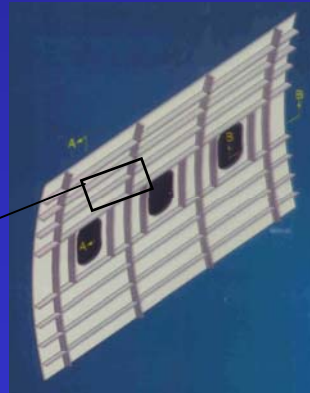
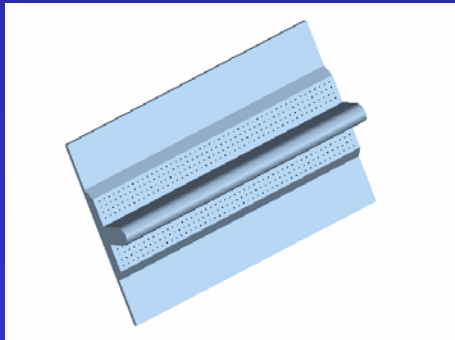


Z-Pin Reinforcement in Composites

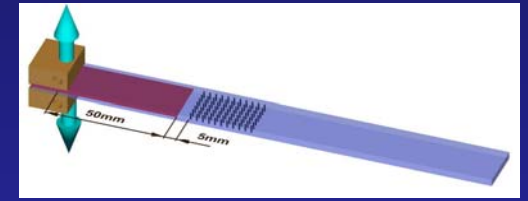
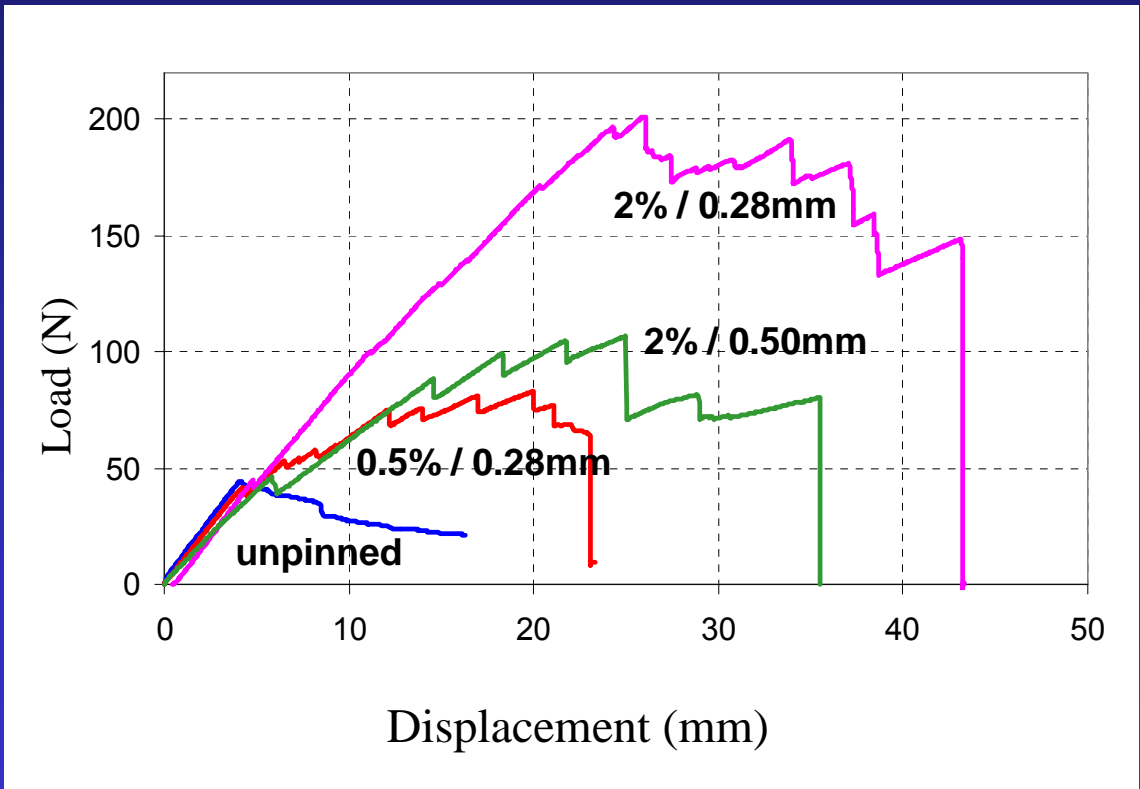
Delamination

H-Y Liu and Y-W Mai

Z-pin reinforcement is a new technology that is developed to enhance the fracture resistance of composite structures against delamination. Its capacity to ensure significant increase in delamination resistance of laminated composites has been verified by both industrial application and laboratorial testing.



Mode I Delamination Test with Z-Pin Reinforcement by Cranfield University



Objective

The aim of this work is to study the failure mechanisms and bridging performance of z-pin reinforcement. We expect to gain a better understanding on this new technology and provide a sound physical basis for future studies on how to improve the performance of z-pin reinforcement and optimise z-pin reinforcement towards better reliability and integrity.



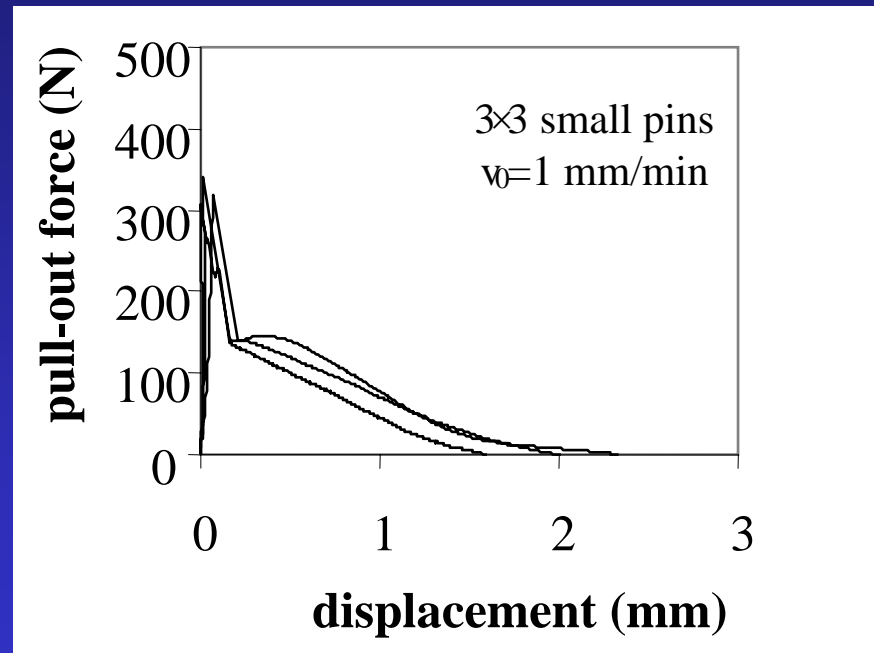
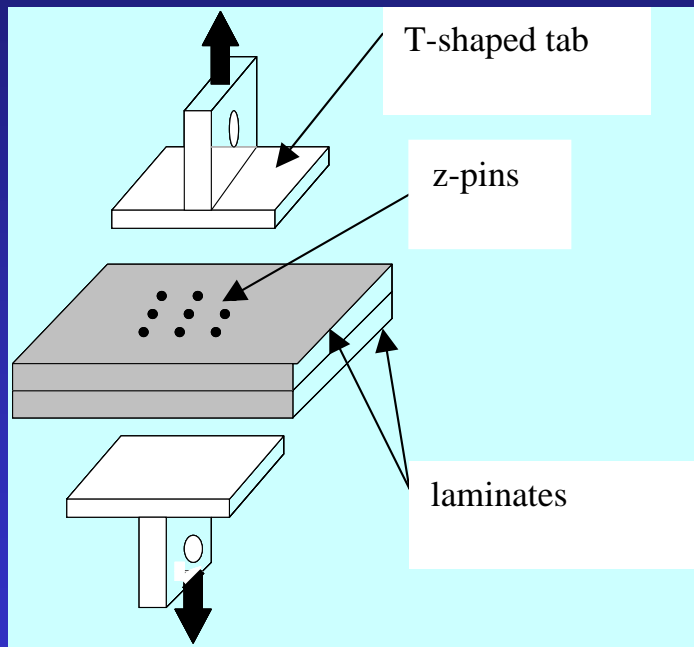
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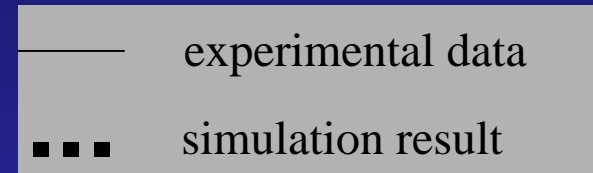
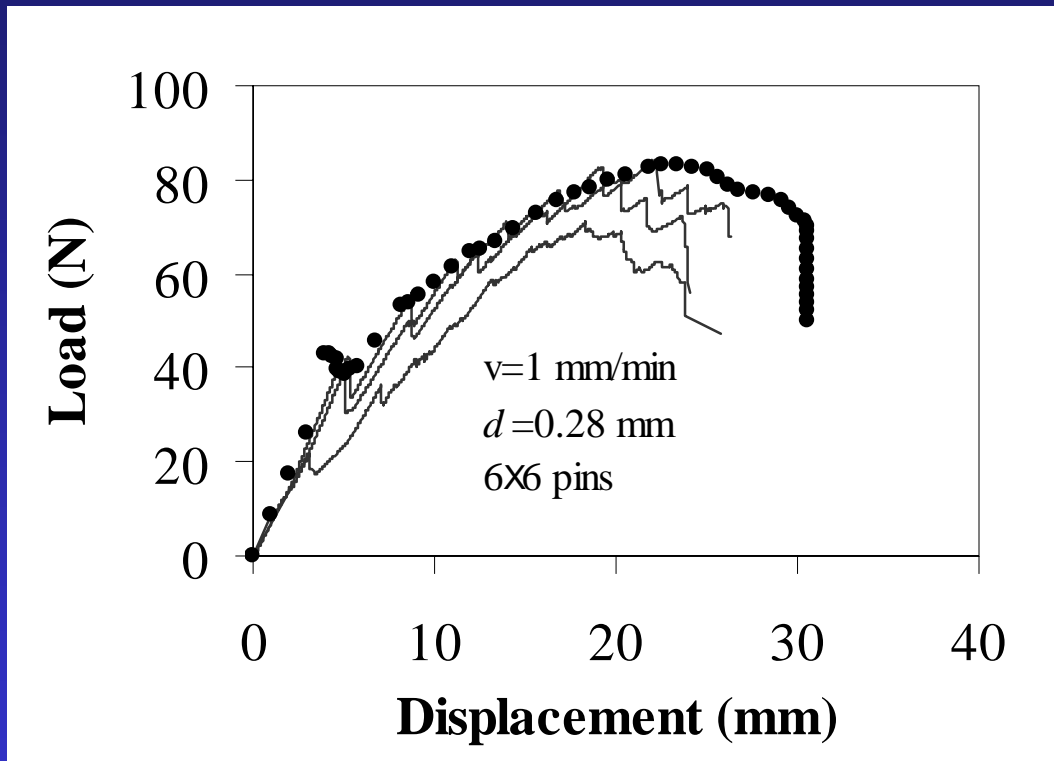


Current Work

➤ Study on z-pin bridging law by z-pin pullout test



➤ **Computer simulation on Mode I delamination test with measured bridging law**



Future Work

- Experimental and numerical investigations on z-pin bridging mechanism in Mode II and mix Mode I/II delamination
- Computer simulation on z-pin performance under complex loading conditions. The results will provide a design guideline for z-pin technology towards better reliability and integrity.



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