput, high modularity, ease of use from the UV to the NIR and SWIR, from macro- to nano-scale, with fluxes down to single photon and time-resolution down to nanosecond. Andor's spectrograph technology is based on Czerny-Turner, Echelle or Transmission optical designs.

Spectrograph features include:

- High modularity
- Intelligent motorisation
- TruRes™ (<https://andor.oxinst.com/assets/uploads/documents/trures-for-kymera-328i.pdf>) – Highest spectral resolution
- Adaptive Focus™ technology (patented)
- Ideal for both or Physical and Life science

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Czerny-Turner, Echelle & Transmission Optical Spectrographs

Andor's spectrograph family is based on Czerny-Turner, Echelle or Transmission optical designs, and offers a range of highly configurable or highly specialised platforms to best suit your experimental requirements.

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Kymera 193i

(<https://andor.oxinst.com/products/kymera-and-shamrock-spectrographs/kymera-193i>)

- 193 mm focal length
- F/3.6 aperture
- Adaptive Focus (Patented)
- Dual detector outputs

Specifications

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Kymera 328i

(<https://andor.oxinst.com/products/kymera-and-shamrock-spectrographs/kymera-328i>)

- 328 mm focal length
- F/4.1 aperture
- Adaptive Focus (Patented)
- Dual inputs and outputs

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Shamrock 500i

(<https://andor.oxinst.com/products/kymera-and-shamrock-spectrographs/shamrock-500i>)

- 500 mm focal length
- F/6.5 aperture
- Resolution down to 0.03 nm
- Dual inputs and outputs

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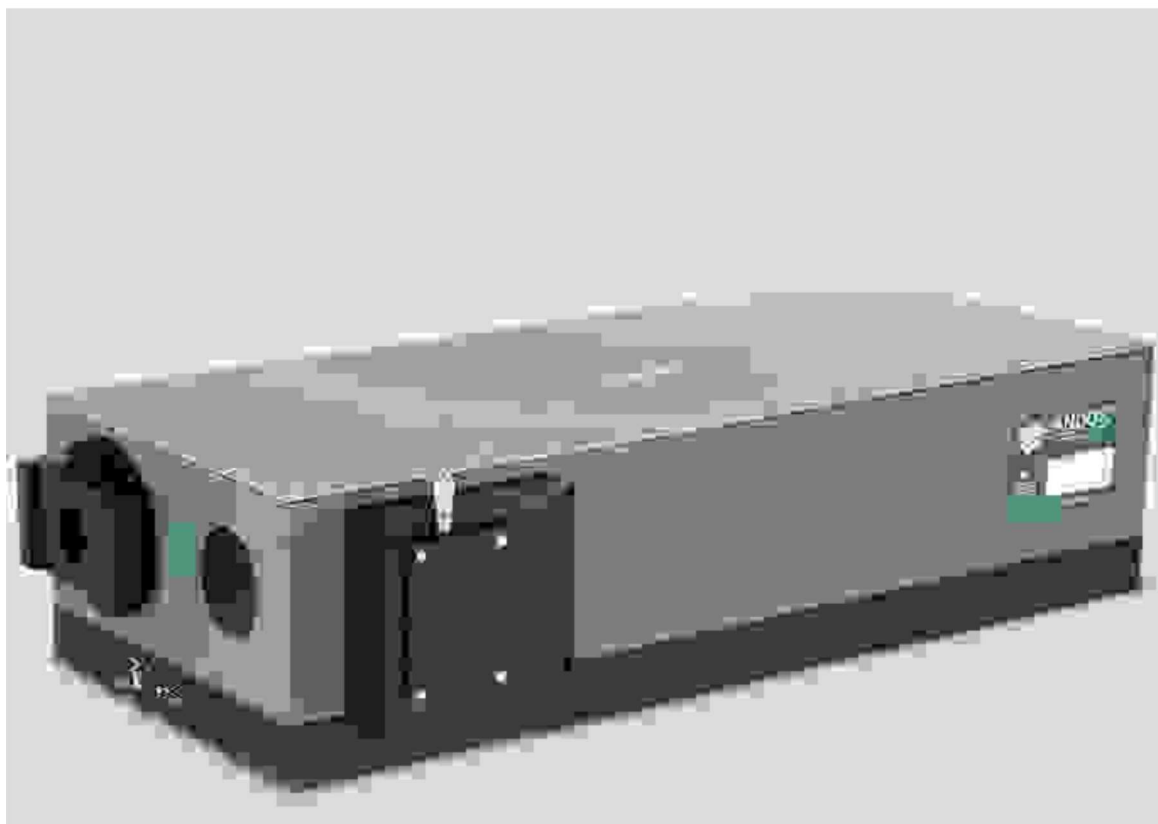
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Shamrock 750

(<https://andor.oxinst.com/products/kymera-and-shamrock-spectrographs/shamrock-750>)

- 750 mm focal length
- F/9.7 aperture
- Resolution down to 0.02 nm
- Dual inputs and outputs

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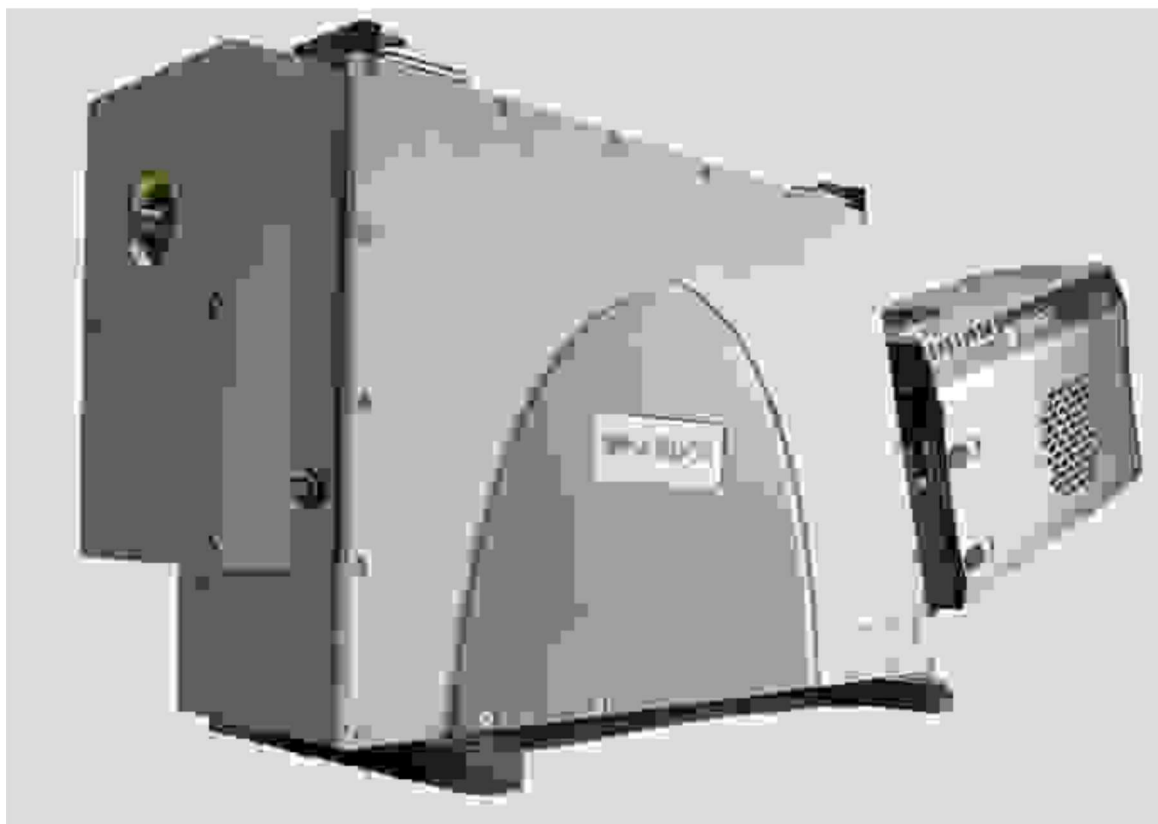
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Mechelle 5000

(<https://andor.oxinst.com/products/mechelle-spectrograph/mechelle-5000>)

- Large simultaneous bandpass
- Resolution power up to 6,000
- Low crosstalk patented optical design
- Built-in temperature correction

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Need help selecting the right spectrograph?

Select from the options below to find the Spectrograph platform that best meets you 

Motorized

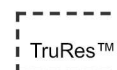
Flexibility

Kymera 193i

(</assets/uploads/products/andor/documents/andor-kymera-193-specifications.pdf>)

Kymera 328i

(<https://andor.oxinst.com/assets/uploads/products/andor/documents/andor-kymera-328i-specifications.pdf>)



Shamrock 500i

(</assets/uploads/products/andor/documents/andor->

shamrock-500-specifications.pdf)

Shamrock 750

(/assets/uploads/products/andor/documents/andor-shamrock-750-specifications.pdf)

Mechelle

(/assets/uploads/products/andor/documents/andor-mechelle-5000-specifications.pdf)

☐ Spectral Resolution ☐ Throughput ☐ Simultaneous bandpass

Spectroscopy Techniques and Applications

Raman Luminescence Absorption LIBS Microspectroscopy NL Material Chemical Biomedical Pla

Raman

Raman is a molecular spectroscopy technique that can provides chemical and structural fingerprint information for a wide range of samples, including for example nanomaterials, polymers, powders, liquids or cells/tissues. Key Raman techniques include:

- Spontaneous and stimulated
- Surface Enhanced Raman Spectroscopy (SERS)
- Surface Offset Raman Spectroscopy (SORS)
- Tip-Enhanced Raman Spectroscopy (TERS)
- Coherent Anti-Stokes Raman Scattering (CARS)

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Further Reading

Technical note: Introduction to Raman Spectroscopy

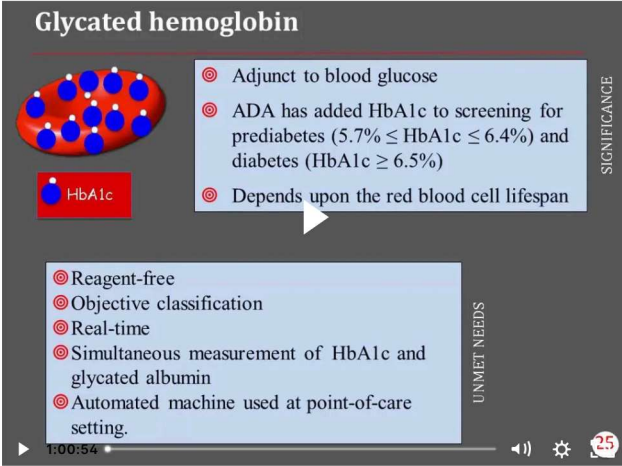
(<https://andor.oxinst.com/learning/view/article/raman-spectroscopy>)

App Note: Diagnosis of skin tumors during micrographic surgery

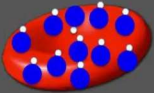
(<https://andor.oxinst.com/learning/view/article/diagnosis-of-skin-tumors-during-mohs-micrographic-surgery>)

App Note: Probing Molecular Structure with Raman Spectroscopy

(<https://andor.oxinst.com/learning/view/article/probing-molecular-structure-with-low-frequency-raman-spectroscopy>)



Glycated hemoglobin



HbA1c

SIGNIFICANCE

- ⊙ Adjunct to blood glucose
- ⊙ ADA has added HbA1c to screening for prediabetes ($5.7\% \leq \text{HbA1c} \leq 6.4\%$) and diabetes ($\text{HbA1c} \geq 6.5\%$)
- ⊙ Depends upon the red blood cell lifespan

UNMET NEEDS

- ⊙ Reagent-free
- ⊙ Objective classification
- ⊙ Real-time
- ⊙ Simultaneous measurement of HbA1c and glycated albumin
- ⊙ Automated machine used at point-of-care setting.

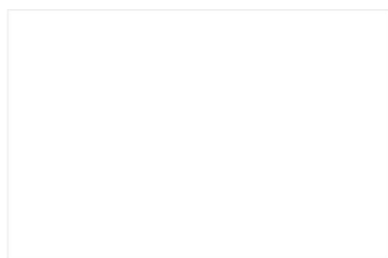
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Contact our application specialists

Spectrograph Accessories

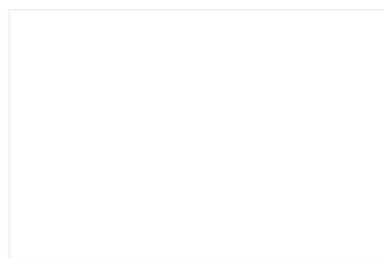
Adaptable to large range of setups, high configurability, in-field upgradeable



Light coupling input/outputs

- Fibre-optics
(<https://andor.oxinst.com/assets/fibre-optic-specifications.pdf>),
X-Y adjustable couplers
and F/# matcher
- Sample chamber
- Motorised & manual slits
- Filter wheels

Specifications



Micro-Spectroscopy Coupling

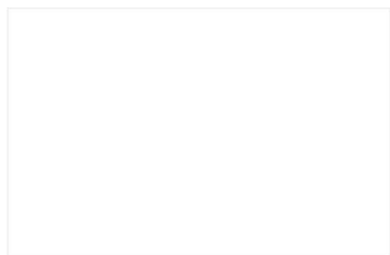
- Direct/indirect
(<https://andor.oxinst.com/learning/solutions-for-microspectroscopy>) spectrograph
microscope coupling
- Modular cage system
configurations
- μ -Manager software control

Specifications

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Detectors and Cameras for Spectroscopy

High sensitivity, high speed, high dynamic range detection from the UV to the NIR and SWIR.



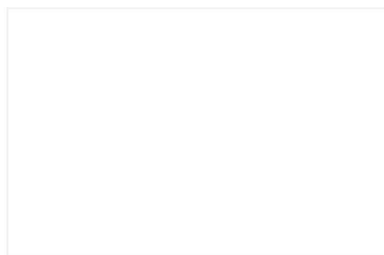
iDus CCD

High sensitivity, deep-TE cooled platform for UV-VIS-NIR-SWIR & Raman spectroscopy.

[401 Specifications](#)

[420 Specifications](#)

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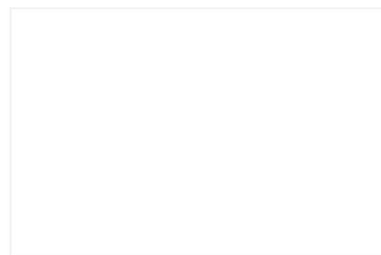
iDus InGaAs

High sensitivity, deep-TE cooled platform that is suitable for SWIR spectroscopy.

[1.7 Specifications](#)

[2.2 Specifications](#)

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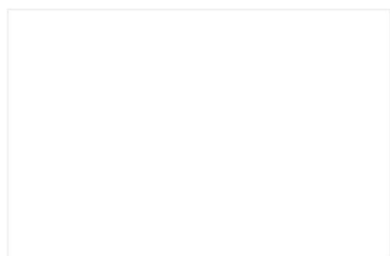
Newton EM/CCD

High speed and high sensitivity platform for fast transient studies or chemical mapping.

[EMCCD Specifications](#)

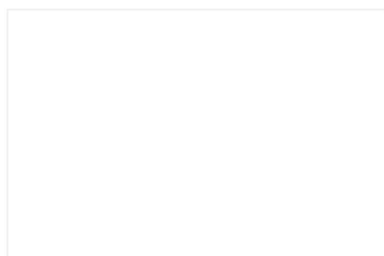
[CCD Specifications](#)

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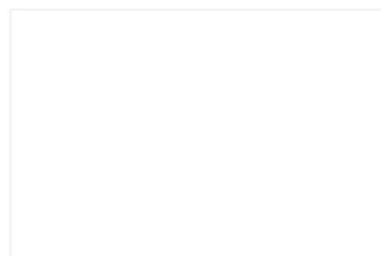
iStar CCD & sCMOS

Ns gated platform for highest time-resolution and accuracy, ideal for plasma dynamics & LIBS.



Marana & Zyla sCMOS

Ultrafast and high dynamic range platform for dynamic phenomena by fluorescence or absorption.



iXon EMCCD

Ultrafast and high dynamic range platform for dynamic phenomena by fluorescence or absorption.

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Spectroscopy Software Solutions



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Solis Acquisition Software - A 32-bit and fully 64-bit enabled application for Windows (8, 8.1 and 10) offering rich functionality for data acquisition and processing, as well as Andor cameras, spectrograph and motorized accessories simultaneous control.

Find out more (<https://andor.oxinst.com/products/solis-software/>)

Software Development Kit - A SDK that allows you to control the Andor range of spectrographs from your own application. Compatible as 32-bit and 64-bit libraries for Windows (8, 8.1 and 10). Compatible with C/C++, C#, VB.NET and LabVIEW for

Windows/Linux.

Find out more (<https://andor.oxinst.com/products/software-development-kit/>)

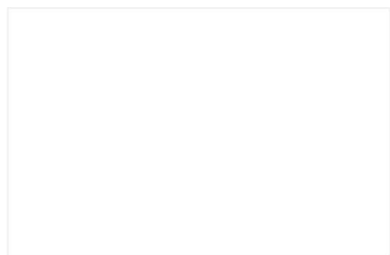
μ-Manager for Micro-spectroscopy - Integrated modular micro-spectroscopy setup control popular with the Life Science community. All market leading motorized microscope and accessories seamlessly controlled and maintained. Integrated sequence builder & macro interfaces for complex experiments building.

Find out more

Download plug-in (</assets/uploads/downloads/mm-microspectroscopyplugin-1.0.0.zip>)

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Spectroscopy Resources



Resolution Calculator

Calculate the resolution, bandpass and dispersion values for any available configuration

(<https://andor.oxinst.com/tools/resolution-calculator>)

Customer Publications

Author	Title	Year
Wang et al	High-parameters experimental linear plasma device for fusion wall conditioning studies (https://doi.org/10.1016/j.vacuum.2024.113111)	2024
Kukk et al	Non-invasive optical biopsy of skin lesions by multimodal system with OCT, ultrasound, photoacoustics and Raman... (https://doi.org/10.1117/12.3001918)	2024
Chang et al	Retrieving profile of photoresist with high aspect ratio and subwavelength features using optical spectroscopy and... (https://doi.org/10.1364/OE.517201)	2024
Banerji et al	Studying the cation dependence of CO ₂ reduction intermediates at Cu by in situ VSFG spectroscopy (https://doi.org/10.1039/D3SC05295H)	2024
Gardette et al	Quantifying Titanium Exposure in Lung Tissues: A Novel Laser-Induced Breakdown Spectroscopy Elemental... (https://doi.org/10.1002/smsc.202300307)	2024
Zeng et al	Noncollinear Optical Parametric Amplification of Broadband Infrared Sum Frequency Generation Vibrational Spectroscopy (https://doi.org/10.1021/acs.jpcllett.4c00003)	2024
Greda et al	A novel atmospheric pressure glow discharge system for sensitive determination of As, Sb, and Se by optical emission... (https://doi.org/10.1016/j.sab.2024.106879)	2024
Villa-Aleman et al	Laser-Induced Plasmas of Plutonium Dioxide in a Double-Walled Cell (https://doi.org/10.1177/0003702824122697)	2024
Vinogradova et al	Site-selective time resolved laser spectroscopy and DFT studies of Na ³⁺ optical centers in BaF ₂ doped crystals (https://doi.org/10.1016/j.jlumin.2024.120439)	2024

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Dolezal et al	Single-Molecule Time-Resolved Spectroscopy in a Tunable STM Nanocavity (https://doi.org/10.1021/acs.nanolett.3c04314)	2024
Nagli et al	Polarization-dependent optical Stark effect on Fraunhofer-type absorption in DP LIBS (https://doi.org/10.1016/j.sab.2024.106886)	2024
Hassandoost et al	Photocatalytic performance of disordered titanium-based hollow nanosheet metal- organic frameworks... (https://doi.org/10.1016/j.jtice.2024.105409)	2024
Enna et al	Microstructured Organic Cavities with High-Reflective Flat Reflectors Fabricated by Using a Nanoimprint-Bonding Process (https://doi.org/10.1002/adom.202302956)	2024
Ramasamy et al	Single-Particle Spectroelectrochemistry: Promoting the Electrocatalytic Activity of Gold Nanorods via Oxygen Plasma... (https://doi.org/10.1021/acs.analchem.3c03850)	2024
Titze et al	Hyperspectral confocal imaging for high-throughput readout and analysis of bio-integrated microlasers (https://doi.org/10.1038/s41596-023-00924-6)	2024

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(<http://www.psychologylinker.com/oxia.php>)

(<http://www.youtube.com/ZuseNdxins>)

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