

Highlighting the imaging workflow in the innovative APEX Software

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Abstract

While hardware advances continue to increase the reliability of Electron Backscatter (EBSD) and Energy Dispersive Spectroscopy (EDS) measurements, the innovative capabilities of APEX Software for low kV studies are taking analysis to another level.

By combining the APEX Software with EDAX EBSD and EDS Detectors, researchers now have a powerful solution to rapidly image high-quality, Montage, and phase maps with high count rates also in the low-energy X-ray range. During qualitative imaging studies, such as specimen visualization, the ROI and NET mapping allow researchers to separate and accurately represent overlapping peaks. This novel approach to image a large area is now possible with the Montage mapping function. Using APEX, phases are automatically identified by their chemistry, and highlighted with color-coding.

An example that will be presented in this workshop shows how MgO and Al₂O₃ react at high temperature to form the spinel MgAl₂O₄ reaction rim. The thickness of this rim in a 2D image is a function of temperature. This method can be used to figure out if the thermocouple (Pt wires) is measuring the true temperature inside the assembly. The phase map feature can easily and quickly identify thin layers, as well as other phases. In addition to the imaging workflow, challenging quantification data can now be collected.

