ANDOR

an Oxford Instruments company

Modular Solutions for Microspectroscopy

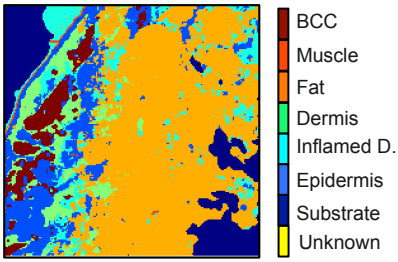
Adding analytical dimension to microscopy images

Including the **new Kymera platform**

Microspectroscopy at a glance

Highly configurable microspectroscopy interfaces

Andor's dedicated, highly configurable microspectroscopy interfaces allow seamless integration to microscopy systems.



Key Applications

- Micro-Raman (stimulated, SERS, TERS)
- Micro-Photoluminescence / Fluorescence
- Dark-field scattering spectroscopy
- Single Molecule spectroscopy
- Spectrally-resolved microfluidics
- Semiconductors / Graphene / carbon nanotubes study
- Bio-sample screening - e.g. cancer tissues

Features and Benefits

High sensitivity detectors

Ultra-sensitive CCD, ICCD, EMCCD and sCMOS cameras for maximum photon detection and speed. Ideal for fast and photon starved chemical mapping or microfluidics setups.

Highly configurable spectrograph platforms

Extensive range of multi-input and output, motorized Czerny-Turner spectrographs with seamlessly interchangeable and configurable accessories.

Seamlessly configurable spectrograph-microscope interfaces

Dedicated feet sets allow easy optical height matching between spectrographs and inverted Nikon, Olympus, Zeiss and Leica microscopes.

Wide-aperture slit

Kymera/Shamrock input accessory for extended sample image relay and spectral analysis through the same optical path.

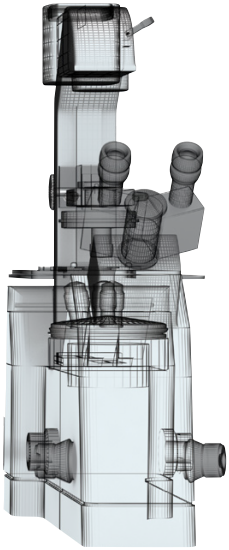
µManager software integration

Simultaneous control of Andor cameras and Kymera spectrographs and a wide range of microscopes and accessories through a single software platform. Dedicated, user-friendly spectrum-handling interface.

Software Development Kit (SDK)

Ease-of-control integration into custom, complex setups: Matlab, LabView, Visual Basic and C/C++ supported.

Coupling Configurations



Microscope
Inverted side port
or upright port

Fiber-optic coupling

Direct C-mount

Enclosed optical relay

Open cage system

Detector
CCD, EMCCD, ICCD, InGaAs

Spectrograph
Kymera 193i or 328i
Shamrock 500i or 750

Software
Solis, SDK, µManager

	Coupling interface		Configurability	Light collection efficiency	Confocality	Microscope port connection
	Microscope	Spectrograph				
Fiber optics	SMA or FC to C-mount adapter	Ferrule, SMA or FC adapter	Limited	Good	Low	Side, upright
Direct coupling	Male C-mount	C-mount	-	Best	Lowest	Side, upright*
Cage system**	Male C-mount or free space	Cage adapter	Highest	User configuration-dependant	User configuration-dependant	Side, upright*

(*) Custom positioning setup required, e.g. elevated support structure.
(**) Fixed configuration enclosed optical relay are also available on request.

Research-grade spectrographs

Highly modular motorized platforms with dual output ports, dual/triple/quadruple grating turrets and a wide range of motorized and field-upgradable accessories.

Shamrock 750
Highest resolution modular spectrograph

Shamrock 500i
High resolution modular spectrograph

Kymera 328i NEW
Intelligent and multi-modal 'workhorse' spectroscopy platform

Shamrock 163
Compact manual benchtop spectrograph

Kymera 193i NEW
Intelligent, modular and compact imaging spectrograph

Find out more at andor.com/spectrographs

Kymera 328i - Intelligent and multi-modal spectroscopy platform NEW

The Kymera 328 mm focal length imaging spectrograph offers a highly configurable platform with Adaptive Focus technology and intelligent TruRes™ spectral resolution enhancement option at the touch of a button.

Quad grating turret and dual input and output ports allow seamless integration into demanding optical setups or multi-modal laboratories.

- 328 mm focal length
- Adaptive Focus technology
- Dual input and detector outputs
- Quadruple grating turret with RFID technology
- TruRes™ spectral resolution enhancement option

Wide Aperture Slit - Combining sample imaging and spectral analysis through the same optical path.

'Infinity-corrected' microscope ports exhibit a quasi-collimated output beam with F/number typically greater than F/20. When this beam is relayed at the entrance slit of an 'imaging-corrected' spectrograph through direct coupling or low magnification optical arrangement, high fidelity images of the sample under the microscope objective can be acquired.

Step 1:
Sample image visualization

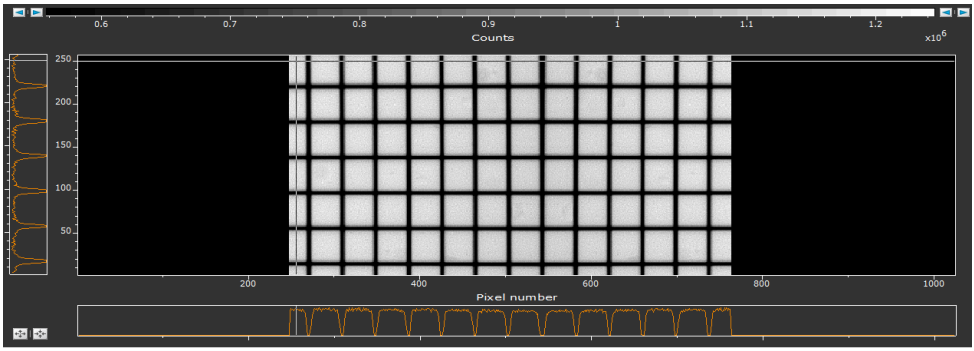
- Spectrograph input slits are opened widely
- Grating (or flat mirror) is positioned at the 'zero' order, reflecting the undispersed image of the sample
- Sample images are acquired by a camera at the output port of the spectrograph

Step 2:
Sample positioning

- The image of the sample area of interest is positioned in the middle of the spectrograph input slit (by moving the microscope X-Y stage)

Step 3:
Spectral acquisition

- Spectrograph input slits are closed to a few 10's of a µm
- Grating is rotated to allow access to the desired wavelength range
- Spectral information from the sample can be acquired with the detector operating in vertical binning of multi-track mode.



Above: High fidelity image of at a 25 µm pitch grid pattern on a microscope slide
Microscope: Olympus IX81 with x40 objective (N.A. 0.55) and wide-field illumination.
Detection: Kymera 193i directly coupled to the microscope side port, with a 15 mm wide-aperture slit, a grating at the 'zero' order and an iDus 420 CCD camera.

Market-leading detectors

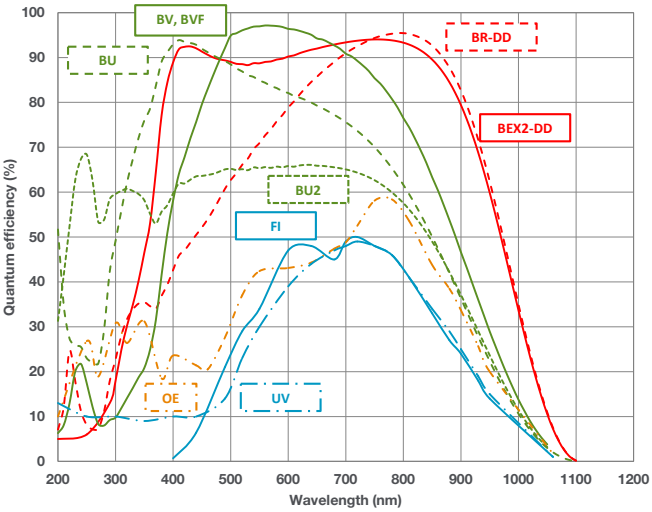
Best matching requirements for sensitivity at wavelengths of interest, acquisition speed and time-resolution.

iDus 416

'Low-dark current deep-depletion' (LDC-DD) CCD

Newton

Broadband 'Dual AR' (BEX2-DD) and UV-VIS CCDs
High sensitivity and high speed EMCCDs



iDus InGaAs

SWIR Spectroscopy with hassle-free TE-cooling

NEW Zyla sCMOS

Ultrafast acquisitions up to 27,000 sps, high sensitivity and high dynamic range

iStar ICCD

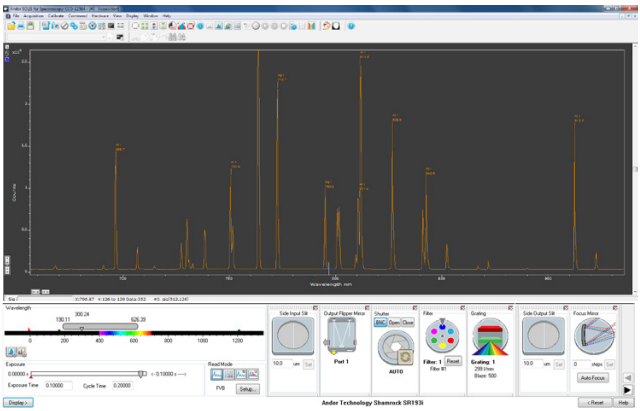
ns-gated ICCD detector for fast transient phenomena

Find out more at
andor.com/cameras

Software Solutions

Solis Spectroscopy

A 64-bit enabled application for Windows (7, 8, 8.1 and 10) offering rich functionality for data acquisition and processing, as well as simultaneous control of Andor cameras, spectrographs and motorized accessories.



SDK

A software development kit that allows control of Andor detection systems from your own application. Compatible as 32 and 64 bit libraries for Windows (7, 8, 8.1 and 10).

MATLAB

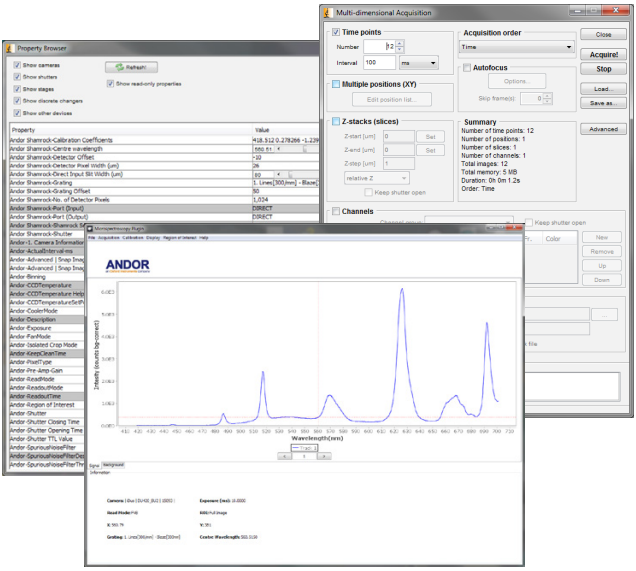
NATIONAL INSTRUMENTS LabVIEW

Linux

EPICS

µManager

Integrated microspectroscopy setup software control with seamless access to all market leading motorized microscope and accessories. Integrated sequence builder and macro interfaces for complex experiments building.



Find out more at andor.com/software

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Customer Support

Andor products are regularly used in critical applications and we can provide a variety of customer support services to maximize the return on your investment and ensure that your product continues to operate at its optimum performance.

Andor has customer support teams located across North America, Asia and Europe, allowing us to provide local technical assistance and advice. Requests for support can be made at any time by contacting our technical support team at andor.com/support.

Andor offers a variety of support under the following format:

- On-site product specialists can assist you with the installation and commissioning of your chosen product
- Training services can be provided on-site or remotely via the Internet
- A testing service to confirm the integrity and optimize the performance of existing equipment in the field is also available on request.

A range of extended warranty packages are available for Andor products giving you the flexibility to choose one appropriate for your needs. These warranties allow you to obtain additional levels of service and include both on-site and remote support options, and may be purchased on a multi-year basis allowing users to fix their support costs over the operating life cycle of the products.

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