

EuroGNC e-seminar

Two talks spanning unconventional aerial vehicle design and system identification for structural health monitoring — live online, one hour, two speakers.

TALK 01

Unlocking the potential of unconventional aerial vehicles

Sophie Armanini Imperial College London – Dept. of Aeronautics

Thanks to their small size, low cost and rapid manufacturing, small-scale unmanned aerial vehicles (UAVs) facilitate the exploration of new and unconventional designs. These in turn result in new flight behaviours and capabilities, which can allow for complex tasks to be performed more efficiently or for new applications altogether. Particularly challenging domains include environmental sensing and operations in urban areas — both of which require UAVs to be versatile and robust, while also posing a low risk to their surroundings and causing a minimal disturbance. This talk presents an overview of past and recent research on the design, modelling and control of different types of UAVs, focusing particularly on bioinspired and unconventional configurations.

Sophie Armanini is Associate Professor in Aerial Robotics at Imperial College London. She works on flight dynamics, system identification and control for unconventional and small-scale UAVs, with a particular interest in flapping-wing flight. PhD, TU Delft; MSc, TU Munich; previously Assistant Professor at TUM.

TALK 02

System identification for the monitoring of complex structures: an open challenge

Gabriele Dessena Universidad Carlos III de Madrid – Aerospace Engineering

The pursuit of aerodynamic performance and mass reduction has driven the adoption of composites and other anisotropic materials, making the behaviour of aeronautical structures harder to predict as damage and uncertainty evolve in service. This talk presents an extension of the Loewner Framework — a reduced-order modelling technique from electrical engineering — to system identification, built directly from noisy measured responses to extract natural frequencies, damping ratios and mode shapes for structural health monitoring. It closes with ongoing work towards real-time implementation and the identification of aeroelastic phenomena such as flutter.

Gabriele Dessena is a Juan de la Cierva Fellow at Universidad Carlos III de Madrid. His research spans structural dynamics, operational modal analysis, finite element model updating and structural health monitoring of aerospace structures. PhD, Cranfield University; MEng, University of Southampton.

DATE

7 October 2026

TIME

14:30 CEST

ends 15:30 CEST

DURATION

1 hour

Two 30-minute talks

Space is limited. Registration is required to receive the joining link — reserve your seat in advance.

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