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INTERACTION ANALYSIS BETWEEN A PROPAGATING CRACK AND AN INTERFACE: PHASE FIELD AND COHESIVE SURFACE MODELS

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Abstract. In the present work, the interaction between a crack propagating through a medium and impinging on an interface was studied by applying a phase field approach coupled with a cohesive model, where the phase field approach models the crack propagation through the medium and the cohesive model simulates the degradation process of the adhesive interface. Therefore, the mechanisms that were analyzed in the interaction between the crack and the interface were the deflection and penetration of the crack with respect to the interface and the crack kinking out of an interface. It is found that the presence of each of the above mentioned mechanisms has a high dependence on the fracture properties that characterize the material both in the crack propagating medium and at the interface.