

Experimental and numerical analysis of crack growth along patterned interfaces

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Relevant Working Groups: WG2

Objectives / Description / Main outcomes

- The width-varying DCB samples with the geometry of a single unit diamond are designed to study the patterning effect on the interlaminar performance.
- DCB tests are implemented and preliminary experimental results are obtained.
- The experimental setup allows us to further study the mechanism of patterning geometry.
- The current experiments present the promising capacity of modifying the geometry, by controlling the crack propagation process (like crack arresting).
- An approximate solution for the load-displacement curve of the width-varying samples is developed.
- The development of the derived theory provides possible guidance to the design of patches.
- Further discussion on the validation of the derived model will be explained in future work.
- Study on only varying the adhesive geometry, where the adherend's width is constant, is also in progress.

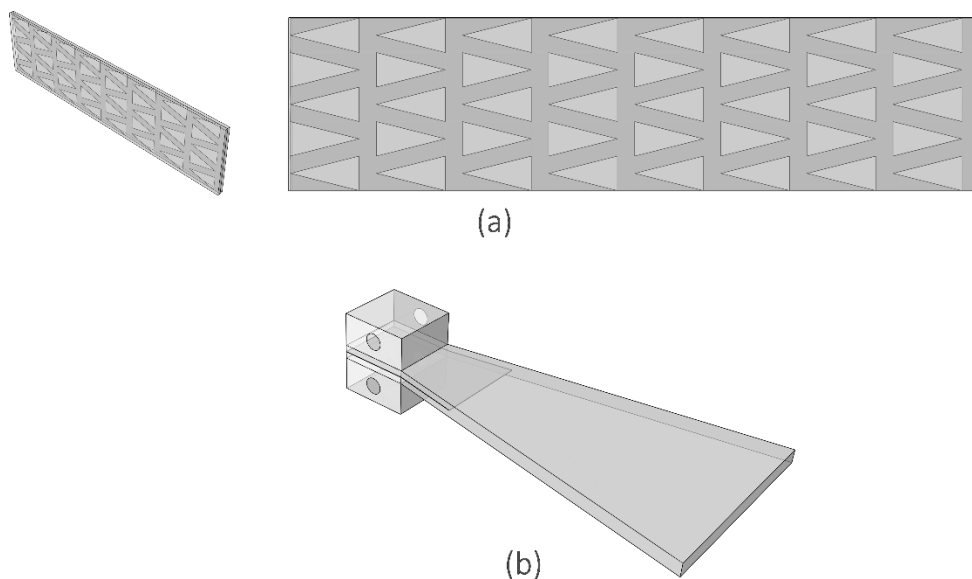


Figure 1: Schematic of the patterning interface and single unit cell.