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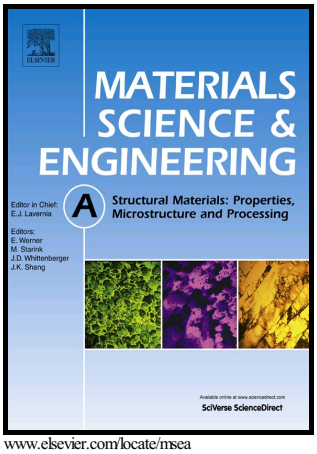

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Abstract

This study demonstrates that the combined addition of 0.5 wt% Ca and 0.2 wt% Y to a commercial AZ31 alloy leads to the promotion of dynamic recrystallization (DRX) behavior during hot extrusion, which significantly improves the mechanical properties of the extruded alloy. $(Mg,Al)_2Ca$ and Al_8Mn_4Y particles, which are formed during solidification by the addition of Ca and Y, cause an increase in the area fraction of dynamically recrystallized (DRXed) grains through particle-stimulated nucleation. These undissolved particles also cause the material to deform more severely during