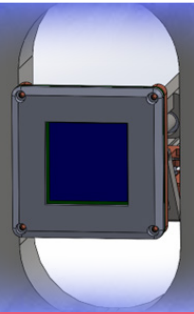




ZENITH

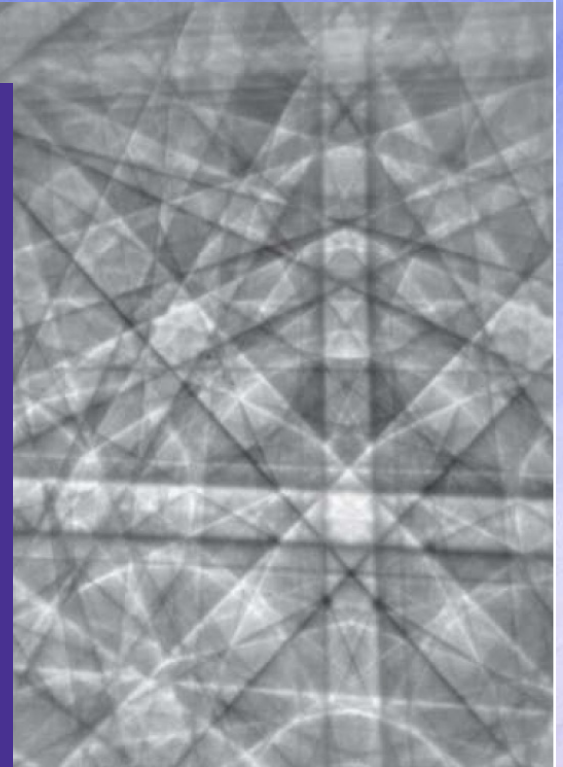
Fast EBSD detector for large area mapping



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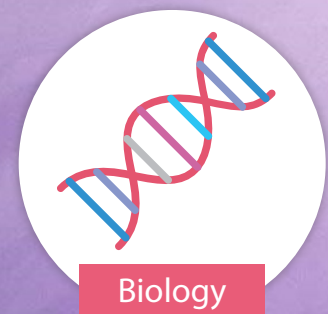
DIRECT DETECTION FOR ELECTRON BACKSCATTER DIFFRACTION

- Blisteringly fast EBSD with high pattern quality.
- Enables mapping from the mesoscale to the nanoscale in one scan.
- Without binning, 1k x 1k sensor runs at 2,000 pps for HR-EBSD.
- Fine features resolved in sharp detail for unmatched HR-EBSD results.
- **New mechanical design** places sensor in a traditional EBSD detector geometry.
- Live Hough indexing and pattern sharpness maps through DE Mission Control software.
- Open software to easily integrate with many versions of indexing software.
- Exceptional sensitivity at 5kV and below for beam sensitive samples.
- Reduced ROI and transmission-mode bracket allow 4D-STEM in SEM, 64 x 64 pixels at 99,000 pps.
- Detect strain differences of 1 in 10,000.
- Low energy HR-EBSD pushes spatial resolution to <20nm step size.
- Multi-gain sensor increases dynamic range to handle > 100nA beam current.
- Electron counting provides energy filtering capability.
- Adjustable sensor threshold.



Kikuchi pattern of single crystal silicon with DE Zenith at 12 kV. 255 fps 1 second exposure with 4 nA beam current.
Courtesy of Dan Gianola, (University of California, Santa Barbara, USA).

DETECTOR APPLICATIONS:

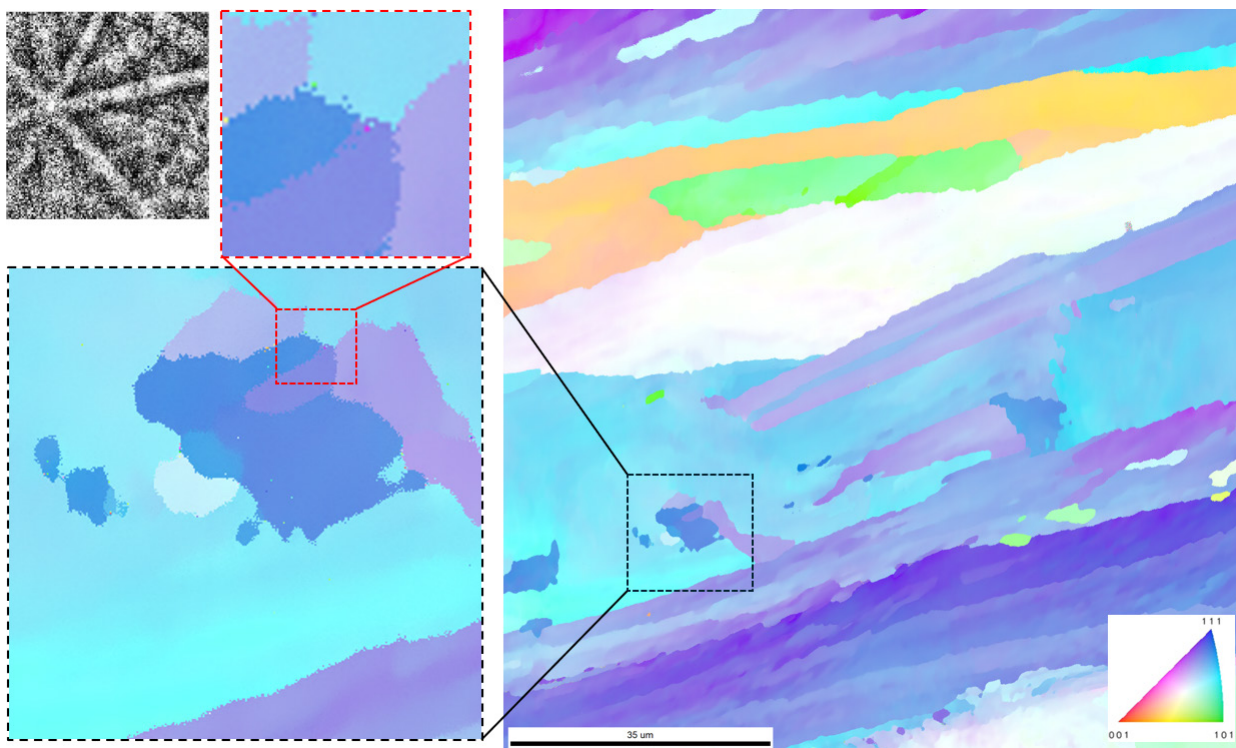


Biology

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Electron Energy	Sensitive for 3 - 40 kV (optimized for 8-20 kV)
Pixel Array Specification	1024 x 1024 pixels 15um pixel pitch
Single Electron SNR	~50:1 (15 kV)
Sensor Design	>3T pixel design with on-chip correlated double sampling (CDS) backthinned radiation hardened multi-gain
Acquisition Frame Rate	Bin 2x : 5,500 pps Bin 1x: 2000 pps reduced ROI : up to 99,000 pps
Mounting Position	EBSD port mount extend/retract motion tilting to TKD mode high-performance computer Windows 11 NVidia GPU(s) up to 58 TB storage
Data Format	.UP2 , .mrc, .h5EBSD
Acquisition Software	DE Mission Control software for advanced data acquisition Integrated scan control Live Hough indexing and pattern sharpness maps to see Orientation and GNDs Compatible with Cross-Court4 for HR-EBSD strain-map generation



Caption: Additively Manufactured CoNi Superalloy -- Solidification cells in melt pools. 100um HWF, 2000 x 2000 points, 50nm step, 10kV, 5800 pps, 11 min scan.