Characterization of Texture Gradients in Designed Microstructures

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Abstract

Much attention has been given to designing gradient microstructures in order to achieve desired mechanical properties, with increased strength and retained elongation being the primary focus. These structures can be achieved through modern advanced manufacturing, including solid state forming as well as additive processing. This work focuses upon the quantitative description of texture gradients and its application to specific structures. Solid state forming of magnesium alloys and wire-arc additive manufacturing of multi-metal steel structures are highlighted in the discussion.

Keywords: Texture gradients, EBSD, WAAM, Severe plastic deformation, solid state forming

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