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ED APPLICATA

Enhanced beam models for delamination toughness tests: influence of shear deformability

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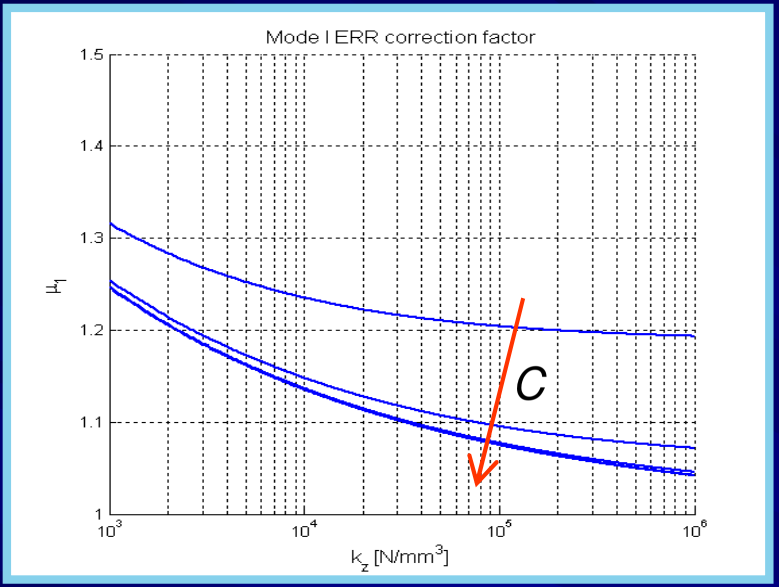
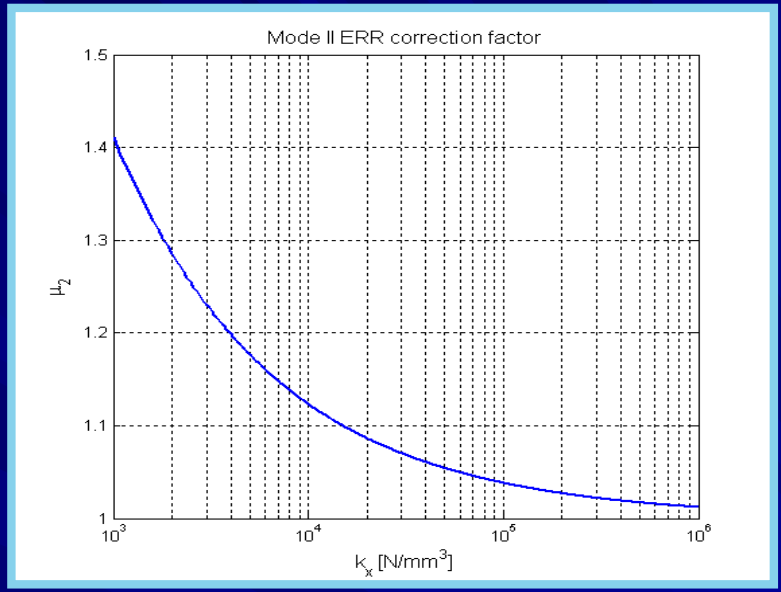
Enhanced BT model of MMB test

Fracture mode partitioning

Mode I ERR correction factor

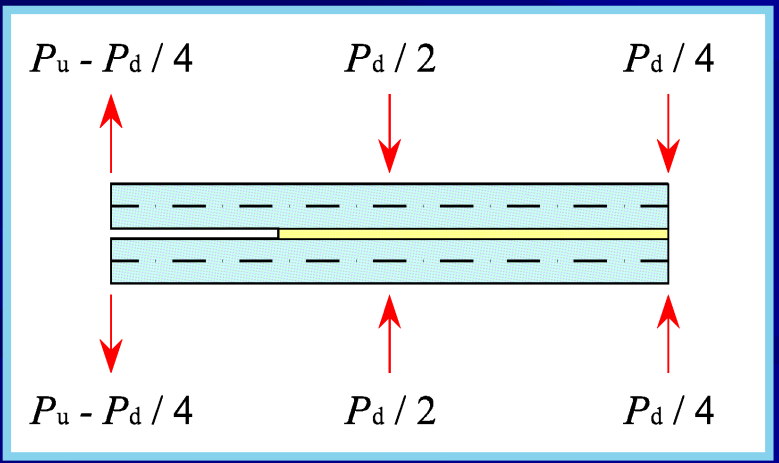


Mode II ERR correction factor

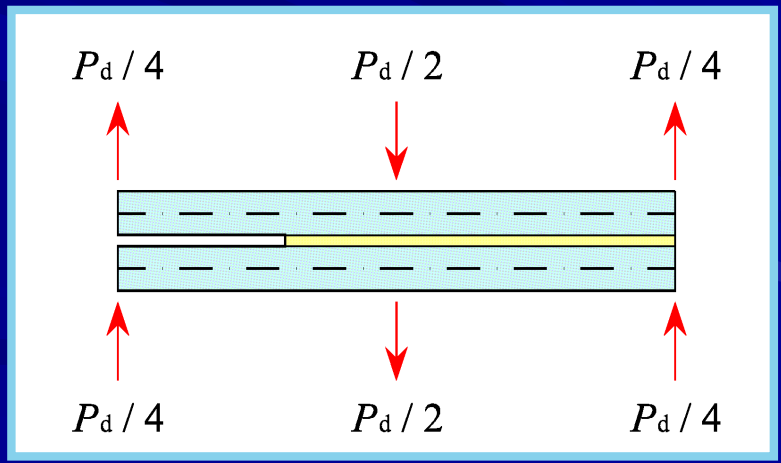


Load partitioning

Symmetric load system



Antisymmetric load system

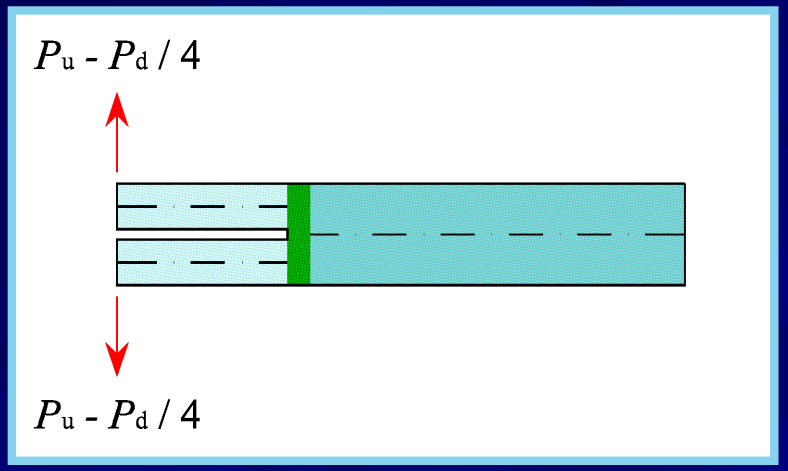


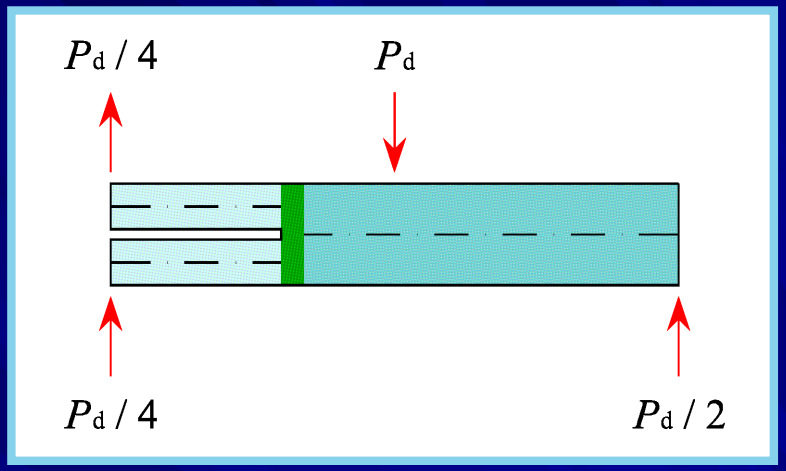
Beam theory models of MMB test

Symmetric load system (DCB test)

Antisymmetric load system (ENF test)

Load partitioning





Mode I ERR (from DCB model)

Mode II ERR (from ENF model)

Timoshenko & Simple BT

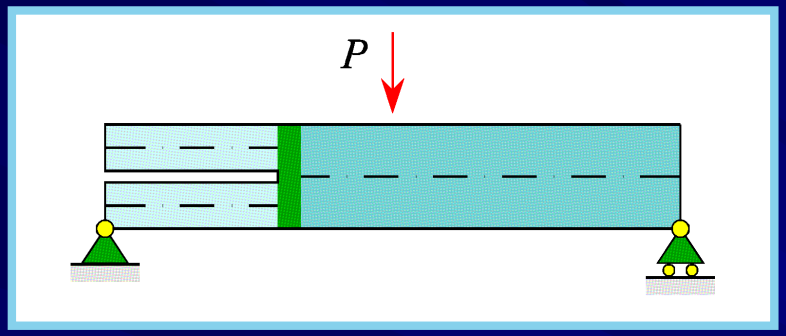
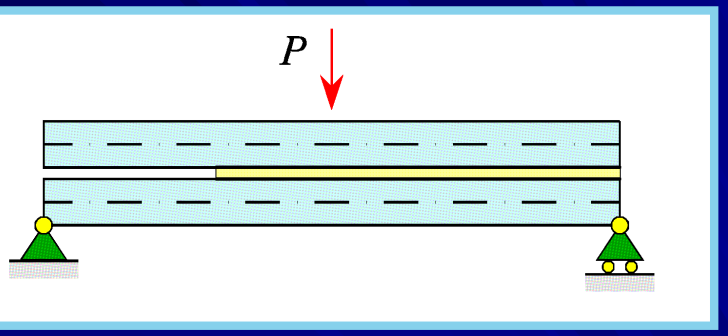
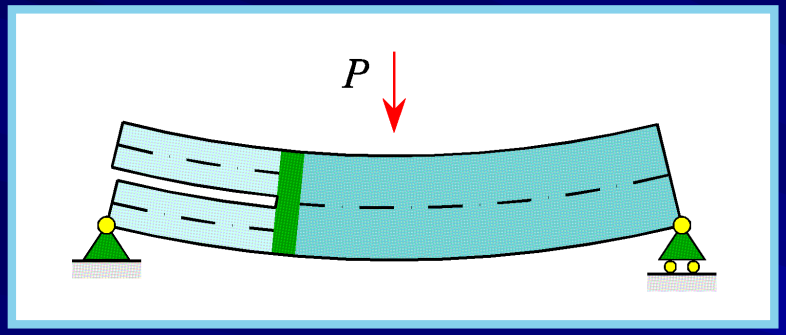
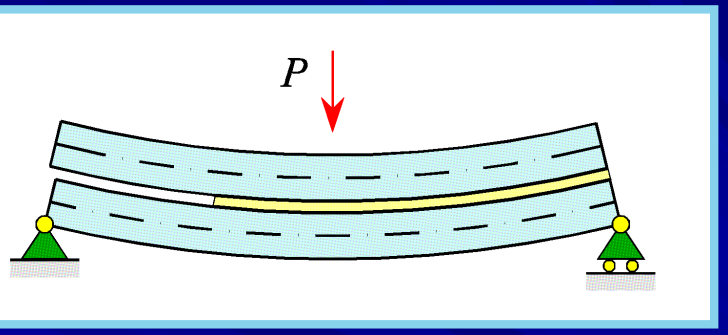
$$G_I^{TBT} = \frac{2(P_u - P_d/4)^2}{B^2}\left(\frac{4a^2}{D} + \frac{1}{C}\right) = G_I^{SBT}\left(1 + \frac{D}{4a^2 C}\right)$$

$$G_{II}^{TBT} = \frac{3P_d^2}{16B^2}\left(\frac{2a^2}{D} + \frac{1}{C}\right) = G_{II}^{SBT}\left(1 + \frac{D}{4a^2 C}\right)$$

Carlsson, Gillespie, Byron Pipes (1986)

Fan, Ben Jar, Cheng (2006)

Shear deformability in ENF test

	Timoshenko beam theory model	Enhanced beam theory model
Model		
Bending		
Shear