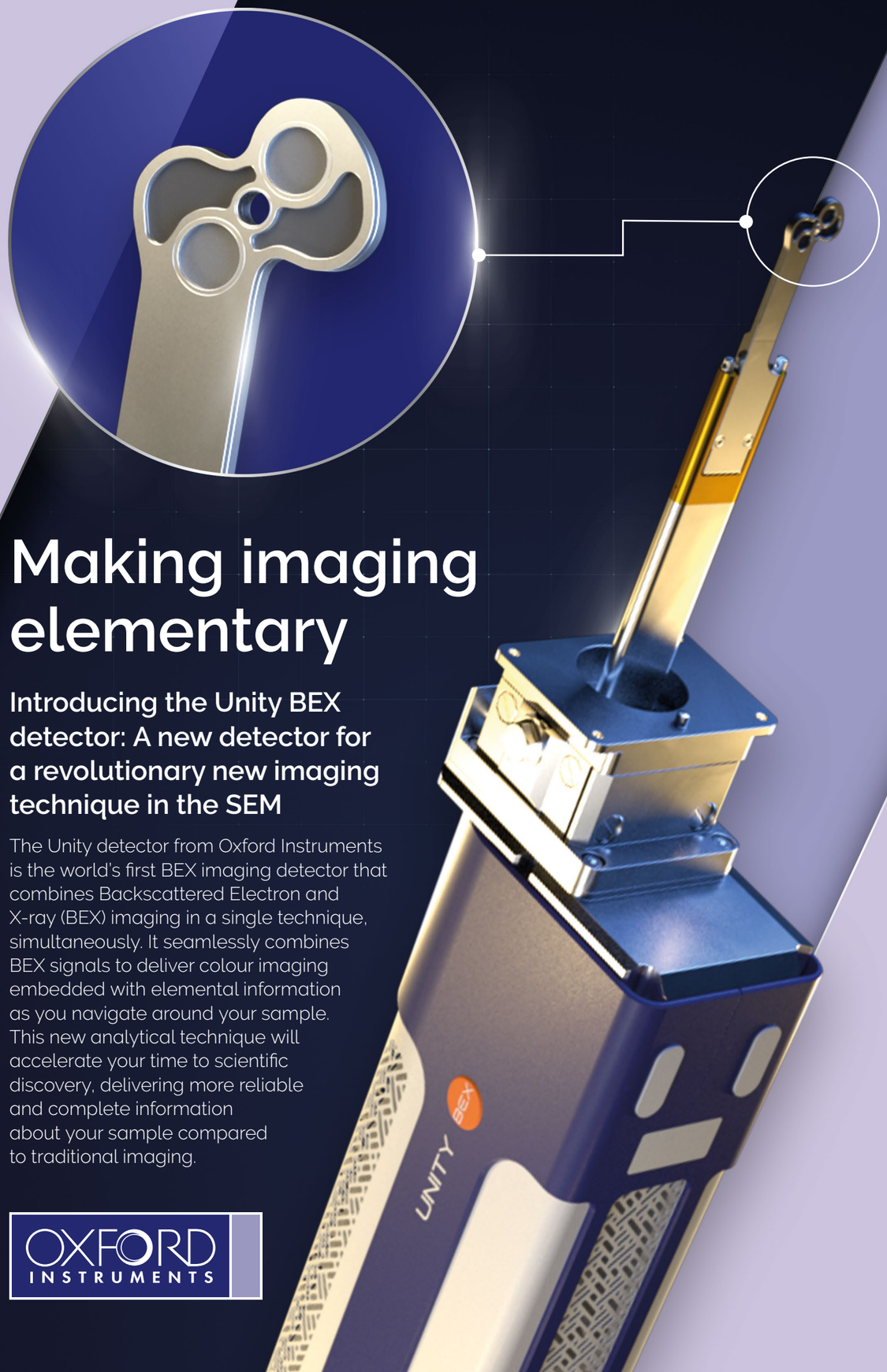

Making imaging elementary

Introducing the Unity BEX detector: A new detector for a revolutionary new imaging technique in the SEM

The Unity detector from Oxford Instruments is the world's first BEX imaging detector that combines Backscattered Electron and X-ray (BEX) imaging in a single technique, simultaneously. It seamlessly combines BEX signals to deliver colour imaging embedded with elemental information as you navigate around your sample. This new analytical technique will accelerate your time to scientific discovery, delivering more reliable and complete information about your sample compared to traditional imaging.

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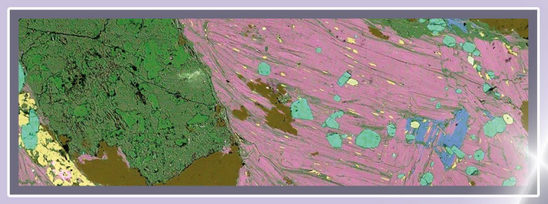
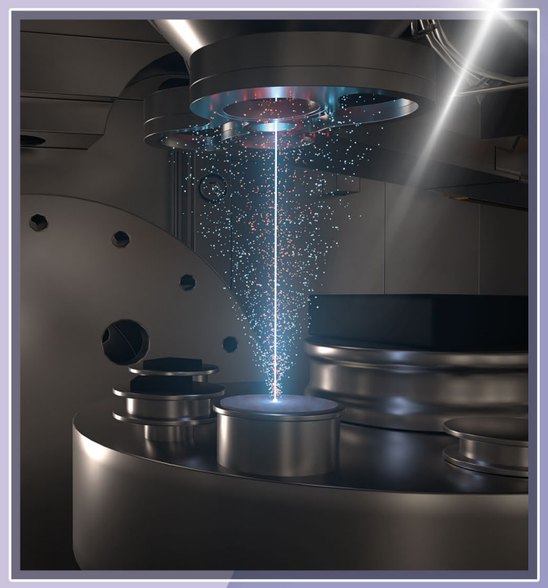
Traditional vs BEX imaging

As technology pioneers, we've spent more than six years perfecting our Unity detector to bring you unique levels of certainty and detail.

Conventional imaging: slow and challenging

Until now, typical SEM imaging has been in greyscale using mainly secondary electrons or backscattered electrons that deliver indicative information about topography and sample density, respectively. Relying on these signals to find areas of interest is time consuming and could be misleading on certain samples because it misses the elemental information.



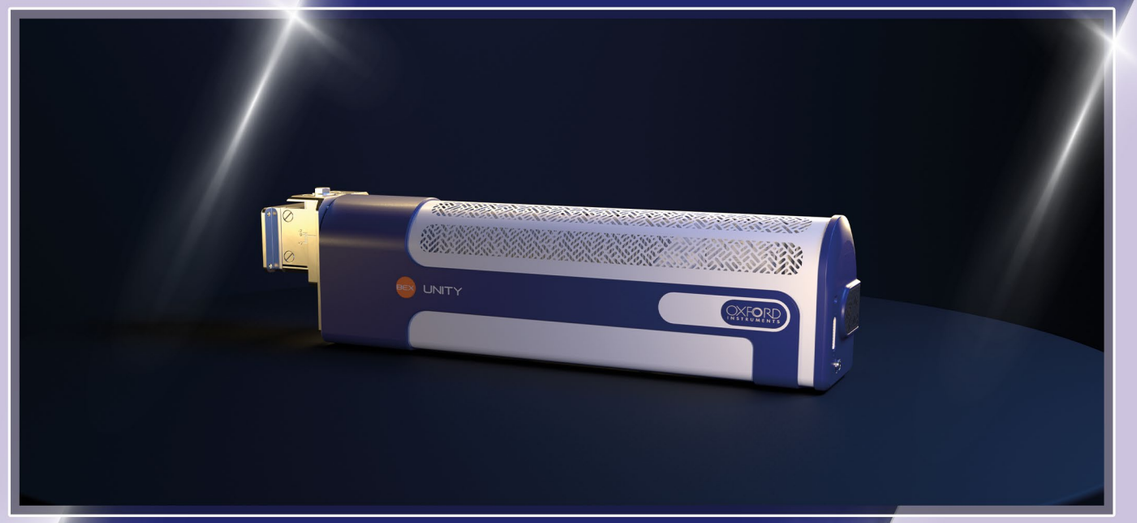


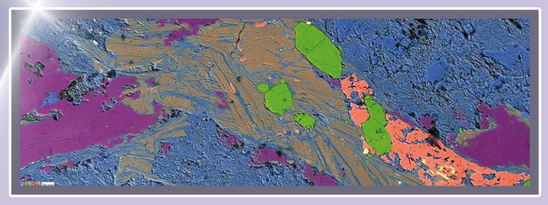
BEX: pace and power

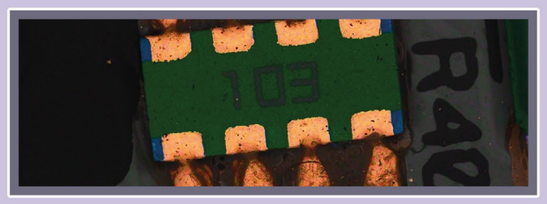
What sets the Unity detector apart is the delivery of coloured BEX images at the speed and operating conditions of traditional imaging — fast scanning at relatively low beam currents. This is made possible by the unique under pole-piece custom shaped dual sensor design which maximises the BEX signal collection and removes any shadowing effects, unlike traditional detectors.

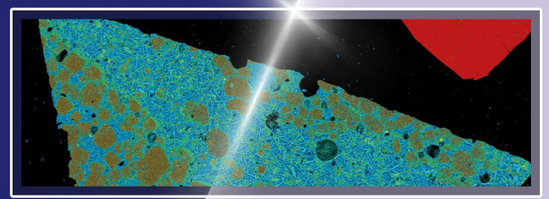
Making imaging elementary

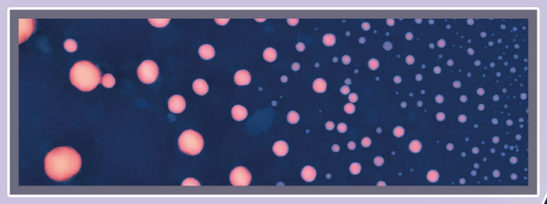
With the Unity detector, you can easily and more effectively navigate your sample to find features of interest. As you move around your sample, Unity provides a quick, high-resolution BEX image embedded with elemental information. BEX data is instant and comprehensive, so investigations are completed in minutes. You can also swiftly examine other areas of interest or switch seamlessly to another technique, such as EDS, WDS or EBSD, for more detailed analysis.

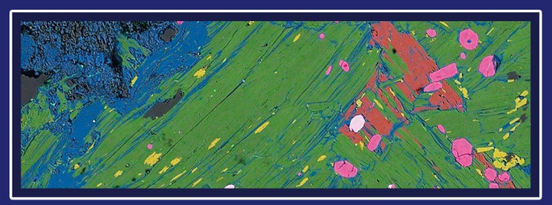








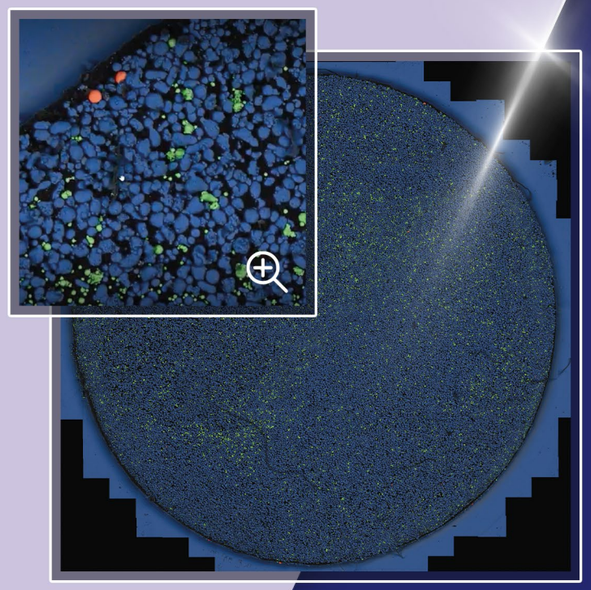




Cartography

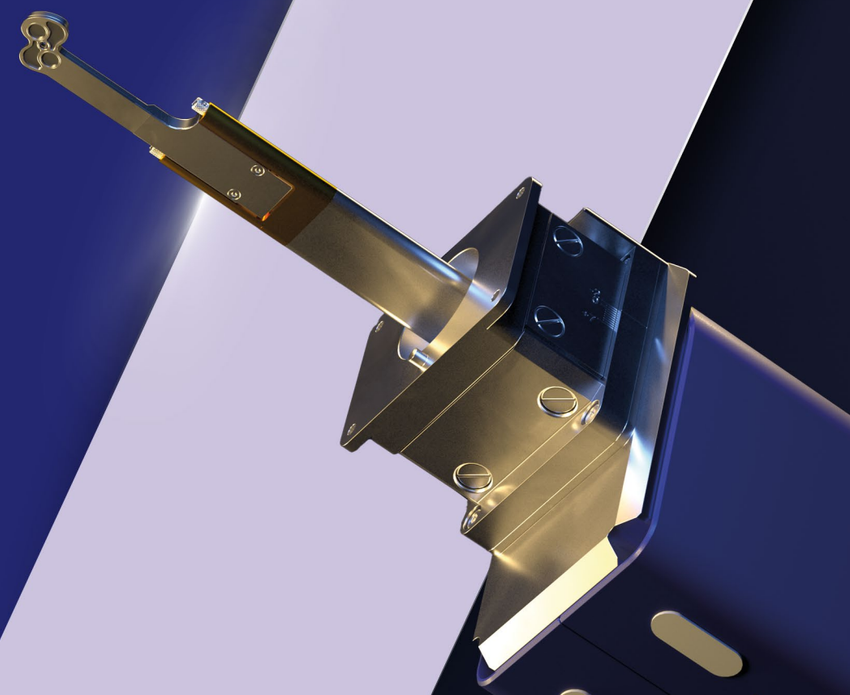
Collecting the BEX signals simultaneously within the same sensor package enables much faster automation of whole sample analysis. The new cartography mode allows automatic imaging of whole samples in just minutes. You can choose to do a quick survey of the entire sample before starting your analysis or collect a high-resolution “virtual sample” dataset that can be analysed at a later date.

- Live trace
- Topographic and elemental information simultaneously
- Up to 10,000 fields collection
- Automation of multiple cartography



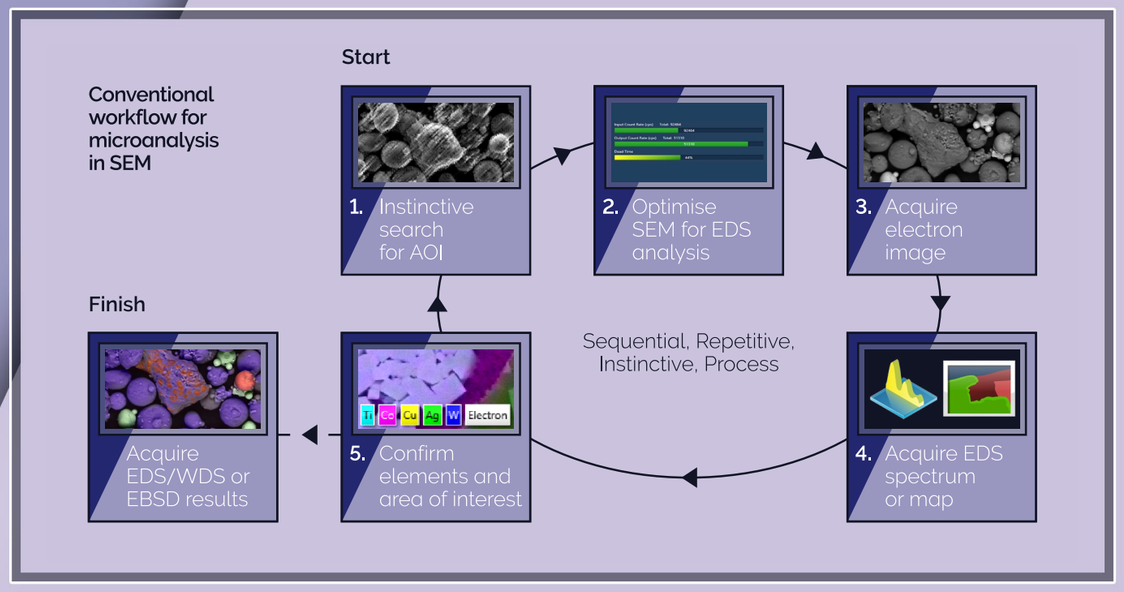
Why this matters

Using BEX imaging and cartography mode can be up to 100 times quicker than using traditional methods. This productivity improvement will help you increase the number of samples analysed per day or boost the quantity of information acquired.



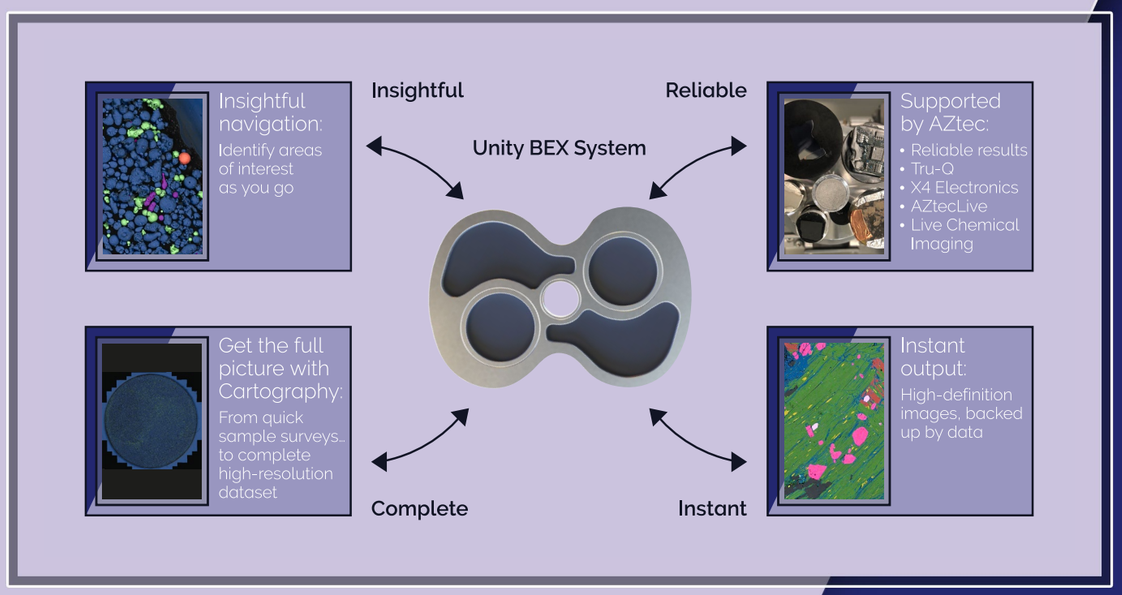
Traditional workflow

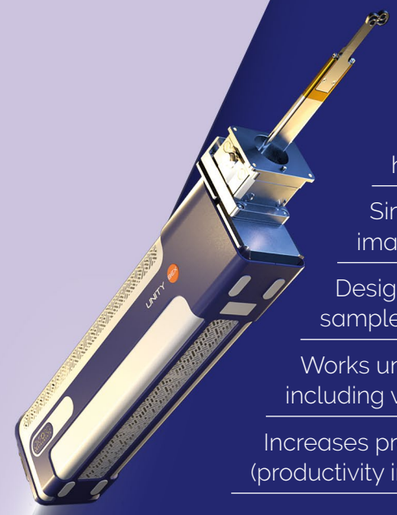
Traditionally, searching for anomalies is a sequential and time-consuming process that is highly repetitive and relies heavily on user instinct or sample familiarity to select areas for analysis. No data is collected in between these selected areas, so there are no guarantees that any anomalies will be inadvertently discovered.



BEX workflow

With the Unity detector, your analysis is more dynamic and data rich. You can take the guesswork out of your analysis by using BEX imaging and cartography mode. With this valuable data to hand, searching for anomalies and areas of interest is faster, more reliable and based on rigorous insight.





Major benefits of the Unity detector and BEX

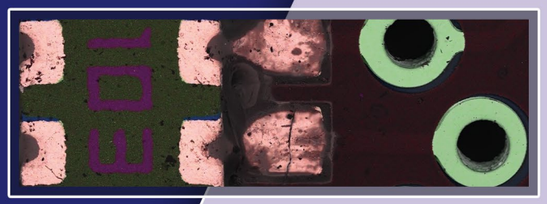
Fast, accurate, powerful full-colour high-resolution imaging.

Simultaneous display/saving of imaging and compositional data.

Designed for daily imaging and sample investigation.

Works under conventional operating conditions including variable pressure mode.

Increases productivity and certainty of analysis (productivity improved by more than 100x in tests).



Find out how we can supercharge your journey to scientific discovery by visiting **nano.oxinst.com/bex**

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