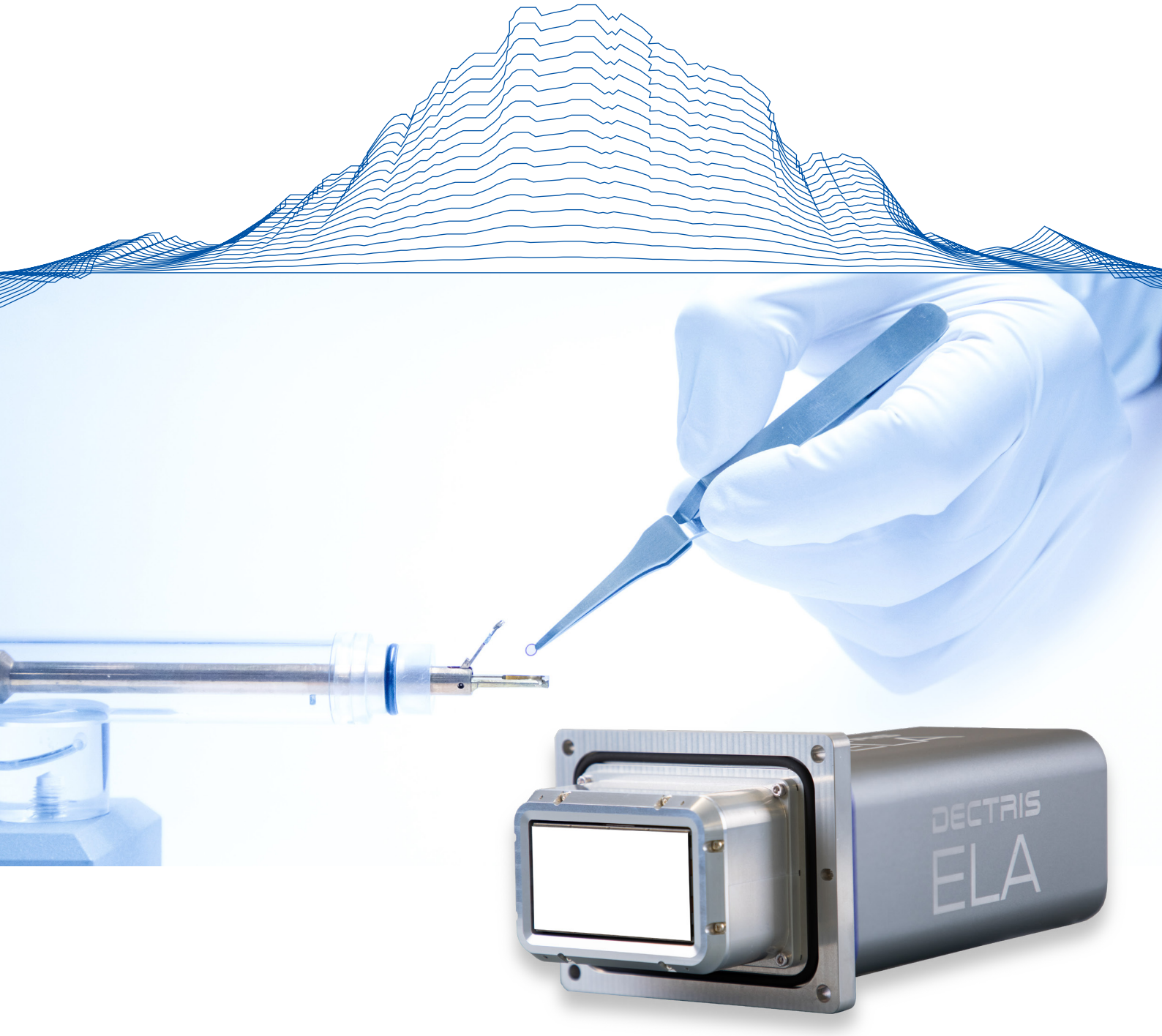
DECTRIS
detecting the future




# DECTRIS ELA

## A new hybrid pixel electron detector



## Technical specifications

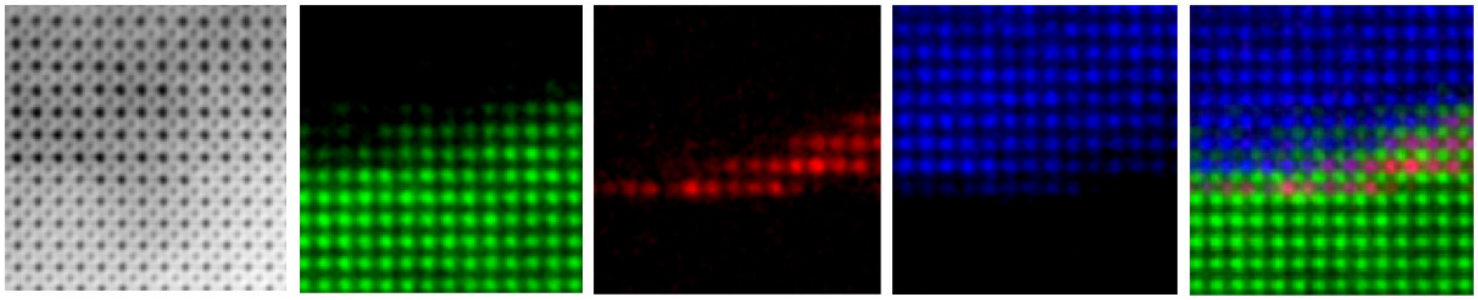
| | |
|---|---|
| Frame rate | 2,250 Hz at 16 bits<br>4,500 Hz at 8 bits<br>18,000 Hz with ROI mode |
| Count rate capability | > 1 pA/pixel |
| Number of pixels | 1,028 x 512 |
| Sensor material | Silicon |
| Image bit-depth | 32 bits |
| Energy range | 30-300 keV |
| DQE(0) | 0.81 at 100 keV<br>0.85 at 200 keV |

All specifications are subject to change without notice.

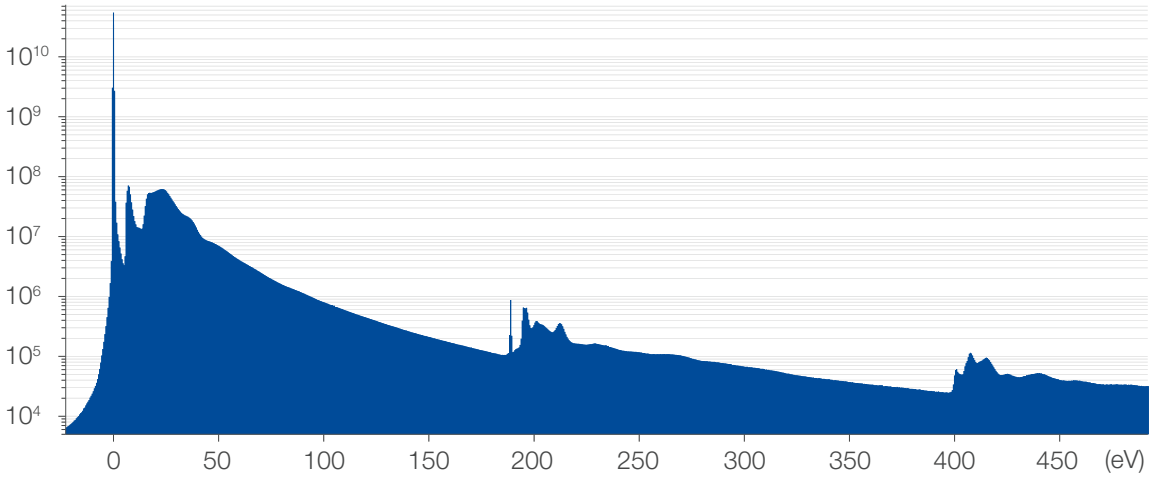
## New era of EELS with DECTRIS ELA

Powered by DECTRIS Hybrid Pixel Technology, ELA is the ideal electron-counting detector for Electron Energy Loss Spectroscopy (EELS), offering unprecedented speed, sensitivity, and dynamic range. It can handle probe currents well over 100 pA, simultaneously recording the intense zero-loss peak and the core levels as well as counting single electrons in all regions of the spectrum. Its high frame rate allows for fast elemental mapping in one go, which is especially crucial when working with beam-sensitive materials. Thanks to its dead-time free readout, you will not lose electrons between images, collecting all the information that your sample can deliver. Combined with a high-resolution spectrometer, the DECTRIS ELA detector will significantly enhance applications such as EELS and 4D-STEM, allowing your experiments to be conducted in minutes. It will increase instrument throughput and reduces operation time significantly.

Plotkin-Swing, Benjamin, et al. „Hybrid pixel direct detector for electron energy loss spectroscopy.“ Ultramicroscopy (2020): 113067.



Fast elemental mapping of an STO/BTO/LMSO multilayer, including the unsaturated ZLP, acquired as 32 separate 128 x 128 spectrum images of 8 s each, aligned and summed (4.3 min total). From Left to Right: ZLP intensity map, similar to a bright-field image. Map of Ti L2,3 edge. Map of Ba M4,5 edge. Map of La M4,5 edge. RGB composite map. (Image courtesy: NION Ltd.)




EELS of hexagonal boron nitride with $E_0$ = 60 keV, beam current of 105 pA, 100 s exposure, and energy dispersion set to 0.5 eV/channel, acquired using a Nion Iris EEL spectrometer on a Nion UltraSTEM 200MC monochromated scanning transmission electron microscope. (Image courtesy: NION Ltd.)

DECTRIS Ltd.
Täfernweg 1
5405 Baden-Dättwil
Switzerland

Phone +41 56 500 21 00
Fax +41 56 500 21 01
E-Mail sales@dectris.com
www.dectris.com

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