4D-STEM

Achieve Exceptional Data Quality with
ASI CheeTah Hybrid Pixel Detector

AMSTERDAM SCIENTIFIC INSTRUMENTS

High quality data: Single electron sensitivity and energy thresholding provides very high signal-to-noise ratio to observe the weakest diffraction spots clearly.

Reduce sample drift and beam damage: Zero dead-time and continuous read-out with 2000 fps at 12 bit dynamic range makes CheeTah the ideal detector for challenging, beam sensitive samples.

Automate and integrate: Seamless Integration with major conventional scan generators and software.

Event-based for time resolved 4D-STEM: 1.56 ns time resolution provides the finest accuracy for measuring dynamic processes with an effective frame-rate of > 500 MHz.
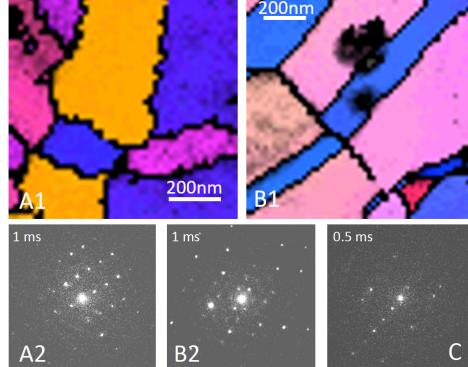
Retractable or Static: Customized mechanics for retrofitting on available ports on various microscopes or energy filters.

A1 & A2) Orientation map along Z with index and boundaries map and a corresponding diffraction pattern from a pixel on the map. Cu sample. 1ms dwell time. 1000 fps. 46x46 pixels.

B1 & B2) Orientation map along Z with index map and a corresponding diffraction pattern from a pixel on the map. Cu sample, 1 ms dwell time. 1000 fps. 53x53 pixels, CA = 30 μm.
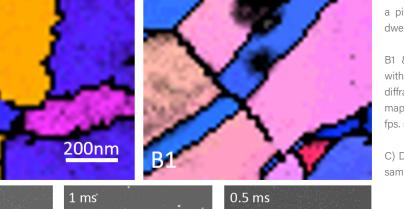
C) Diffraction pattern taken on the Cu sample with 0.5 ms exposure, 2000 fps.

Color coded
Inverse Pole figure

FEI Tecnai G20, 200 keV, LaB6 source, Spot size 8, Step size 20 nm. Image courtesy: Dr. A. Gomez-Perez, 4D MAT Lab, ULB Brussels.