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the Shield Effect of Phase Transformation Stress Field at Crack Tip

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Abstract: It is shown in this paper that the phase transformation happened and a white-bright layer is formed at crack tip. Thus, a compressive stress field is formed because of the volume growing up of phase transformation at crack tip. The compressive stress field is the shield of the crack propagation after using electromagnetic heat effect to stop crack propagation. Mechanical property tests under nanometer scale of these materials have been finished. The experimental survey of the volume expansion caused by phase transformation is also presented too. Key words: electromagnetic heat effect, crack propagation, compressive stress field of phase transformation, white-bright layer, volume expansion

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