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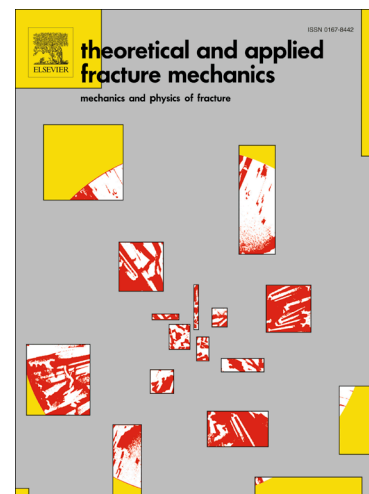
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## Inverse End-Loaded-Split Test Analysis

### Effect of Small Scale Yielding

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#### Abstract:

A novel testing procedure is proposed for investigation of crack propagation along bonded joint and delamination under mode II condition. Contrary to the known End Loaded Split experiment (ELS) the specimen is reversed so that the crack is now propagating toward the loading position ensuring stable crack growth. The simple beam theory analysis is used to evaluate the specimen compliance and the strain energy release rate. Subsequently, the Timoshenko beam on the elastic foundation model is derived to evaluate the effect of bondline compliance, and thus, to assess the shear cohesive stress distribution along the interface. Finally, considering bilinear interface separation law, effect of the crack tip plasticity in the new configuration is also analysed. Evolution of the load response curve during the experiment is studied so as the evolution of plastic zone size and specimen cross section deflection and rotation. Finally, a backface strain monitoring technique protocol is suggested to probe the shear cohesive stress distribution and extract the interface separation laws.

*Keywords:* Backface Strain Monitoring, Bonded joints, Crack propagation, ELS, Mode II.

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