



Lanchester Lecture

The Optimum Aeroplane and Beyond: Rising to the Opportunities and Challenges of the 21st Century

Monday 27th October 2008

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The current expectation is that the demand for air transport will continue to grow throughout the next century. Aviation is an enabler, serving many market sectors and contributing to improved quality of life for many millions of people around the world. There are brand new markets emerging in India and China and in the mature markets new business models have increased demand substantially.

Whilst market growth is generally acknowledged to be a good thing, growth in the air transport system brings many problems, not least being the impact of engine emissions on the environment. This lecture will:

- Examine the fundamental performance of flying machines powered by the kerosene burning gas turbine
- Assess the developments that technology could bring to the existing dominant design
- Potential new designs.

These technologies will include materials, structures, systems, aerodynamics and fuels. The impact of emissions on local air quality and on global warming will be discussed. This will include the effects of CO₂, NO_x and contrails.

Finally, consideration will be given to alternative forms of propulsion and the circumstances in which they could be brought into service.

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Ian Poll is Professor of Aerospace Engineering at Cranfield University and Business Development Director of Cranfield Aerospace Limited. A graduate of Imperial College, he has 30 years experience in aerospace and aviation, gained in both the academic and commercial domains. His career began at Hawker Siddeley Aviation before moving to the College of Aeronautics. He was appointed Professor of Aerospace Engineering at the University of Manchester in 1985, later becoming Head of the Department of Engineering. In 1995, he returned to Cranfield as Head of the College of Aeronautics. He is a Fellow of the Royal Academy of Engineering, The City & Guilds Institute of London, the American Institute of Aeronautics & Astronautics and the Royal Aeronautical Society. He is also a Past President of RAeS.

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The Lanchester Lecture was set up to honour Frederick William Lanchester, HonFRAeS, Britain's first great aerodynamicist. He is best known for designing and building the first British petrol driven four wheeled motor car (in 1895) and for his work on the theory of flight and design of aircraft. Lanchester's work on stability was fundamental to aviation and he formulated the first comprehensive theory of lift and drag.

This Lecture will take place in the Bill Boeing Theatre at: No.4 Hamilton Place, London. Commencing at 18:00 hrs, refreshments will be served from 17:30 hrs.

For further details visit www.aerosociety.com/conference

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