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Factors affecting static failure of bolted joints in hybrid compositealuminium aircraft structure

Aerospace Technology Congress 2019 2019-10-08

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# Agenda

- Introduction PhD project
- Experimental results
  - Bolted joint failure modes
  - Open-Hole tension
  - Bearing
  - Bolted Joint specimen
  - Failure stress envelope
- Future work



# PhD project

- Improved analysis capability and strength properties of bolted joints in advanced metal-composite structure
- Funded by Saab and VINNOVA NFFP7
- PhD student at Linköping University
- The goal is to develop efficient methods for predicting the strength of bolted joints for industrial application









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### CFRP open-hole tension specimen







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# CFRP open-hole tension results





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# CFRP bearing specimen





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# CFRP bearing results







## CFRP-Alu bolted joint double shear specimen



## CFRP-Alu bolted joint single shear specimen







## Future work

- Continue with experimental work
  - Half Hole Bearing (HHB) specimen
  - Open Hole Compression
  - Bolted joints CFRP/Alu, fatigue
- Finite element simulation including failure modelling



## Acknowledgements









# Thank you for listening!



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