

PHYSICS

CHEMISTRY
BIOLOGY

ENGINEERING



NEW
PRODUCT
2012

X-RAY APPARATUS



THE LEYBOLD X-RAY APPARATUS NOW
WITH HIGHER RESOLUTION AND INTENSITY

- Sharp Bragg spectra with new HD set
- Highest possible intensity with the new gold tube
- Plenty of space for accessories: new, practical drawer

LEYBOLD®

AT LAST – SHARP BRAGG SPECTRA

NEW,
PRACTICAL
DRAWER

Up to now, the resolution available from school X-ray apparatuses could only record the characteristic lines in a Bragg spectrum with low sharpness. This meant that they became too wide and could only be measured with too small intensity in comparison with the continuum. Using the HD accessory X-ray, which consists of a high-resolution collimator and Geiger counter holder with narrow slits in addition to new software, the maximum possible angular resolution of your goniometer increases to 0.01° . Together with the narrow slits, Bragg spectra with 4-fold resolution are possible. This means that not only the lines are sharper by a factor of 4, but also that the contrast between sharper lines and wide continuum is correspondingly increased.

THE NEW HD
ACCESSORY



HD ACCESSORY X-RAY

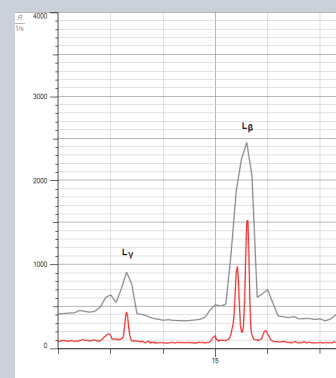
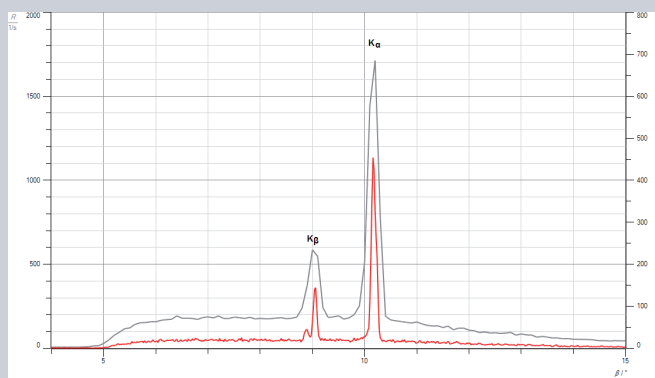
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HD upgrade set for your X-ray apparatus consisting of a new collimator, geiger counter holder and the HD software. Simply fit the high-resolution collimator and geiger counter holder in the X-ray apparatus and start the new software – you can now record high-resolution Bragg spectra.

THE LEYBOLD
WITH THE H
INTENSITY



Mo spectrum with LiF in normal resolution (grey, left-hand scale) and high resolution (red, right-hand scale) each with 5 sec gate time/measuring point. In high resolution, the fine structure of the K_β line is visible even in the first order.





PLENTY OF
SPACE FOR
ACCESSORIES

The two drawers now offer you plenty of space for your accessories including X-ray tubes, crystals, absorbers, filters, Geiger counter with holder and target table, X-ray energy detector, MCA box and film holder, to match your X-ray apparatus and your computed tomography module. Thanks to the padded, device-shaped storage system, your accessories can be stored optimally, clearly and in just one place. The lockable drawer is made of stable steel and fits under the X-ray apparatus and also under a tabletop as an alternative.

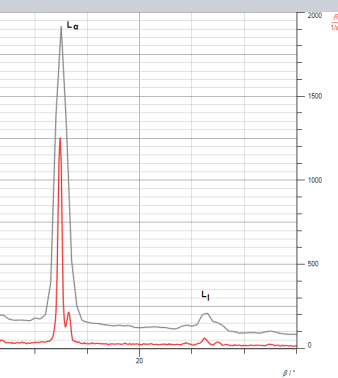
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IGHTEST



X-RAY TUBE AU

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Ideal for radioscapy experiments
and computed tomography
Shift of atomic energy of
interest for atomic physics



Au spectrum with LiF in normal resolution (grey, left-hand scale) and high resolution (red, right-hand scale) each with 5 sec gate time/measuring point. In high resolution, the fine structure of the L_α und L_β lines are visible even in the first order.

DRAWER FOR X-RAY APPARATUS

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DRAWER FOR COMPUTED TOMOGRAPHY MODULE

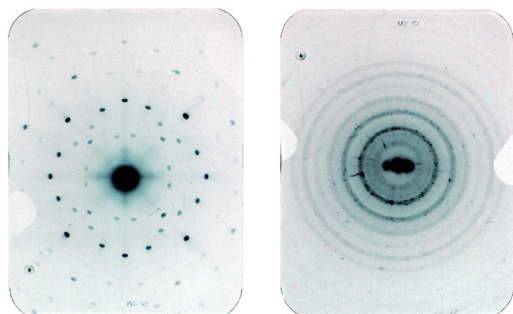
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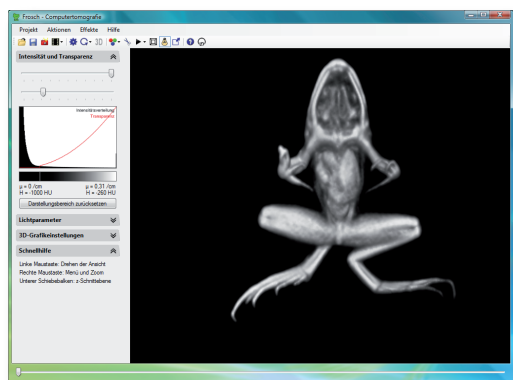
LEYBOLD®



X-ray energy detector (559 938) for recording energetically resolved X-ray spectra



Laue and Debye-Scherrer image of NaCl



3D reconstruction of a frog with the LEYBOLD computed tomography software

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THE X-RAY SYSTEM FOR

PHYSICS

CHEMISTRY

BIOLOGY

MEDICAL SCIENCE

ENGINEERING SCIENCES

You can find more information about our complete range in the X-ray radiation sector in the Internet. We would, of course, be pleased to advise you personally. Call us!

PRINCIPLES

- Radiation exposure
- X-ray photography
- Ionisation and dosimetry
- Attenuation of X-rays

ATOMIC PHYSICS

- Bragg: Diffraction of X-rays at a monocrystal
- Investigating the energy spectrum of an X-ray tube
- Duane-Hunt: Determination of h from the limit wavelength
- Energy-dependent absorption and K-edges
- Moseley's law and determination of the Rydberg constant
- Fine structure of X-ray spectrums
- Determining the binding energy of individual subshells by selective excitation
- X-ray fluorescence
- Compton effect on X-rays

SOLID STATE PHYSICS

- Bragg: Determining the lattice constants of monocrystals
- Laue: Investigating the lattice structure of monocrystals
- Debye-Scherrer: Determining the lattice plane spacings of polycrystalline powder samples

TECHNICAL APPLICATIONS

- Radiology
- Mineralogy
- Radiation protection
- X-ray fluorescence analysis
- Non-destructive material analysis
- Non-destructive testing
- Computed tomography also in 3D