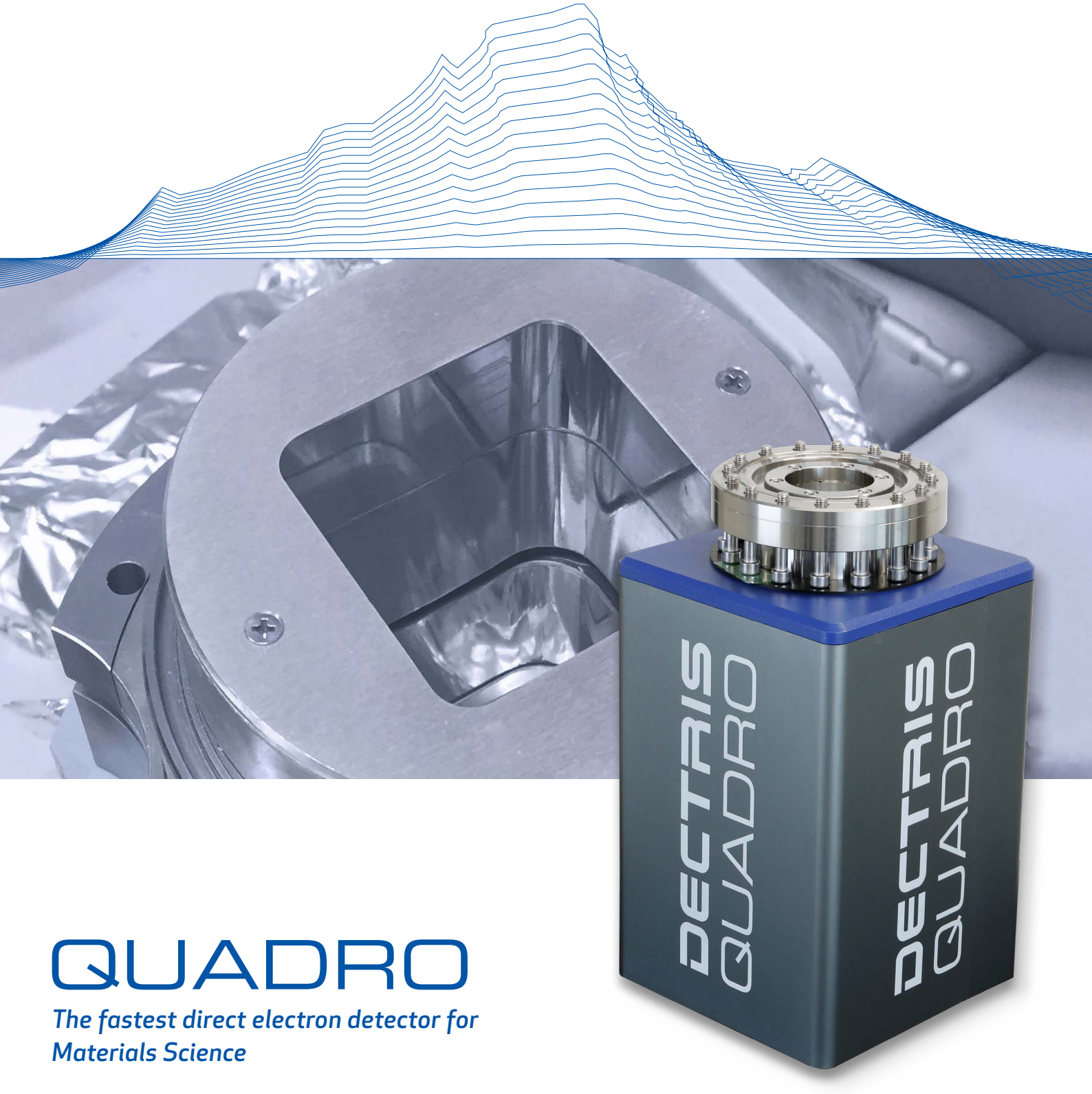
DECTRIS
detecting the future

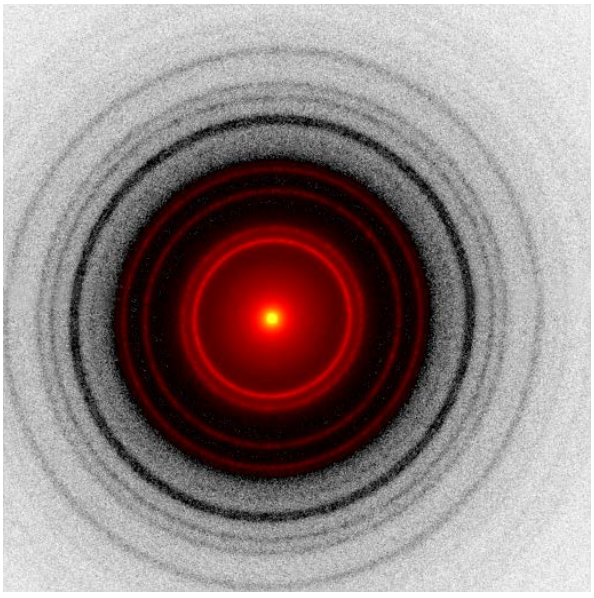


QUADRO

The fastest direct electron detector for Materials Science

The new QUADRO detector delivers unmatched performances to Materials Science TEM and pushes the limits of electron detection. At last, a direct electron detector capable of single electron counting at very high count-rates with exceptional dynamic range, speed and sensitivity, and no worries to damage the detector even with a focused electron beam.

The QUADRO is powered by our new EIGER2 ASIC, entirely designed by DECTRIS and featuring our patented INSTANT RETRIGGER® technology delivering 24-bits dynamic range and up to 18‘000 frames per second readout in windowed mode, no binning, no gimmicks!



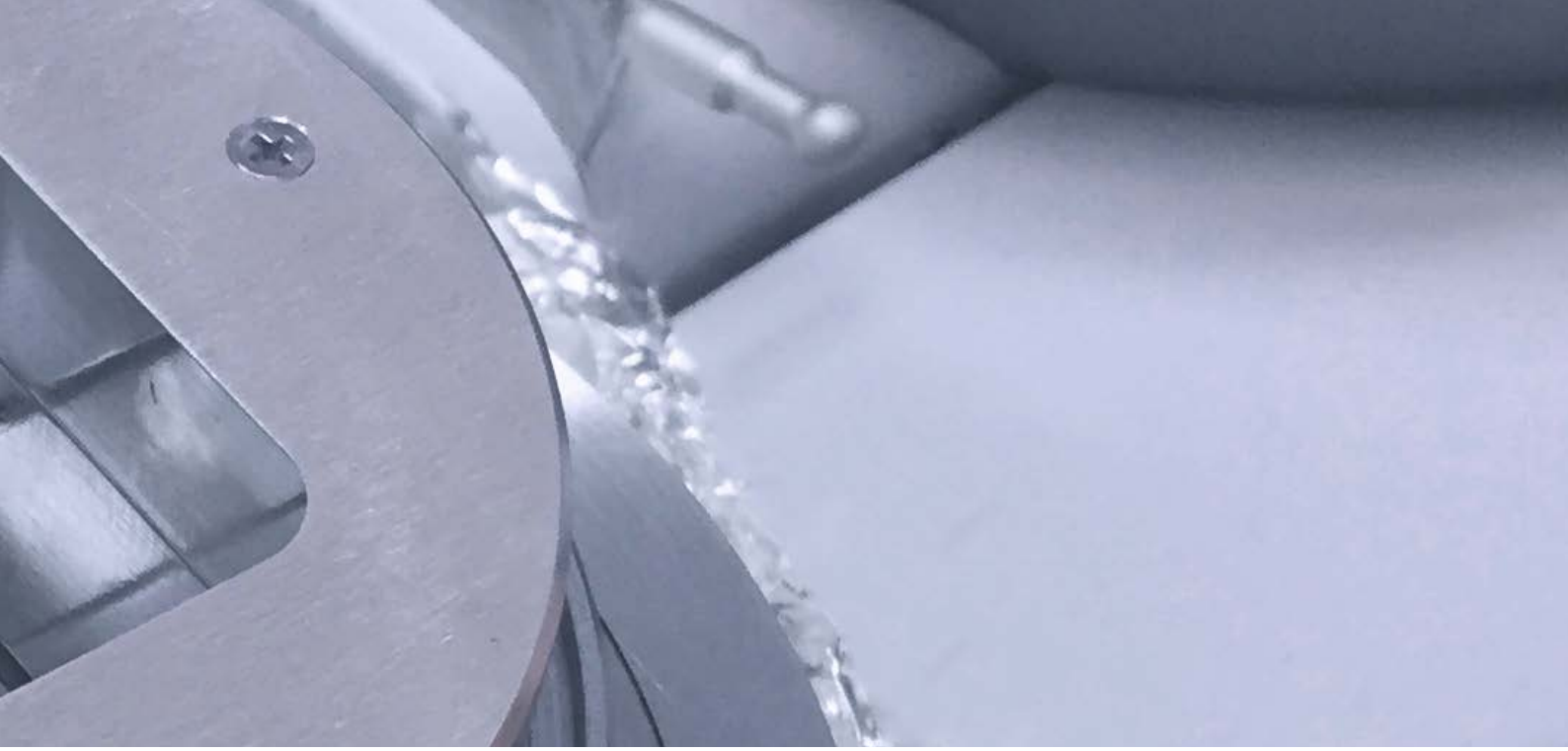
Diffraction Pattern from an Evaporated Aluminum standard calibration sample by TedPella.
The dynamic range of QUADRO allows to resolve the feeble rings at higher angle (above 0.82Å^{-1}) without the need of masking the unscattered beam.
Collect all the data your sample delivers!

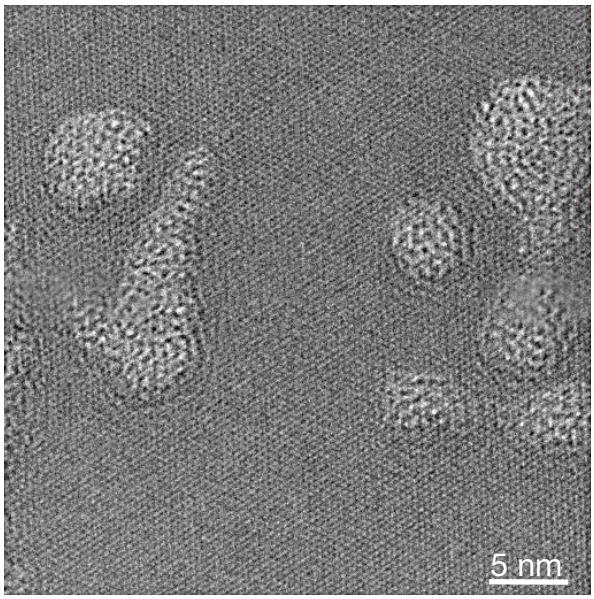
Key Advantages

- Direct electron detection
- Region of interest feature
- Up to 18‘000 frames/sec
- No dead time
- Noise-free electron counting
- 10^7 counts/pixel/sec
- No beam-stop required
- Ideal DQE also at low energies

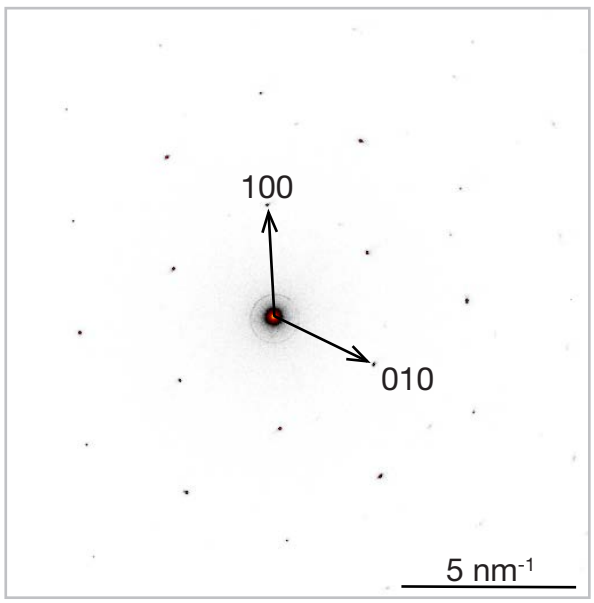
Applications

- Electron diffraction
- 4D-STEM
- Strain mapping
- Lorentz microscopy mapping
- Ptychography
- *In-Situ* TEM
- Dynamic TEM
- LEEM/PEEM





High resolution imaging and diffraction af a single monolayer of Molybdenum Disulfide.
The exagonal lattice is clearly resolved in imaging mode, even with a low-end microscope, and its diffraction pattern required only ~2·10^5 electrons and 10 ms of acquisition time.
QUADRO is faster than the instabilities in your lab. The high speed and sensitivity allow the acquisition of high-quality data in spite of drifts and interferences.
Upgrade your microscope, not your room!

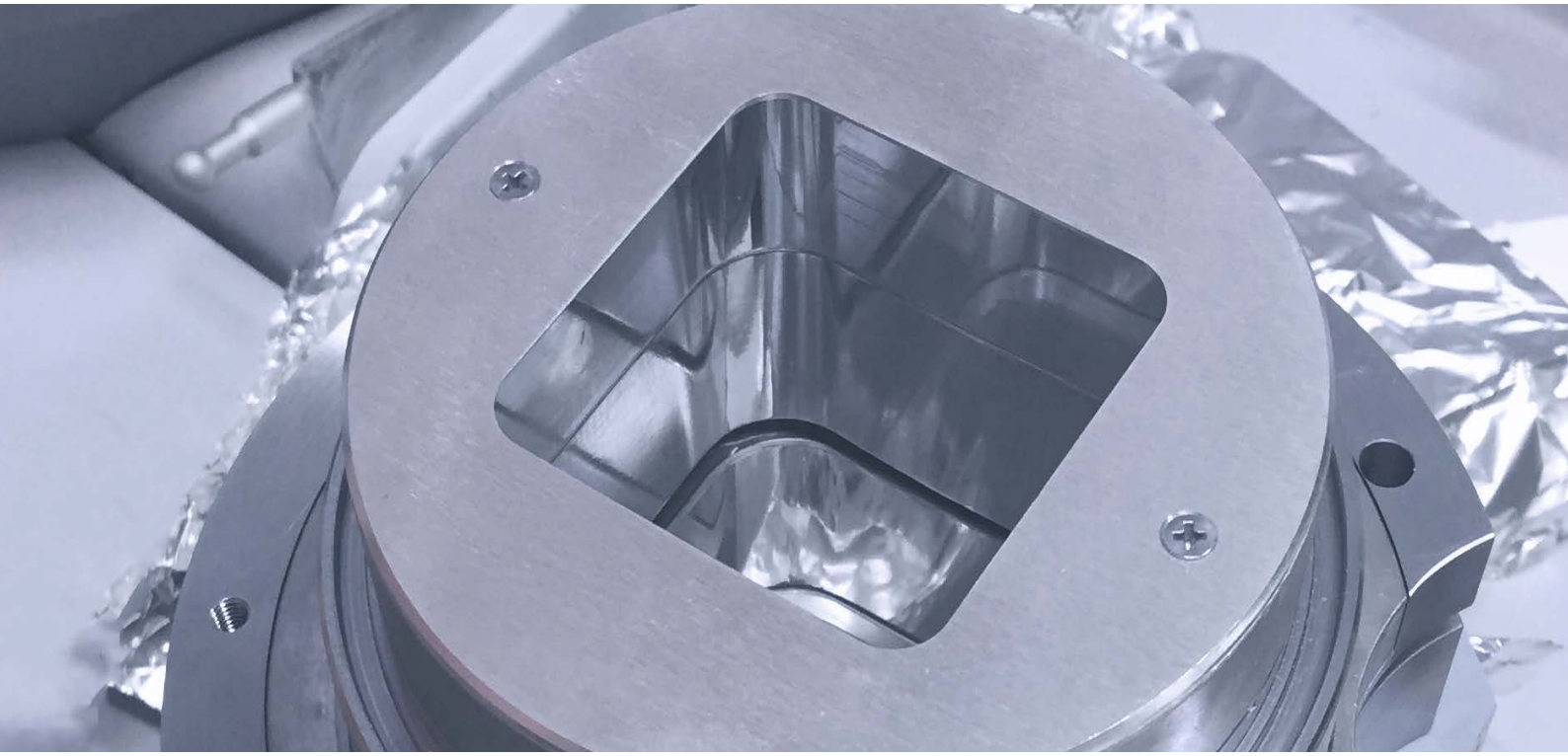


Technical specifications

QUADRO

Pixel size [µm²]	75 × 75
Number of pixels	514 × 514
Active area, width × height [mm²]	38.6 × 38.6
Energy range [kV]	30 - 300
Threshold range [kV]	10 - 80
Maximum frame rate, ROI [Hz]	18‘000
Maximum frame rate, full frame [Hz]	2‘250 (16-bit), 4‘500 (8-bit)
Sensor material	Si or CdTe
Data format	HDF5
Cooling	Water, 20 °C
Detector dimensions (WHD) [mm³]	200 x 350 x 200
Detective Quantum Efficiency (0)	0.99 @ 100 kV; 0.96 @ 200 kV
Detector mounting	Bottom, on-axis
Radiation hardness [el./mm²]	>5 x 10^{15}

All specifications are subject to change without notice.



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