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Comparison of two full-field identification methods for the wedge splitting test on a refractory

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Abstract

Two full-field identification methods are applied to the Wedge Splitting Test (WST) to obtain crack tip positions, stress intensity factors (SIFs) and T-stress. The first method is based on Finite Element Model Updating (FEMU), and the second is integrated digital image correlation (IDIC). Both are applied to a simplified virtual experiment and then to a cyclic WST. The gray level residuals are used to assess which results are more trustworthy. **Fracture energy analyses are performed to validate the estimated R-curves.**

Keywords: Crack tip position, digital image correlation, finite element model updating, stress intensity factors, virtual test, crack propagation

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