It is highly recommended that the registration is sent at the latest 15 days before the beginning of the course. A letter of acceptance and additional information will be sent on receipt of the application form.

**COURSE FEE**

The fee for the lecture series is 1350 euro, applicable to citizens of NATO countries contributing to the financing of the VKI (Belgium, Czech Republic, France, Germany, Hungary, Iceland, Italy, Luxemburg, Norway, Portugal, Spain and Turkey).

For citizens of other NATO countries and of NATO partner countries, the fee is 1760 euro. For non-NATO citizens the fee is 1920 euro. These prices include 21% VAT. The fee includes printed notes, lunches, beverages, and administrative costs.

Lectures will be given in English and printed notes will be distributed during registration.

**FELLOWSHIPS**

To encourage greater participation in our Lecture Series programme by university members, the Institute has established a limited number of VKI Lecture Series fellowships for citizens of NATO countries contributing to the financing of the VKI, as well as for citizens of other NATO countries and NATO partner countries coming from a university in a VKI financing country.

The recipient of such fellowship is entitled to attend the Lecture Series at a reduced fee, which will be 675 euro (VAT included) for assistants not having a Ph.D. degree and for Ph.D. candidates, and 300 euro (VAT included) for undergraduate students. For non-NATO citizens coming from a university in a VKI financing country, the fee is 960 euro (VAT included) for assistants not having a Ph.D. degree and for Ph.D. candidates, and 400 euro (VAT included) for undergraduate students.

The request to be considered for an award must accompany the application to attend the Lecture Series, and the applicant must provide a recommendation letter from his or her professor; if not done so, the request will not be taken into consideration. All possible alternative sources of funding should be investigated before aid is requested under this scheme, so that those most in need will benefit.
INTRODUCTION

Aircraft noise remains a key societal and economical concern, and ambitious targets for noise reduction have to be achieved to ensure a sustainable air transport. Meeting those ambitious objectives requires unprecedented joint efforts for the modelling, prediction, and eventually mitigation of aircraft noise. The latest developments thereto will be exposed during this Lecture Series, by top-rank international experts in the field. In particular, advanced scale-resolved and stochastic approaches will be described and applied to generic but representative configurations relevant to flap, slat and landing gear noise issues. Based on validations with extensive experimental databases collected in the framework of the EC FP7 VALIANT project, the limitations and perspectives for the further evolution of state-of-the-art simulation methods will be discussed.

The Lecture Series director is Prof. C. Schram from the von Karman Institute for Fluid Dynamics.

PRELIMINARY SCHEDULE

**Monday 25 March 2013**

08:45 Registration
09:00 Welcome Address
09:15 Fundamentals of aeroacoustic analogies
    C. Schram, von Karman Institute, Belgium
10:15 Coffee Break
10:45 State-of-the-art CAA approaches
    R. Ewert, DLR, Germany
12:00 Lunch Break
14:00 Research priorities for airframe noise
15:15 Coffee Break
15:45 An overview of sound-generating mechanisms in high-lift devices and landing gears
    M. Roger, Ecole Centrale de Lyon, France
17:00 Reception

**Tuesday 26 March 2013**

09:00 Analytical methods for airframe noise prediction
    M. Roger
10:15 Coffee Break
10:45 Application of analytical methods to airframe noise prediction
    M. Roger
12:00 Lunch Break
14:00 Acoustic beamforming for the ranking of aircraft noise
    P. Sijtsma, NLR, The Netherlands
15:15 Coffee Break
15:45 Designing validation experiments in aeroacoustics
    E. Manoha, ONERA, France
17:00 End of Lecture Series

**Wednesday 27 March 2013**

09:00 Stochastic approaches for airframe noise prediction
    R. Ewert
10:15 Coffee Break
10:45 Application of stochastic approaches for airframe noise prediction
    R. Ewert
12:00 Lunch Break
14:00 Advanced zonal RANS / LES methods for aeroacoustics
    M. Terracol, ONERA, France
15:15 Coffee Break
15:45 Generation of turbulent inflow conditions for aeroacoustics
    M. Schur, NTS, Russia

**Thursday 28 March 2013**

09:00 Source modelling for boundary and finite element methods
    P. Martinez, LMS, Belgium
10:15 Coffee Break
10:45 Compressible LES for airframe noise
    L. Gicquel, CERFACS, France
12:00 Lunch Break
14:00 Edge-based methods in CAA
    T. Kozubskaya
15:15 Coffee Break
15:45 Potential effects of Rhie & Chow type interpolations in airframe noise simulations
    T. Knacke, Technische Universität Berlin, Germany
17:00 Capturing flow-acoustic resonances in the slat cove
    E. Manoha

**Friday 29 March 2013 - Valiant Workshop**

**FREE REGISTRATION FOR THE WORKSHOP ONLY**

09:00 Presentation of the VALIANT benchmark cases
    C. Schram
10:15 Coffee Break
10:45 Two-struts interaction noise as a generic landing gear problem
    T. Kozubskaya
12:00 Lunch Break
14:00 Predicting the noise produced by slotted wing components
    T. Knacke
15:15 Coffee Break
15:45 Wing-flap aerodynamic and acoustic installation effects
    M. Roger

17:00 Capturing flow-acoustic resonances in the slat cove
    E. Manoha

**17:00 End of Lecture Series**