

# The 2012 DCAMM Annual Seminar Speaker

## Nigel Peake

Professor of Applied Mathematics  
Department of Applied Mathematics and Theoretical Physics  
University of Cambridge, UK

will give the following lecture at

### The Technical University of Denmark

Glassalen, next to the canteen, ground floor, Building 101A  
Anker Engelunds Vej 1, 2800 Kongens Lyngby

## Sound Generation by Aircraft, and by Owls

**on Wednesday, November 21, at 14:00**

There will be an open discussion after the lecture

at 15:00

*(Refreshments will be served)*

*The lecture aims at popularizing mechanical science to a broad audience of interested students and staff as well as engineers working in industry.*

The Danish Centre for Applied Mathematics and Mechanics, DCAMM, is a framework for internationally oriented scientific collaboration between staff members at a number of departments at the Technical University of Denmark, Aalborg University and Aarhus University. The "DCAMM Annual Seminar Speaker" is an initiative created to disseminate mechanics to a broader audience.  
*For further information on DCAMM, see [www.dcammm.dk](http://www.dcammm.dk).*



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### Abstract:

It is now 60 years since Sir James Lighthill's seminal work created the subject of aeroacoustics, and in that time enormous developments have been made in the understanding and prediction of aerodynamic sound generation and propagation. The particular question of aircraft noise, and how to reduce it in the face of ever growing numbers of passenger flights, remains a crucial engineering and environmental issue.

In this talk I will describe how aero-engines generate noise, and will present recent work on modelling the generation process by the turbomachinery inside the aero-engine, and on the way this noise may be scattered en-route to the observer. I will also describe recent theoretical work on the aeroacoustics of the owl. When hunting, the owl manages to fly almost silently in the audible frequency range of both itself and its prey, due, it is believed, to unique features of its wing and feathers. Understanding the aeroacoustics of the owl may, in due course, offer important insights into aircraft noise.

