

LIGHT. PRECISION. ANALYTICS.



DEMON



DEMON-NIR



Super DEMON

echelle spectrometer with pre-monochromator and active wavelength stabilization in Littrow-configuration			Optical design
f/10	f/10	f/20	Aperture
adjustable	adjustable	adjustable	Slit width
190 - 900 nm (175-1,100 nm on request)	600 - 1,700 nm	200 - 750 nm, no gaps	Wavelength range
75,000 (150,000 possible)	60,000	< 200,000 (more on request)	Spectral resolving power
2.5-12 pm (other resolution possible)	10 - 28 pm	1 - 3.75 pm	λ /min measurable FWHM
spectral resolution / 4	Pixel Dispersion x 10 pixel	spectral resolution / 4	Spectral resolution
1-5nm (depending on wavelength)	4.5 - 13.5 nm	0.25 - 1 nm	Absolute accuracy
λ / 225,000	better λ / 90,000	λ / 600,000	Simultaneous inspection range
CCD or ICCD	CCD	CCD or ICCD	Linear dispersion
1 ms with CCD; 5 ns with ICCD	1 ms	1 ms with CCD; 5 ns with ICCD	Detector
16 bit	16 bit	16 bit	Exposure time, min.
Fiber (optional mirror optics) with calibration lamps	Fiber (optional mirror optics) with calibration lamps	Fiber (optional mirror optics) with calibration lamps	Dynamic range
automatic control of the motors and the calibration lamps via PC	automatic control of the motors and the calibration lamps via PC	automatic control of the motors and the calibration lamps via PC	Light coupling
Sophi, LabVIEW library optional	Sophi, LabVIEW library optional	Sophi, LabVIEW library optional	Wavelength calibration
			Control
(600 x 310 x 230) mm	(600 x 310 x 230) mm	(1,215 x 512 x 300) mm	Software
25 kg	25 kg	75 kg	Dimensions without detector (L x W x H)
integrated mechanical shutter and motorized slit	integrated mechanical shutter and motorized slit	integrated mechanical shutter and motorized slit	Weight without detector
			Features

subject to technical changes

LTB Lasertechnik Berlin GmbH

established in 1990, is an innovative developer and manufacturer of short-pulse lasers in the whole optical spectral range, different spectrometers and laser-based measuring techniques, marketing its products worldwide.

We provide you:

- Laser sources for the industrial analytics and medical diagnostics
- Highest-resolution spectrometers for the development and production of lasers, esp. diode lasers and laser diodes, and for the laser lithography
- Laser-based measuring techniques for the spectroscopic material analysis, process analytics and medical diagnostics (LIF, LIBS and Raman)

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State: 1.1.2019

High-Resolution
60,000 - 200,000

Wavelength range
190nm - 1,700nm



DEMON-Series

Double-Echelle-MONochromator

for laboratory and industrial applications

DEMON

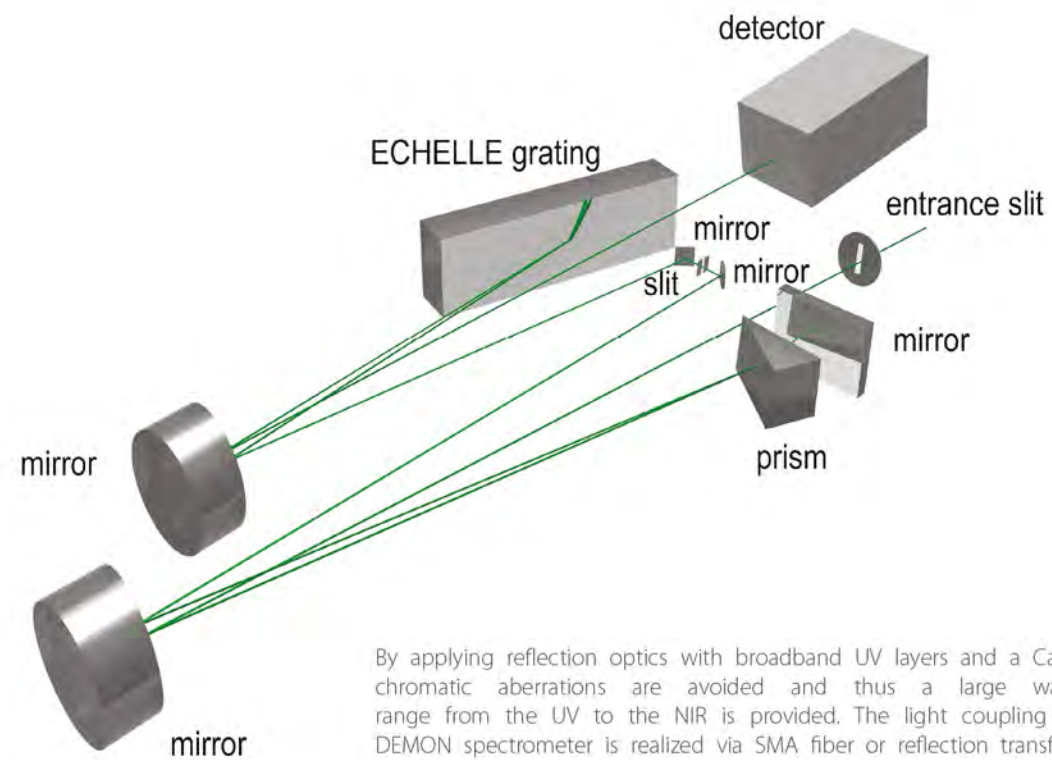
Double Echelle MONochromator

High spectral resolution
Double Echelle Monochromator series for the measurement of emission and absorption lines from the UV up to the NIR range.

- High absolute wavelength accuracy
- High spectral resolution (60,000-200,000)
- High optical throughput
- Optimized for several detectors (CCD, ICCD)
- Motorized optomechanics

Optical Setup

The DEMON is a spectral high-resolution Double Echelle MONochromator. It consists of an optomechanically motorized and thermally robust echelle spectrometer in sequence with a prism monochromator that is used for the selection of the inspection range. The patented optical design of prism and echelle grating is arranged in Littrow configuration and benefits from the high image quality of the applied parabolic mirror optics. The width of the prism monochromator exit slit, which serves also as entrance slit of the echelle spectrometer, is adjustable. An active wavelength stabilization is provided by using the internal calibration lamp for highest absolute wavelength accuracy without the necessity of extensive temperature stabilization.



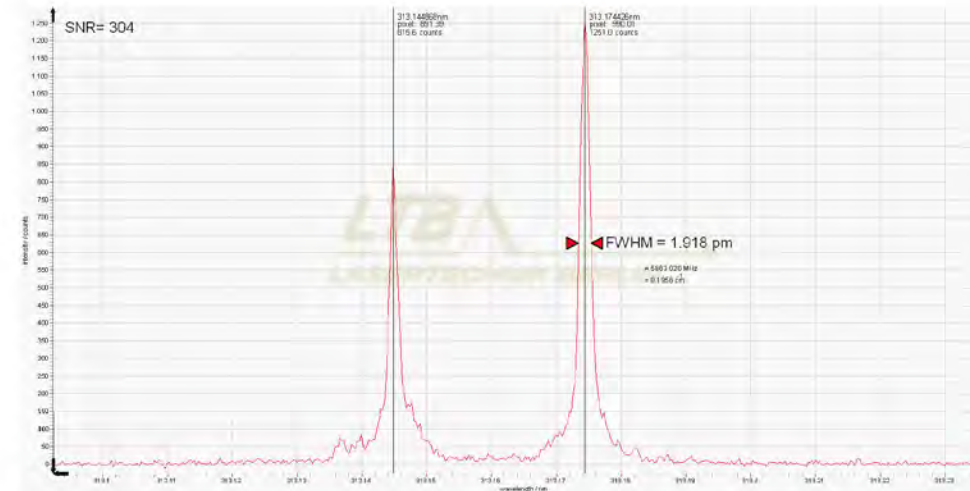
By applying reflection optics with broadband UV layers and a CaF₂ prism, chromatic aberrations are avoided and thus a large wavelength range from the UV to the NIR is provided. The light coupling into the DEMON spectrometer is realized via SMA fiber or reflection transfer optics. Various CCD and ICCD cameras are suitable for the designed detection area.

Applications

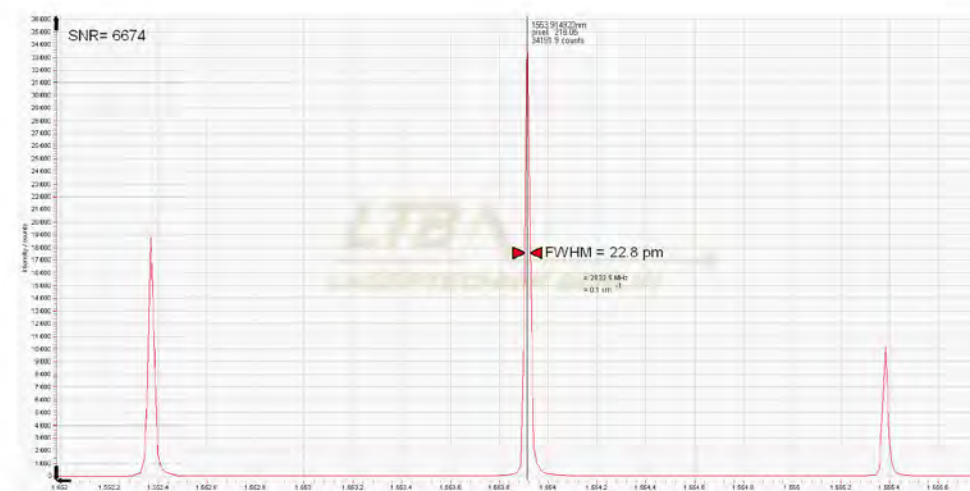
- Isotopic shift investigation with LIBS – laser-induced breakdown spectroscopy
- Quality control of diode and solid-state lasers
- ICP-OES
- MIP-OES

Software

The supplied operating software Sophi with optional LabVIEW library for complete remote control of the DEMON allows fully access of all spectrometer-detector functions via graphic user interface and provides automated measurement routines with an integrated scripting language. All measured spectra are automatically plotted for comprehensive analysis that can easily be performed with Sophi.



The high resolution of the Demon series makes isotopic shift investigations of elements like Uranium, Plutonium or Lithium possible. Using laser-induced breakdown spectroscopy (LIBS), these isotopic shifts are measured within a second and without sample preparation. Only optical access to the sample is required.



The DEMON is also an excellent measuring instrument in the development, production control and quality testing of diode lasers used e.g. in Photolithography and Telecommunication technology. In contrast to interferometric setups, it allows the user to simultaneously monitor spectral bandwidth, intensity profile and absolute wavelength.



The simultaneous wavelength detection can be utilized for monitoring different "side modes" and energy distributions. The robust optical design is perfectly suited for long-term wavelength stability tests