TU Delft

Delft University of Technology

Aerospace Structures & Computational Mechanics
Seminar Series

Dr. Eelco Jansen
Leibnitz Universität Hannover, Germany

Towards Efficient Tools for Stability Analysis of Thin-Walled Composite Structures

The accurate prediction of the failure load and the corresponding development of efficient approaches and tools for the design of composite structures prone to buckling remains a highly relevant topic. Both for aircraft structures and for structures in space applications (spacecraft and launch vehicles) the accurate and efficient prediction of failure loads, and removing any unnecessary conservatism in the design procedures received considerable attention in recent years.

For imperfection sensitive composites shell structures various methods, e.g. probabilistic approaches, the Single Perturbation Load Approach, and methods based on perturbation approaches have been intensively studied in the past few years. An overview of recent work in this area will be given and characteristics of these methods will be discussed.

Also for typical composite aircraft structures (stiffened composite plates and panels) probabilistic approaches have been applied in recent years. In addition, attention has been given to the inclusion of dynamic effects in the failure analysis of aircraft structures. Buckling loads and failure loads from the dynamic analysis can be compared with corresponding values that are obtained on the basis of static design loads. Including dynamic aspects can have both an increasing and a decreasing effect on the failure load. Results of recent investigations in this area will be presented.

Biography

Eelco Jansen obtained his Ir. degree (Aerospace Engineering) and his PhD degree from Delft University of Technology. From 2000 - 2009 he was an Assistant Professor in the Aerospace Structures Group, Faculty of Aerospace Engineering in Delft. Currently he is head of the Section "Composites" of the Institute of Structural Analysis, Leibniz Universität Hannover.

We cordially invite you to attend the lecture of Dr. Jansen at

location: **Lecture Hall A, Faculty of Aerospace Engineering, Building 62, Kluyverweg 1, 2629 HS Delft**

time: **Monday, October 13th, 2014, 11:00**

Dr. Martin Ruess, Chairman