

3° Benelux Network Meeting and Workshop on Damage and Fracture Mechanics

How does "listening" help fracture understanding ?

Rosemere de A. A. Lima, Ran Tao, Andrea Bernasconi, Michele Carboni, Nicolas Carrere and Sofia Teixeira de Freitas

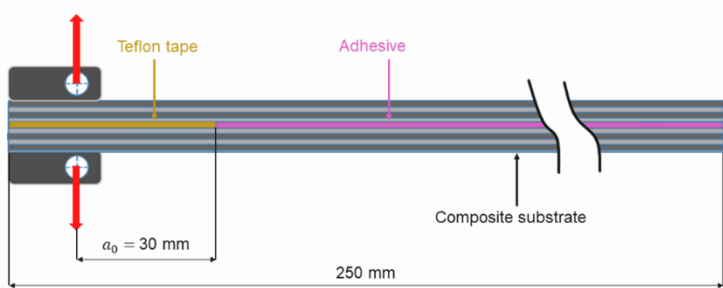
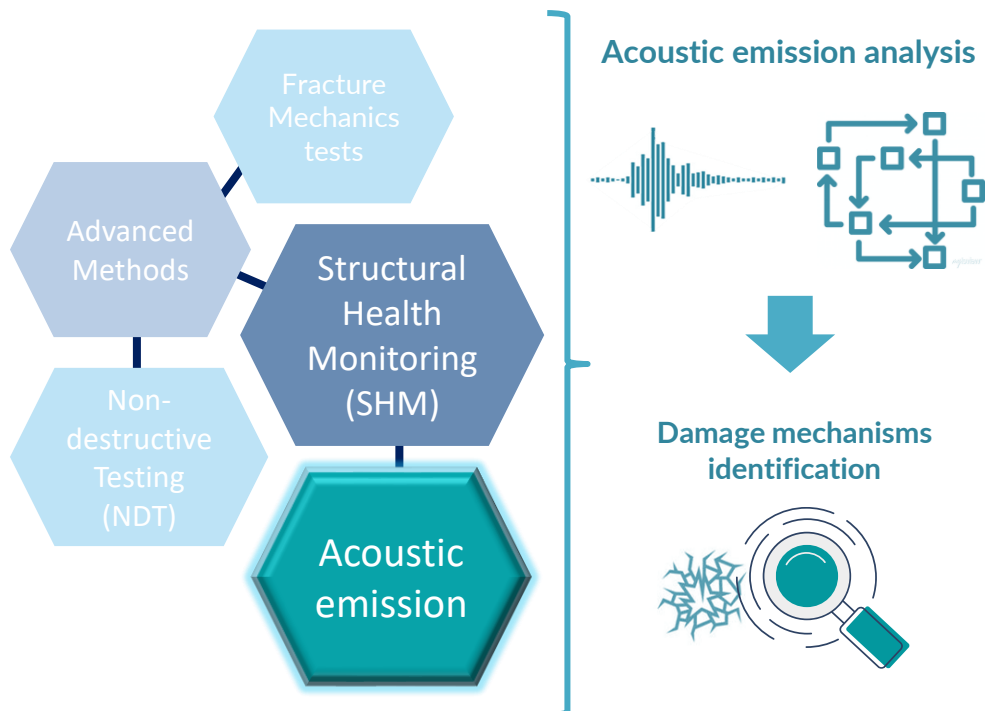
Introduction

Understanding the relationship between the sensors' outputs and the damage evolution within the joints is becoming very important to improve structural health monitoring systems and collect information to improve the joint's design.

Aim:

Associate acoustic emission features with visual fracture evaluation to have insights into the toughening of composite bonded joints.

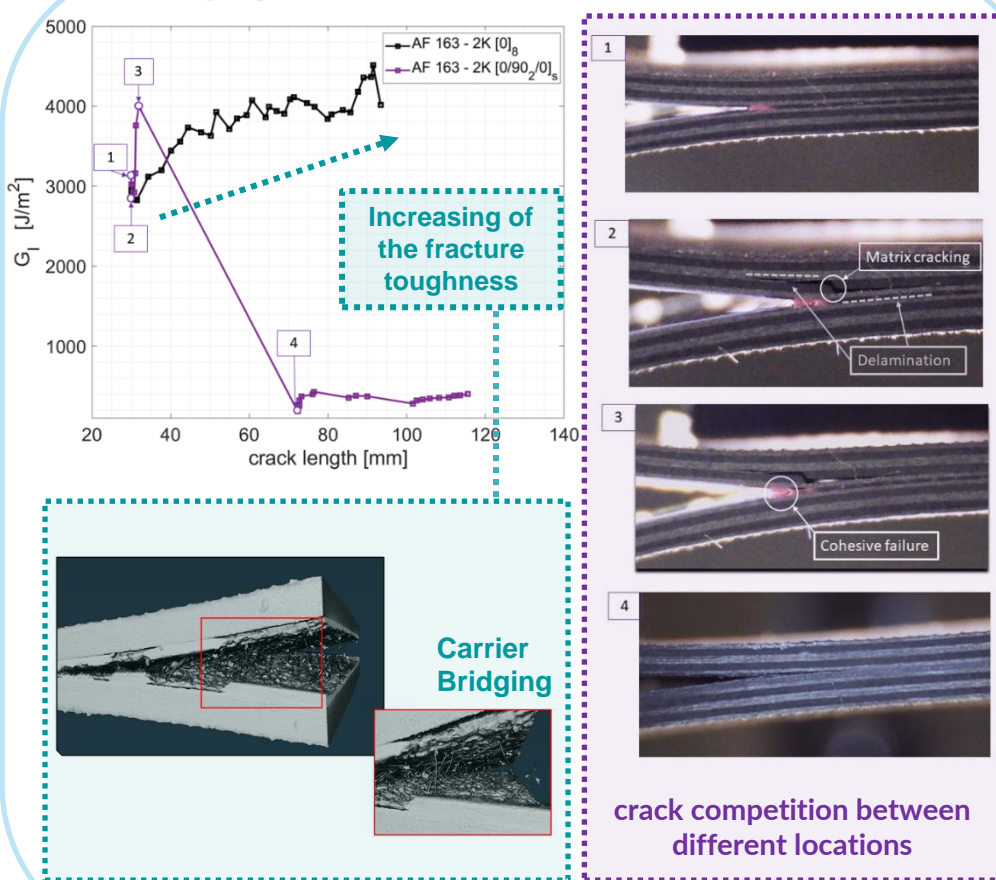
Objectives



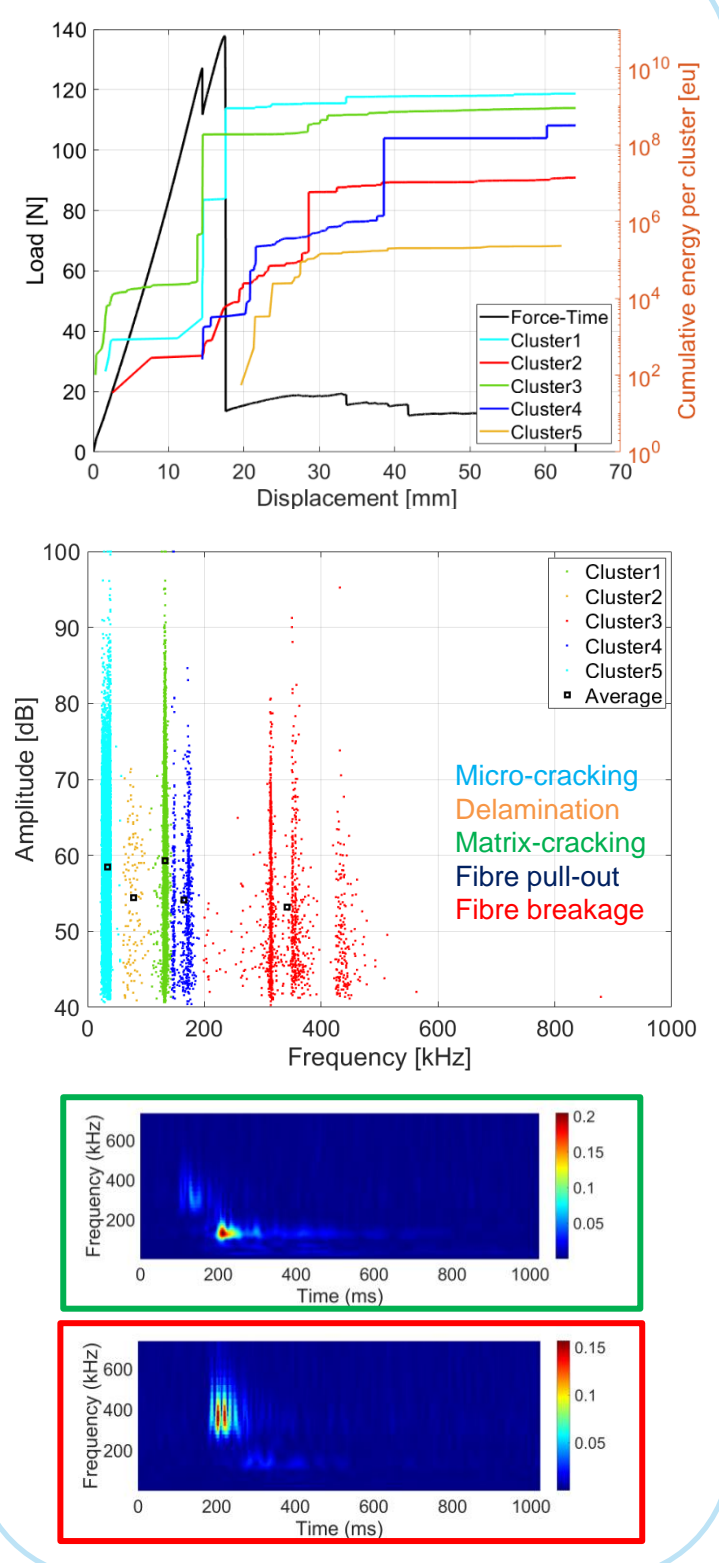
Results



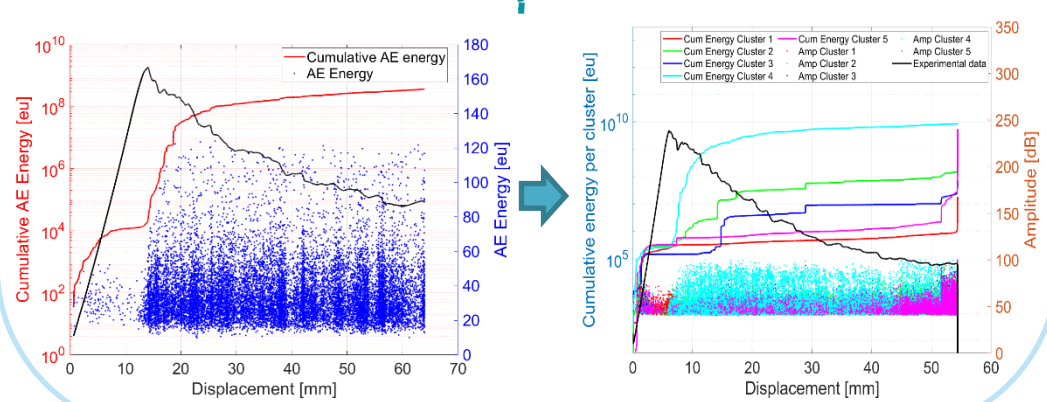
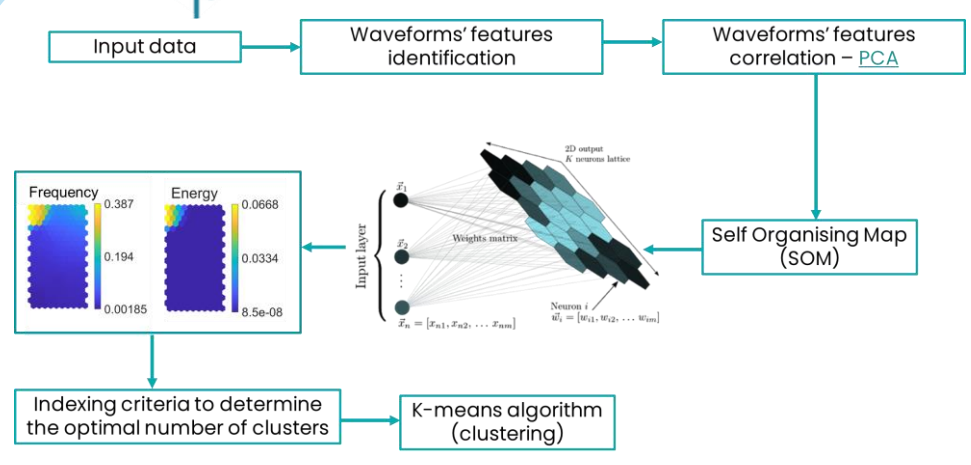
Triggering toughening mechanisms



Acoustic emission (AE)



Clustering methodology



Conclusions

- Identification of carrier bridging and crack deflection and competition as main mechanisms involved in the toughening of the joints
- Development of a methodology and trained data-set to furtherly be used in supervised artificial neural networks in bonded structures.

