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# Bursts of orientation change at the plastic transition in Mg-4Zn

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## Abstract

A 44ms exposure time polychromatic transmission Laue experiment is employed to quantify the magnitude and frequency of bursts of orientation change seen at the elastic-plastic transition in magnesium alloy Mg-4.5Zn. The burst rate peaks at the onset of full plasticity. In a number of instances, bursts are seen to be co-ordinated amongst nearby grains. Peak broadening and intensity change accompanies the orientation change. We associate the most significant peak displacement events to twinning events though slip induced bursts are also seen. If the indexing challenge is overcome, we show the technique can shed important light on the elastic-elastic transition bulk materials.

**Keywords:** deformation, magnesium, synchrotron, Laue diffraction, twinning

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