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Basal slip dominant fatigue damage behavior in a cast Mg-8Gd-3Y-Zr alloy

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ABSTRACT

Low fatigue strength has been a major barrier for structural applications of cast magnesium alloys. It is important to understand the fatigue mechanisms and improve the fatigue lives of these alloys. Stress-controlled high-cycle fatigue behaviors of cast Mg-8Gd-3Y-Zr (wt.%) alloy in as-cast, solution treated (T4) and aged (T6) conditions were studied at room temperature, and the fatigue damage morphologies were carefully characterized. During high-cycle fatigue, only basal slips were observed on the surface of fatigue samples under different stress amplitudes, which suggests that basal slip is the dominant

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