

Local Orientation Variations in YBCO Films on Technical Substrates - a Combined SEM and EBSD Study

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Abstract — Scanning electron microscope imaging and electron backscatter diffraction are applied to 400 nm thick YBCO films grown on Ni-9at.%W and ABAD-YSZ tape. On the Ni-9at.%W tape, the orientation distribution varies strongly from grain to grain, which is attributed to the different orientation of the Ni-grains with regard to the surface normal. On ABAD-YSZ the structures causing the orientation variations are observed in micrometer scale only, which is attributed to the granularity of the template. In contrast to Ni-9at.%W, where no preferred misorientation axis is notable within single Ni-grains, the orientation distribution of YBCO on the ABAD-YSZ tape is primarily caused by lattice rotations about the sample normal.

Keywords (Index Terms) — Coated conductors, EBSD, PLD, YBCO.