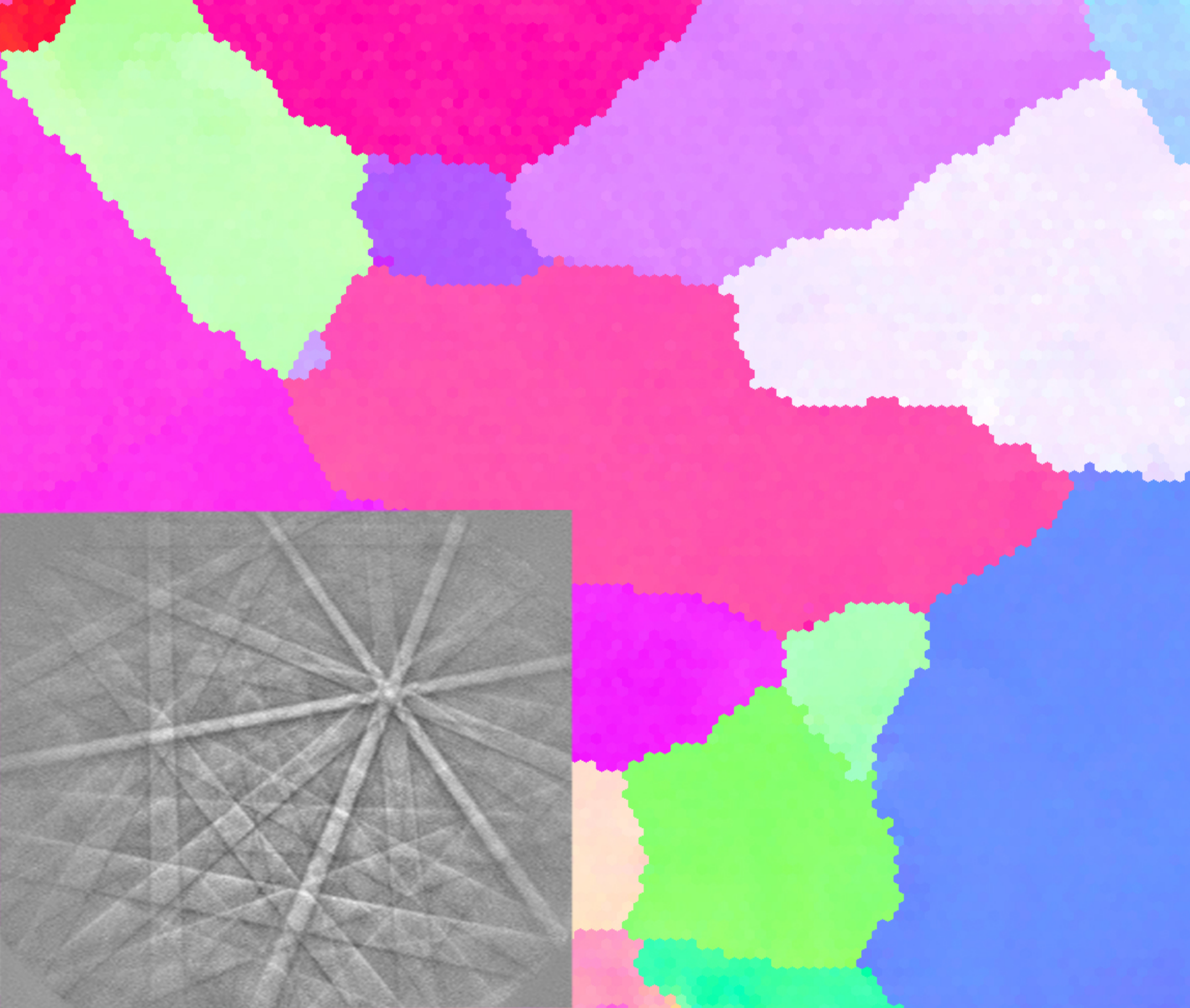

Orientation image mapping (OIM) with the corresponding diffraction pattern (EBSD) of an aluminium sample

LSN - Application Note

Leica EM TIC020

Cross section of Al for EBSD

Market: Material research laboratories, Universities

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Leica EM TIC020 Application No. 3/4

Cross section of Al for EBSD

Purpose:

Electron backscattered diffraction (EBSD) is for example used to examine the crystallographic orientation of material. The sample preparation for such samples is sometimes very tricky as the depth of information is just few nm (~20nm or less). That means the sample surface must be flat and free of preparation artefacts. Mechanical polishing leads mostly to sample surfaces damages.

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Goal:

- Perfect sample surface for EBSD using the slope cutting method.

Process description (benchmark values for this particular sample):

Parameter	
Acceleration voltage	7 kV
Gun current	2.6 mA
Milling time	3h
Cut depth	400µ
Complete process time	3.5h
Pre-preparation	EM TXP (milling to trim)

Results:

- The surface quality of the Al sample is excellent.
- The diffraction pattern (Kikuchi-bands) proofs the preparation quality.
- An orientation mapping shows the orientation of the different grains of aluminium.

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