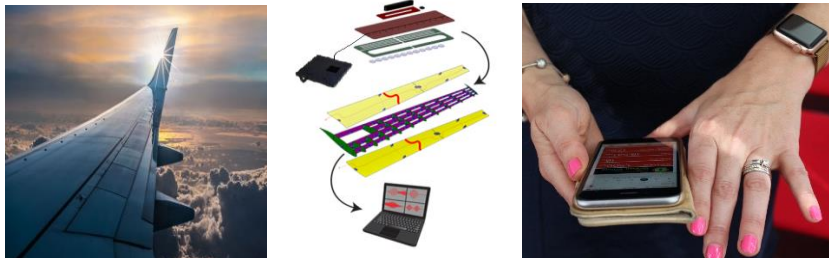


SAFE-FLY- Structural Health Monitoring in modern aeronautical structures



Background

These days, we are all becoming increasingly interested in monitoring our own health through the use of Fitbits, Apple watches and health and fitness apps, but do you ever think about how the structural health of an aeroplane is monitored?



Introducing: **SAFE-FLY** European Industrial Doctorate, a Marie Skłodowska-Curie EU funded doctoral research and innovation programme focussing on developing a **novel, reliable and lightweight Structural Health Monitoring (SHM) system**.

SAFE-FLY is a collaboration between the University of Nottingham and Aernnova Engineering SAU, a leading global Aerostructures company, headquartered in Spain. The University of California Berkeley and University of South Carolina are also partners.

Existing Challenge

Modern aeronautical structures are increasingly made of composite materials providing lightweight, strong and flexible properties. However, any damage in composite materials may not be externally apparent making it difficult to identify if the interior structure has been damaged at all, resulting in lengthy and expensive inspection and repairs.

Current techniques using ultrasonic guided wave technology allow structural damage to be detected but not directly identified due to limitations in predicting wave interactions.

Safe-Fly aims to develop a novel, reliable and lightweight Structural Health Monitoring (SHM) system which will facilitate effective online identification of damage.

Objectives of the project

- Robust multi-scale damage modelling frameworks will be developed that simulate non-linear damage as a result of both intra-laminar and inter-laminar failures
- A fast and efficient guided wave simulation technique will be developed from which algorithms will be refined to detect and characterize composite damage

- Methodologies will be developed at pre-configuration, detection, damage localisation and identification and damage prognosis stages to address the SHM identification challenge

If you are interested in finding out more about Aerospace Engineering generally or at undergraduate or postgraduate level, **come over** to meet the team of researchers involved in the project: Dimitrios Chronopoulos, Udit Pillai, Khalid Malik and Sergio Cantero Chinchilla in **Hall 3, Innovation Zone, Stand 3794. Fri 20th and Sat 21st July 2018 9am-4pm.**

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safe-fly.eu