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In the recent years, a coupled energy and stress approach has been used successfully to treat problems involving stress concentration since the stress-based criteria only are not more valid near a singularity. For the adhesive failure characterization, Roche et al. [1] have developed a 3-point bending test which has a similar stress concentration condition, and thus the coupled criterion can be applied to predict the failure of the adhesively bonded joint.

Conclusions and perspectives

- Dispersions: they disallowed a complete equivalence of fracture toughness
- Fracture toughness of bulk polymer (0.1 N/mm² ≤ G ≤ 0.33 N/mm²)
- Find a simpler surface treatment to provide the initiation – HOW?
  - Nitric acid etching – Different duration and temperatures

Perspectives

- Include the mixed mode
- Evaluation of residual stresses and the gradient of properties

References