



DEMON-Series

Double-Echelle-MONochromator

for laboratory and industrial applications

DEMON

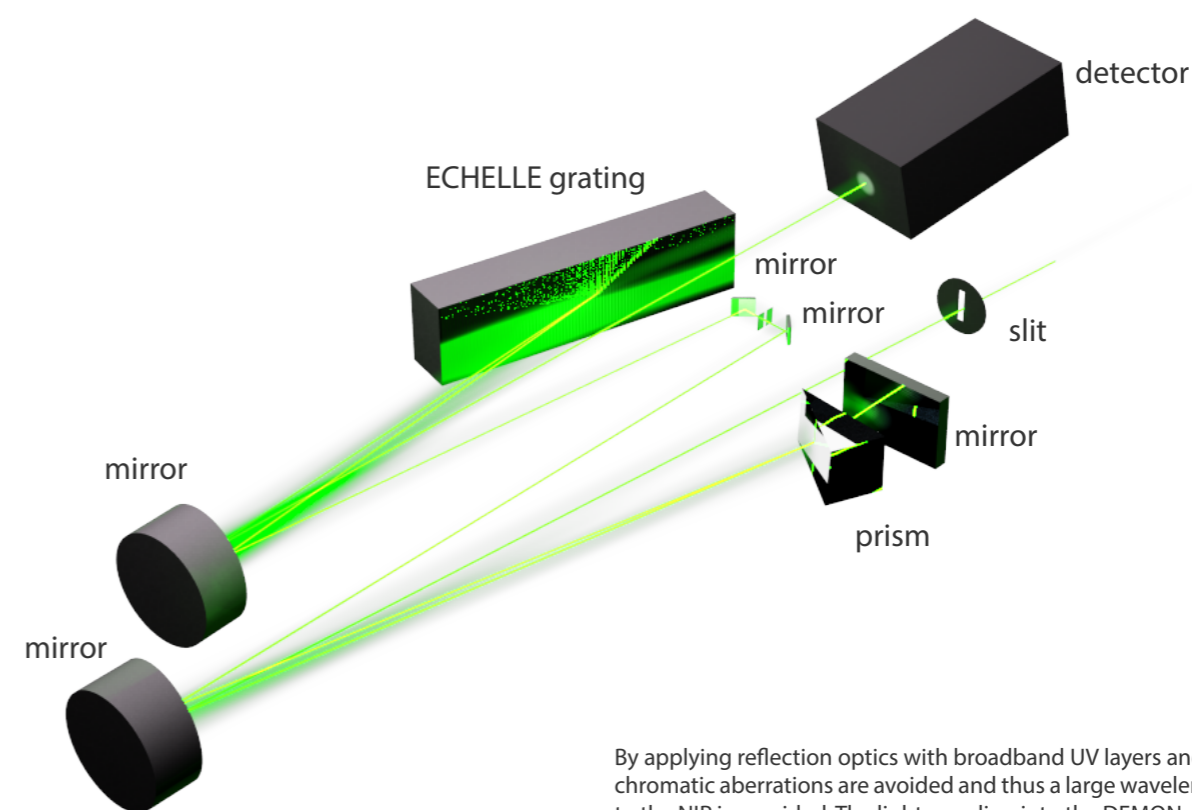
Double Echelle MONochromator

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

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.

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



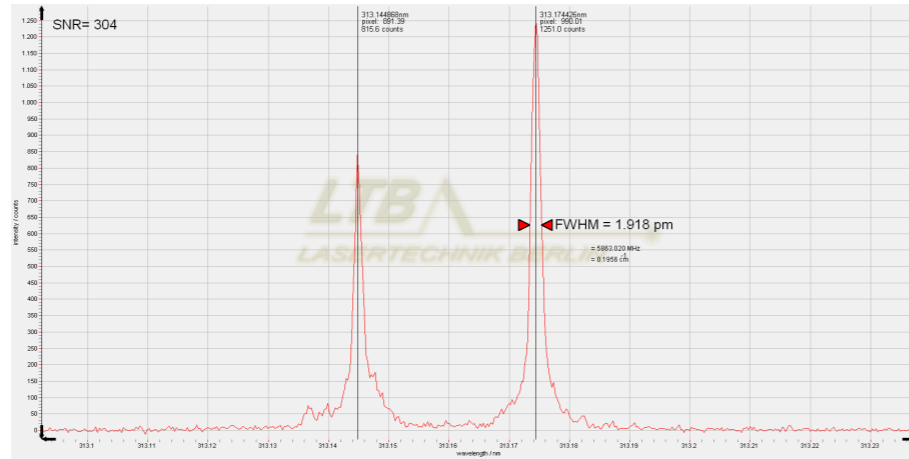
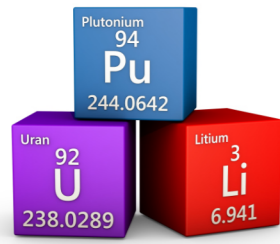
By applying reflection optics with broadband UV layers and a CaF2 prism, chromatic aberrations are avoided and thus a large wavelength range from the UV to the NIR is provided. The light coupling into the DEMON spectrometer is realized via SMA fiber or reflection transfer optics. Various CCD, ICCD and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

Applications:

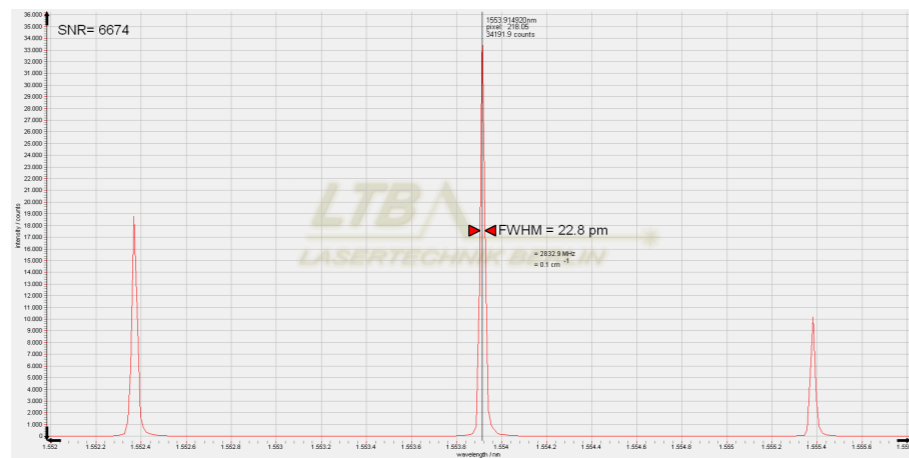
- Isotopic shift investigation with LIBS- laser-induced breakdown spectroscopy
- Quality control of diode and solid-state lasers
- ICP-OES
- MIP-OES

Software

The supplied operating software Sophi with optional LabVIEW library for complete remote control of the DEMON allows fully access of all spectrometerdetector 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.

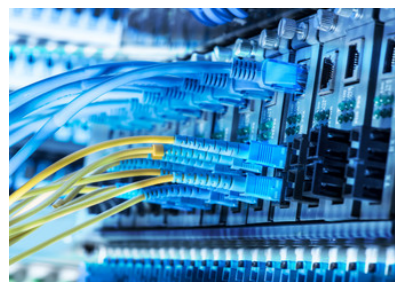


The high resolution of the Demon series makes isotopic shift investigations of elements like Uranium, Plutonium or Lithium possible. Using laser-induced breakdown spectroscopy (LIBS), these isotopic shifts are measured within a second and without sample preparation. Only optical access to the sample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



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 (up to 1,100 nm on request)	600 - 1,700 nm	200 - 750 nm, no gaps	Wavelength range
70,000 (100,000 possible)	60,000	< 200,000 (more on request)	Spectral resolving power λ/min measurable FWHM
2.7 - 13 pm	10 - 28 pm	1 - 3.75 pm	Spectral resolution
spectral resolution / 4	Pixel Dispersion x 10 pixel	spectral resolution / 4	Absolute accuracy
1 - 5 nm (depending on wavelength)	4.5 - 13.5 nm	0.25 - 1 nm	Simultaneous inspection range
$\lambda / 225,000$	better $\lambda / 90,000$	$\lambda / 600,000$	Linear dispersion
CCD or ICCD	InGaAs	CCD or ICCD	Detector
1 ms with CCD; 5 ns with ICCD	1 ms	1 ms with CCD; 5 ns with ICCD	Exposure time, min.
16 bit	16 bit	16 bit	Dynamic range
fibre (optional mirror optics)	fibre (optional mirror optics)	fibre (optional mirror optics)	Light coupling
with calibration lamps	with calibration lamps	with calibration lamps	Wavelength calibration
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	Control
Sophi, LabVIEW library optional	Sophi, LabVIEW library optional	Sophi, LabVIEW library optional	Software
(600 x 310 x 230) mm	(600 x 310 x 230) mm	(1,215 x 512 x 300) mm	Dimensions (L x W x H) (Spectrometer without Detector)
25 kg	25 kg	75 kg	Weight (Spectrometer without Detector)
integrated mechanical shutter and motorized slit	integrated mechanical shutter and motorized slit	integrated mechanical shutter and motorized slit	Features

Subject to technical changes

LTB Lasertechnik Berlin GmbH

established in 1990, is an innovative developer and manufacturer of short-pulse UV-lasers, high resolution spectrometers and laser-based measuring analyzers, 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 for the laser lithography
- Laser-based measuring techniques for the spectroscopic material analysis and process analytics (LIBS and Raman)

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