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# Multifunctional Materials, a Step Towards the Future of Aviation

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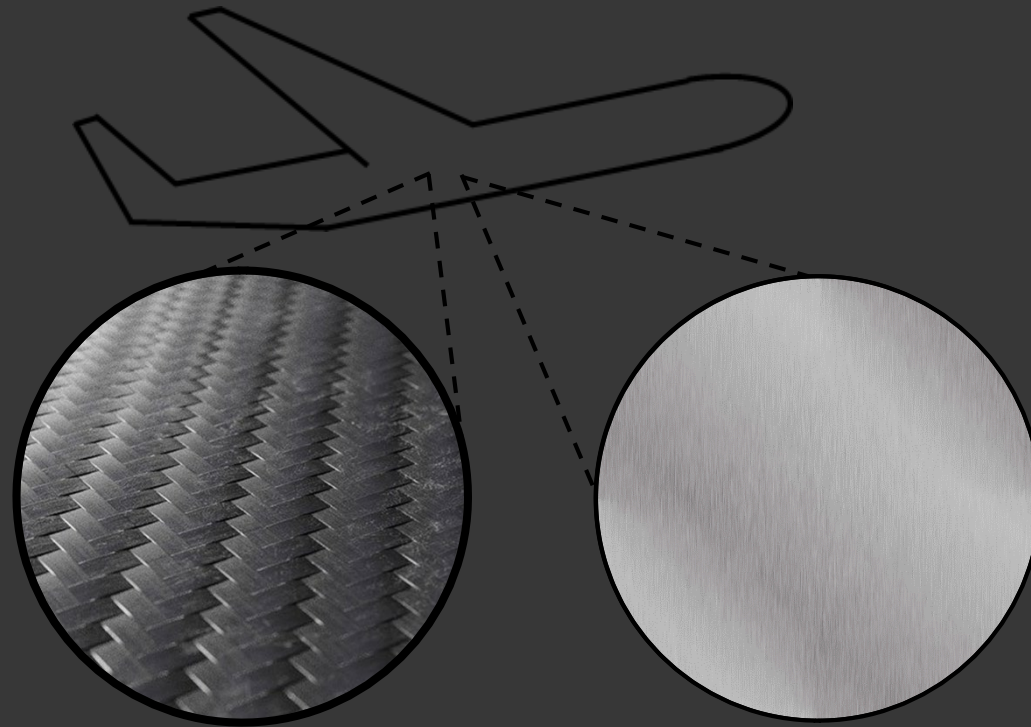
Adjunct Senior Lecturer (Linköping University)



# Requirements and performance



# Materials in Aeronautics

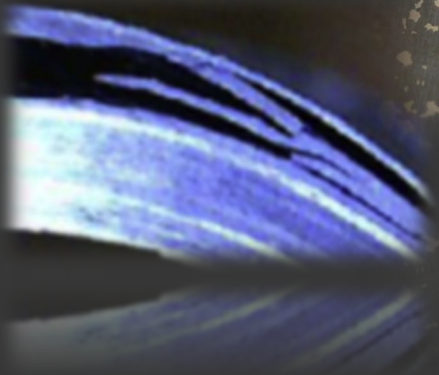
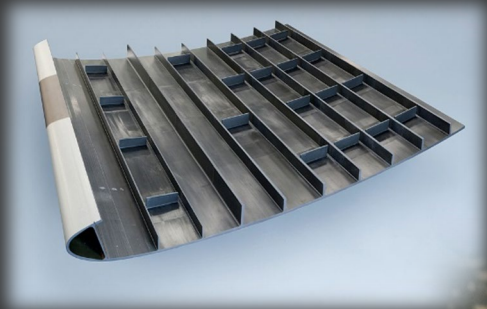


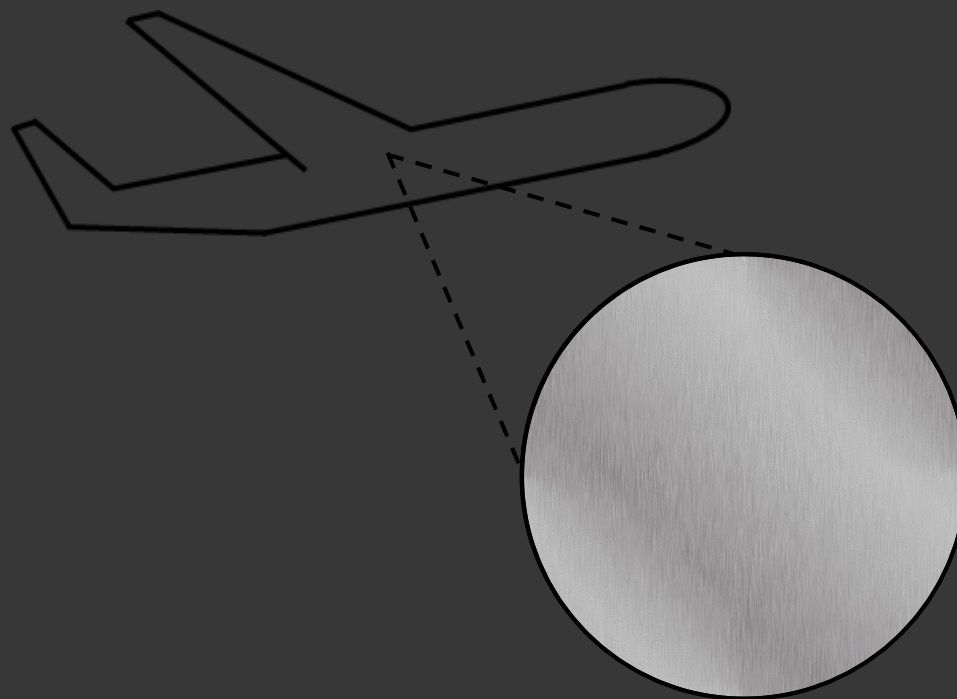
# Multifunctionality





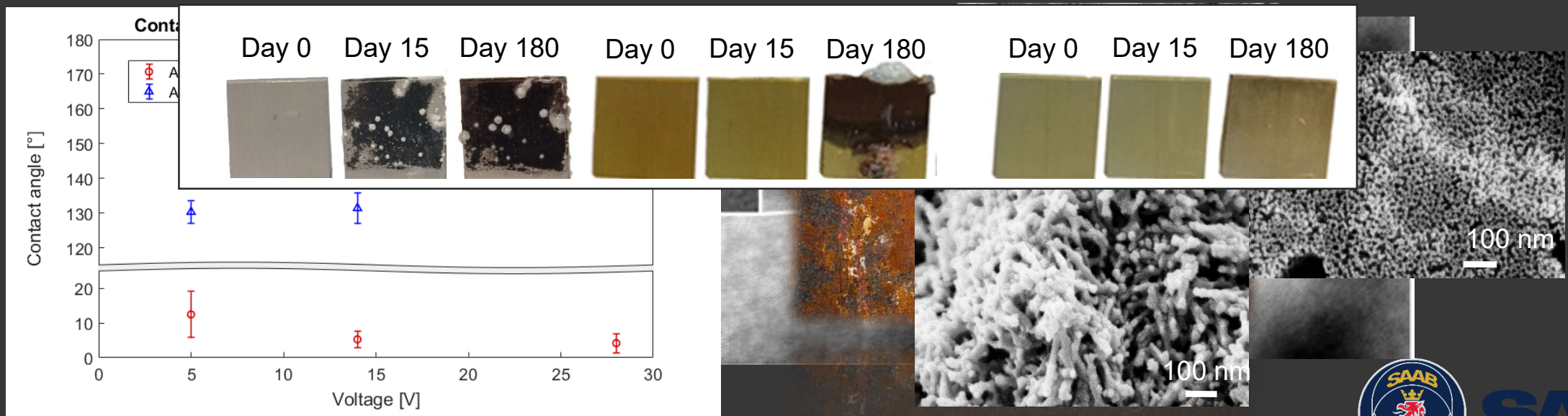
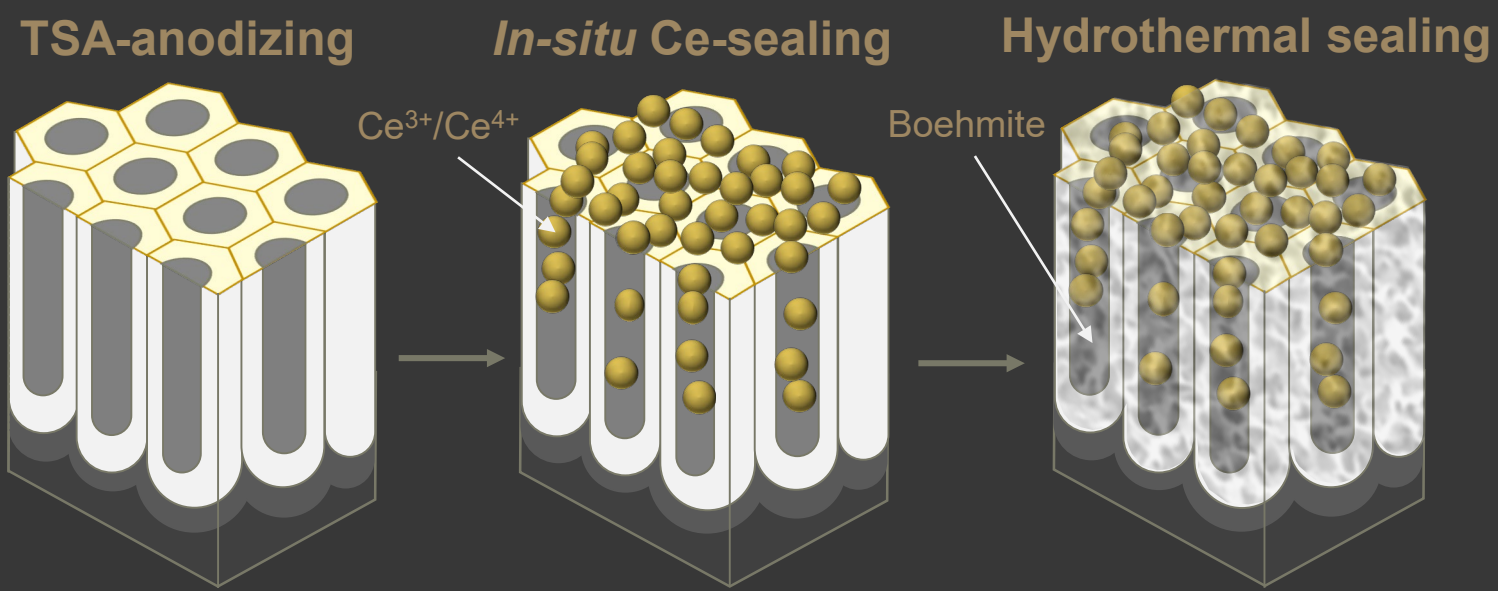
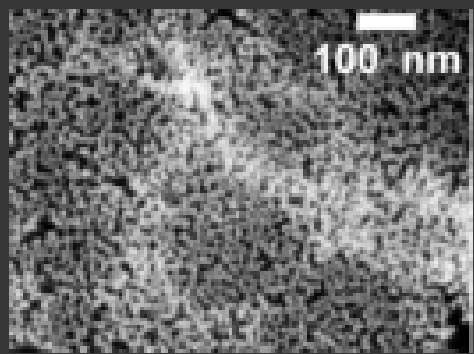
# Innovation for fulfillment of requirements and improvement of performance



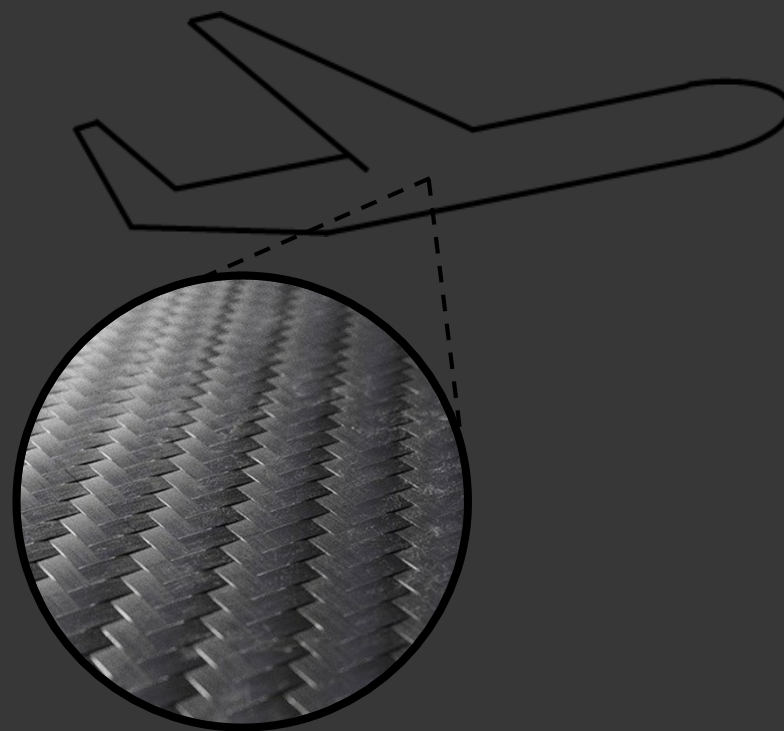


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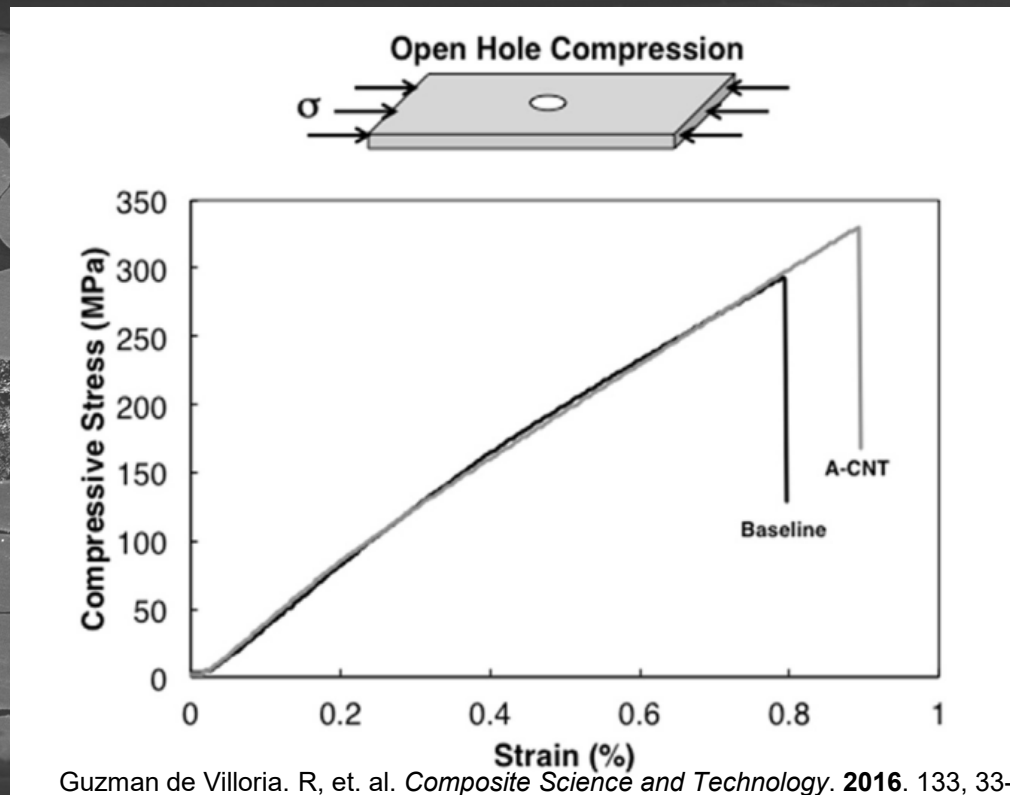
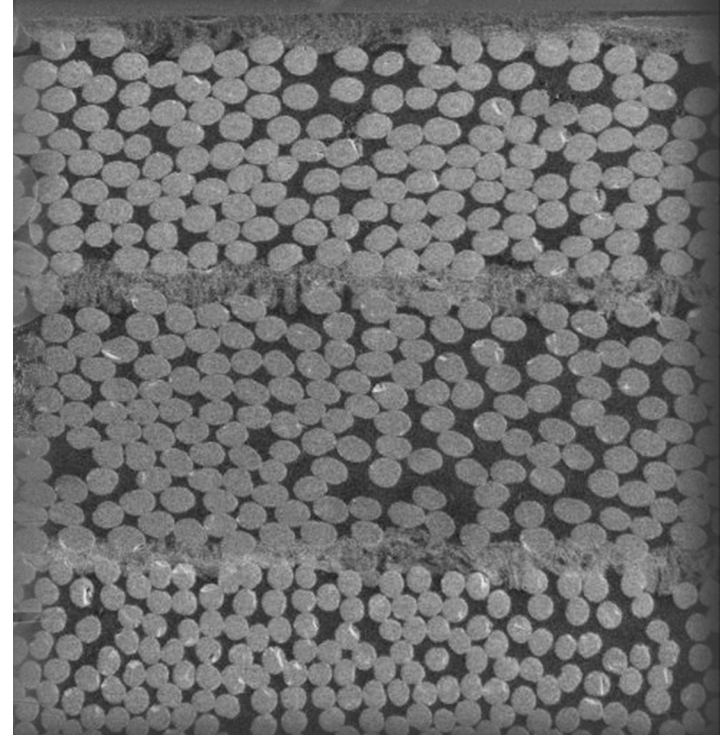
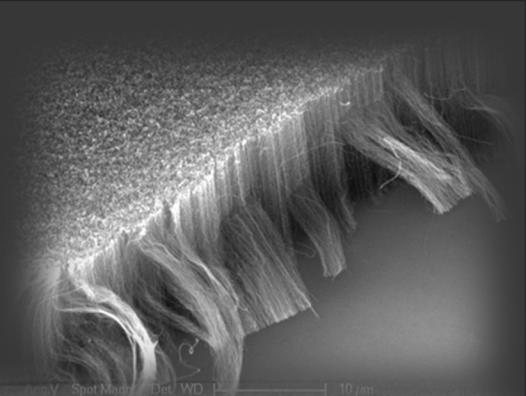
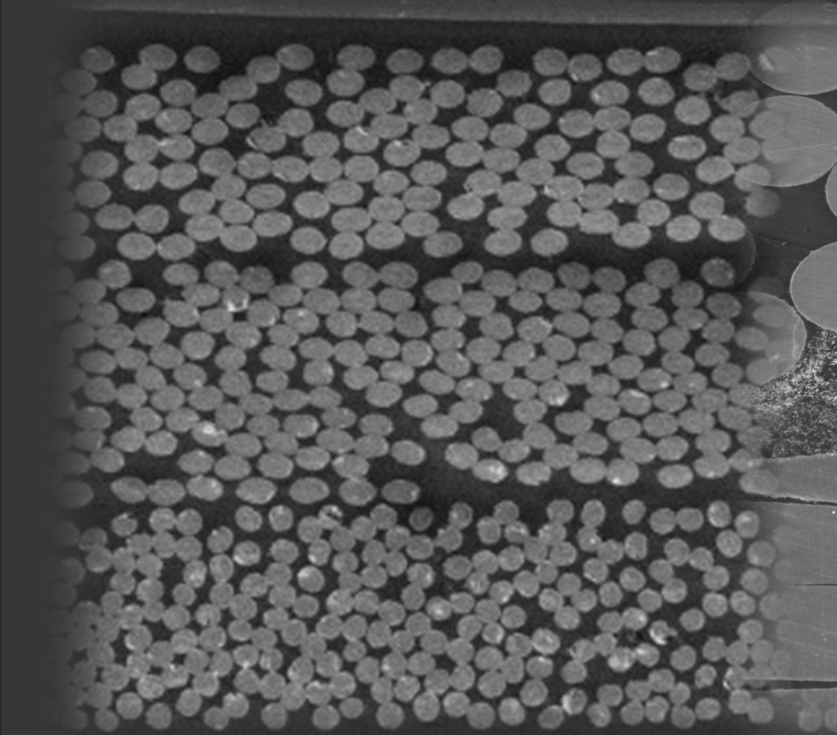
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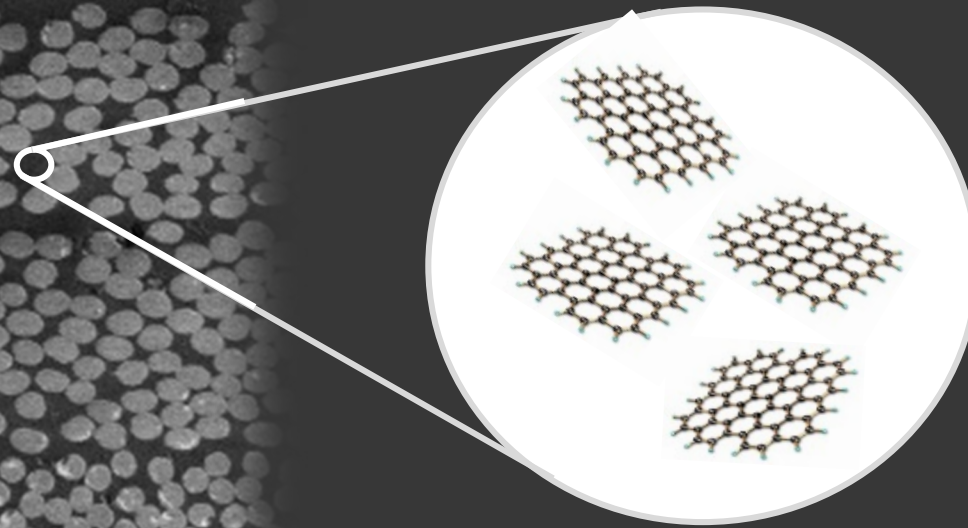
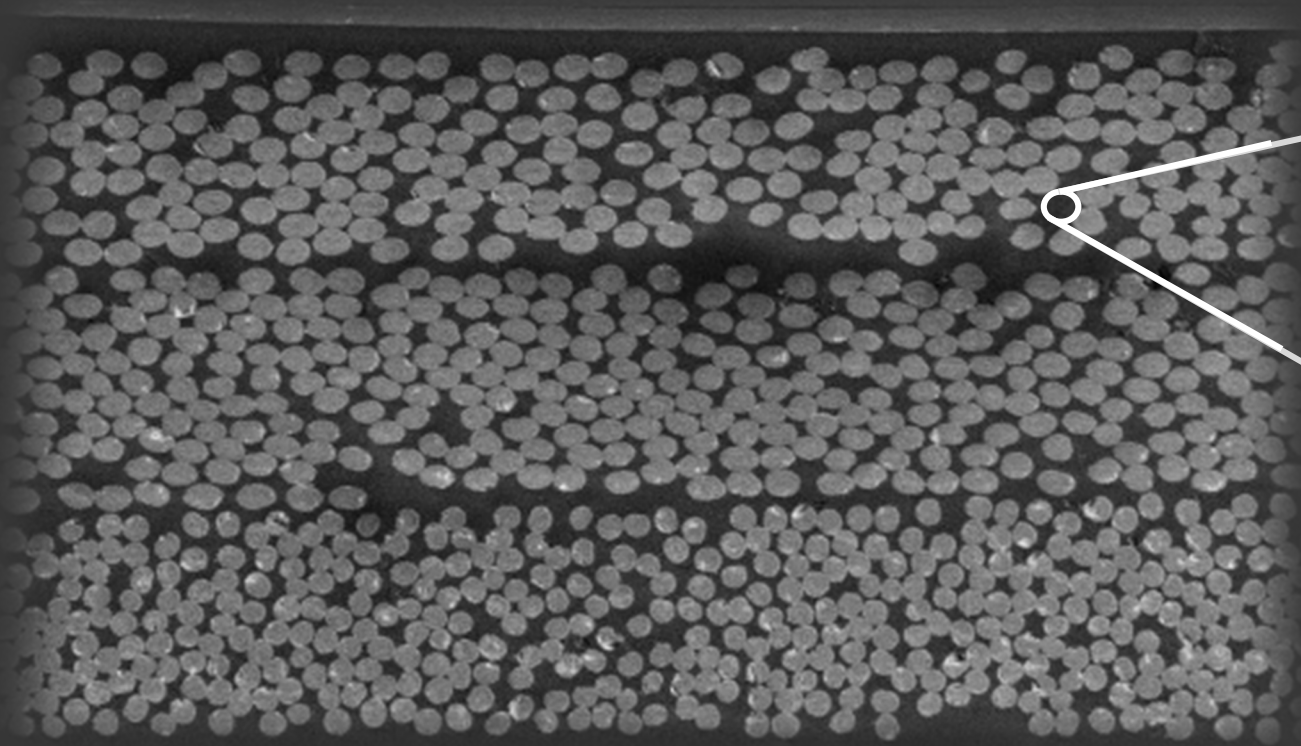








# Graphene in carbon fibre composites



Mechanical

Electrical

Experimental

Simulations



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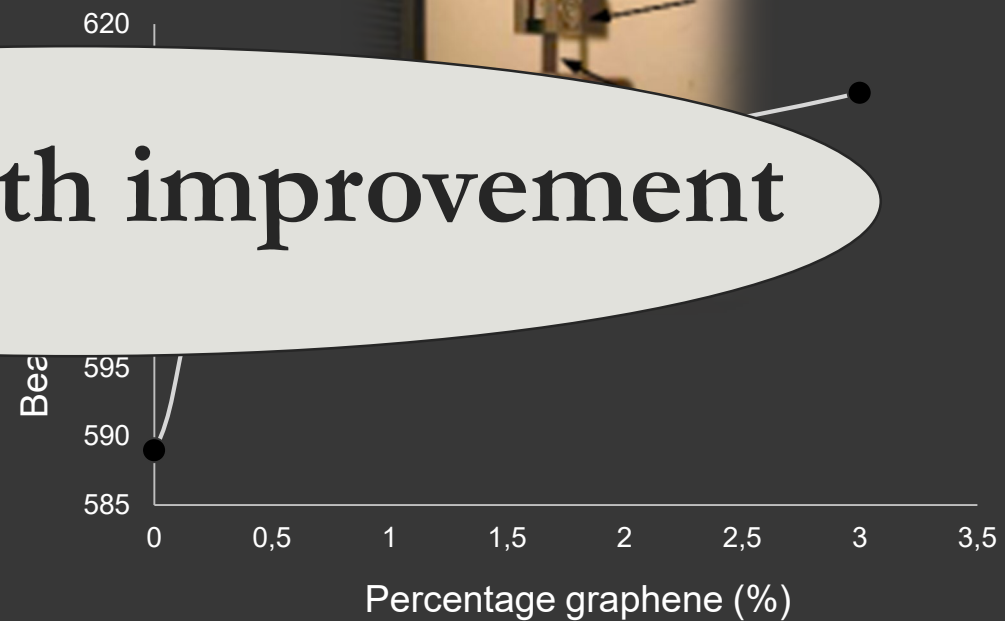
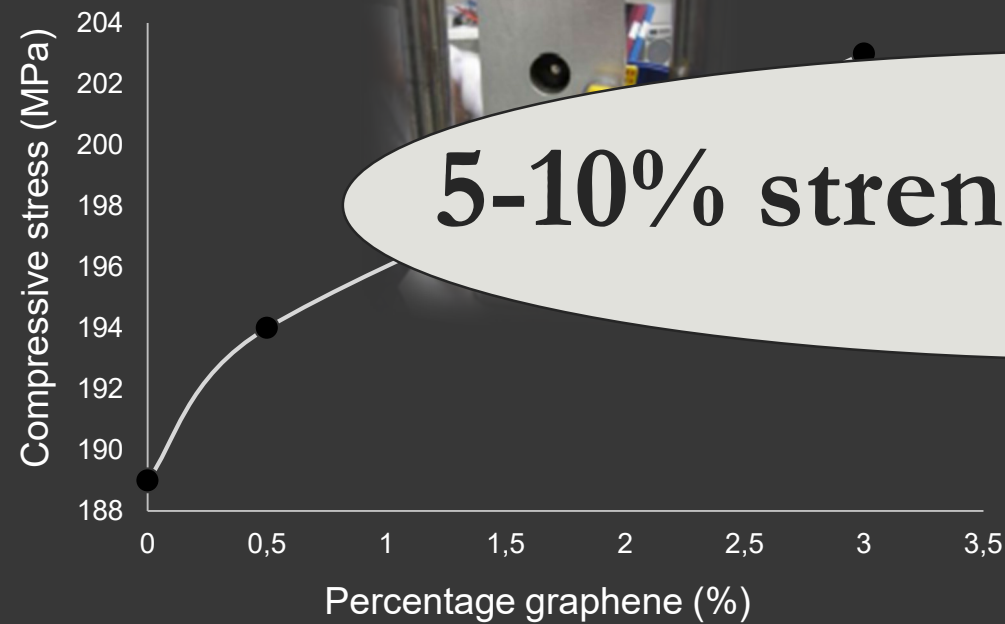
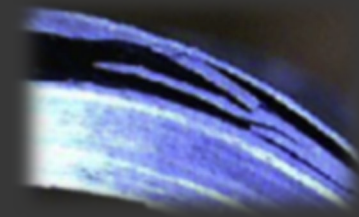
**CHALMERS**  
UNIVERSITY OF TECHNOLOGY

Project funded by SiO Graphene and Lighter, through Vinnova (Swedish funding agency)



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# Mechanical properties



**5-10% strength improvement**



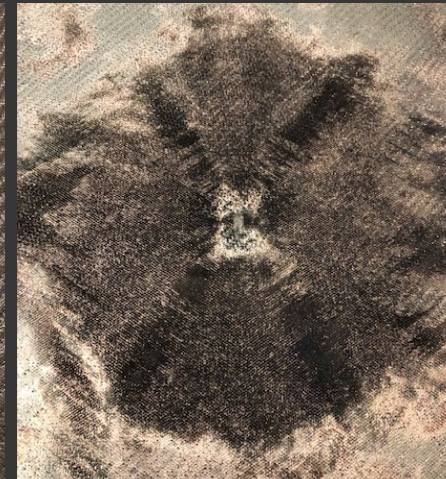
# Electrical conductivity

2.5% Graphene+  
0.5% CNT

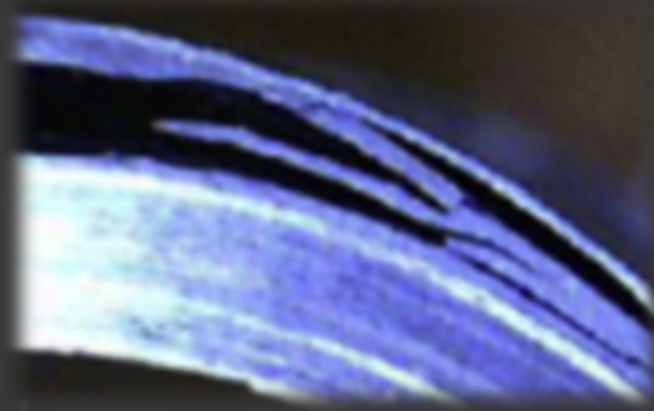
60 000 A



Cu-mesh

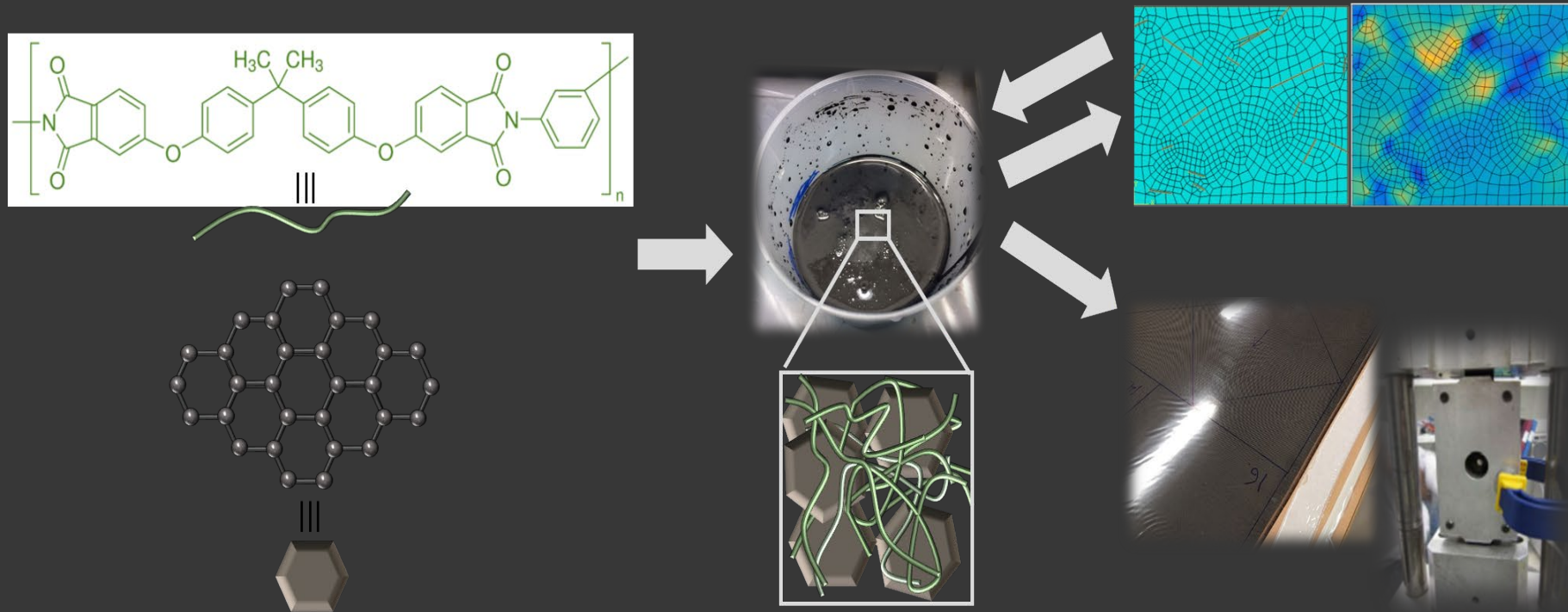


# Multifunctionality



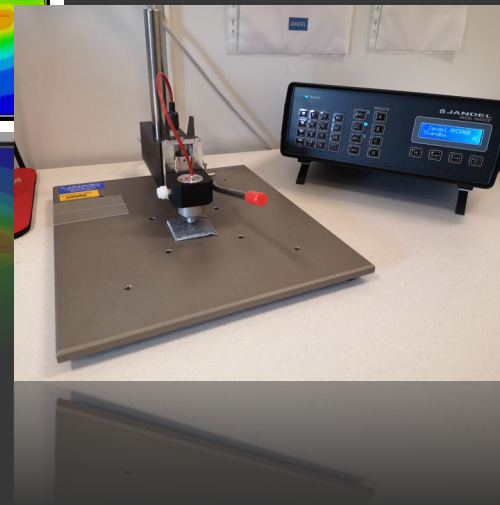
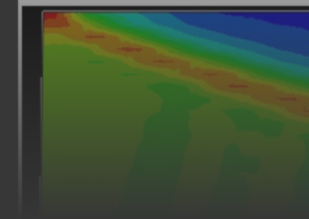
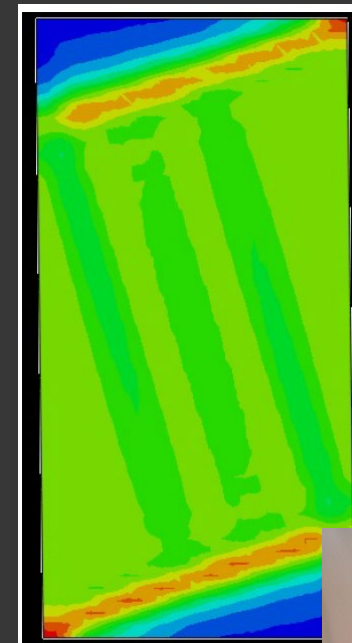
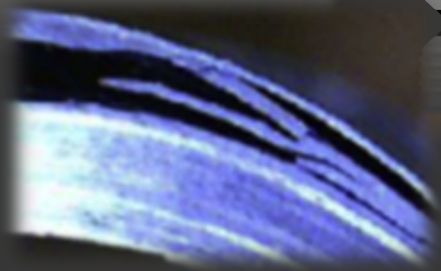
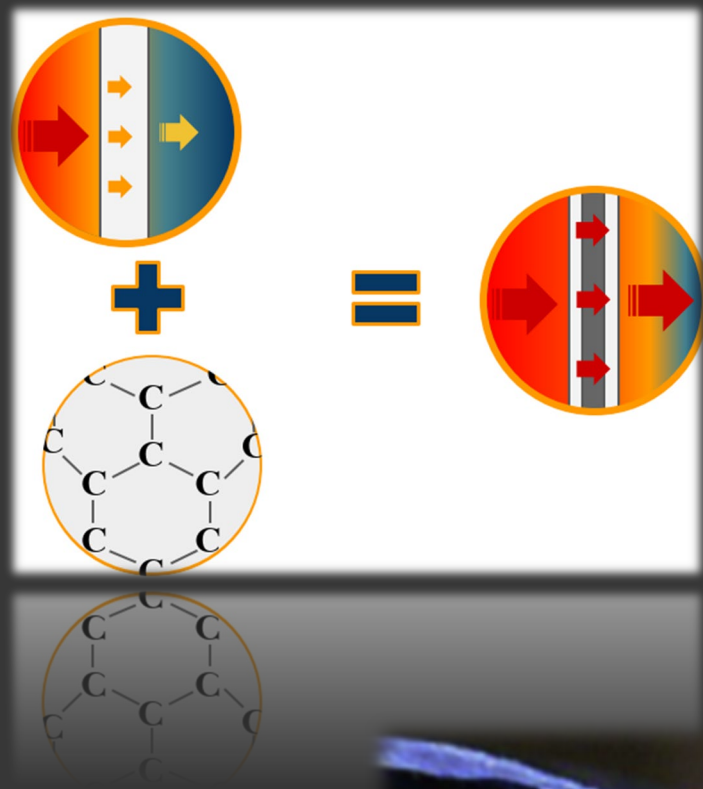
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# Switching from thermosets to thermoplastics





# Goal - multifunctionality

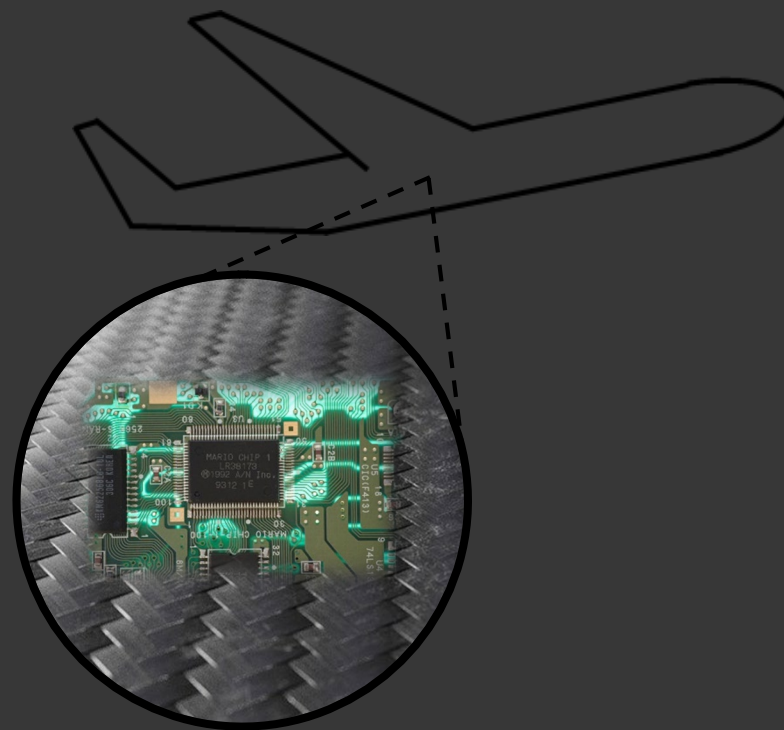


Project<sup>1</sup> funded by SiO Graphene, through Vinnova (Swedish funding agency)



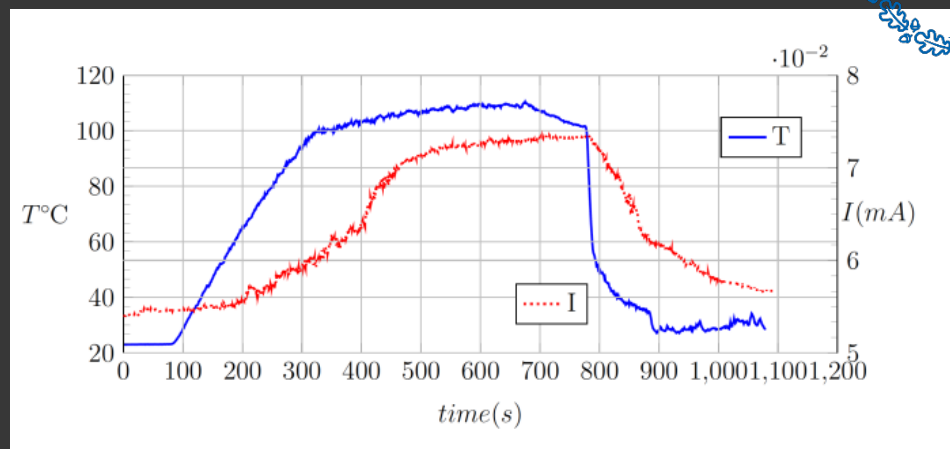
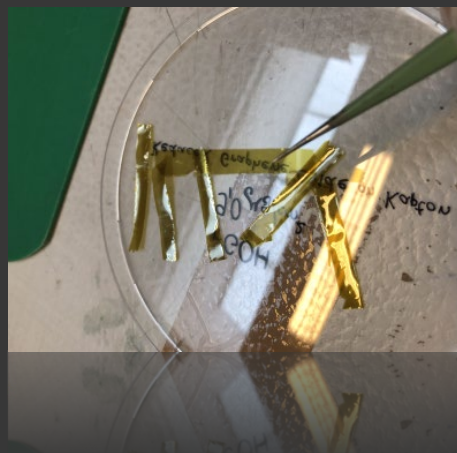
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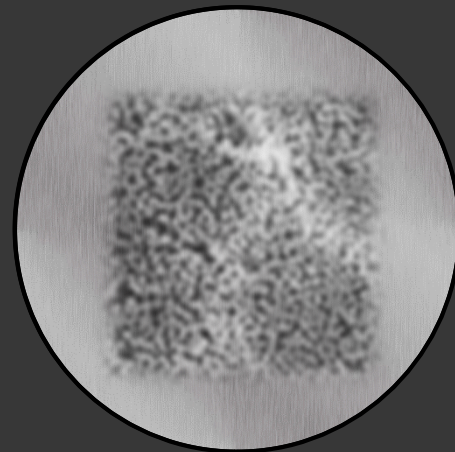
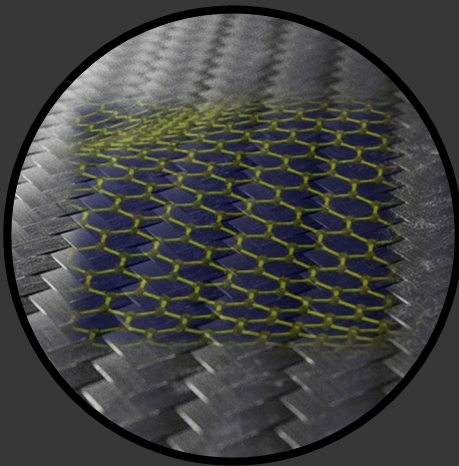
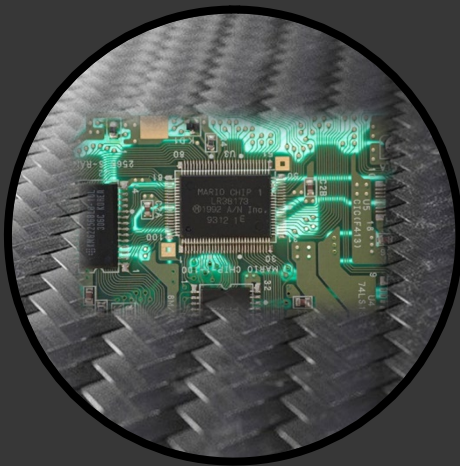
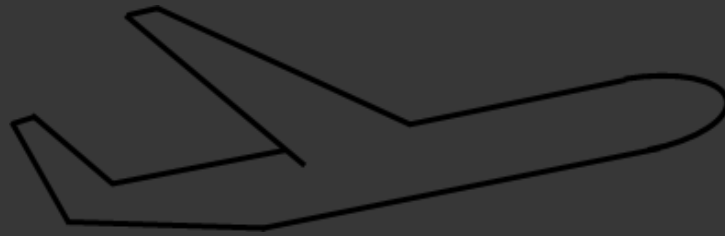


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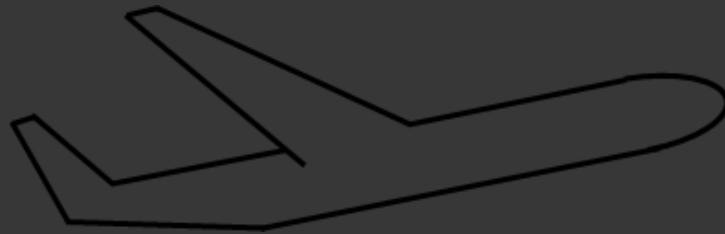
# Integrated Systems



Project funded by Lighter,  
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Thank you!

