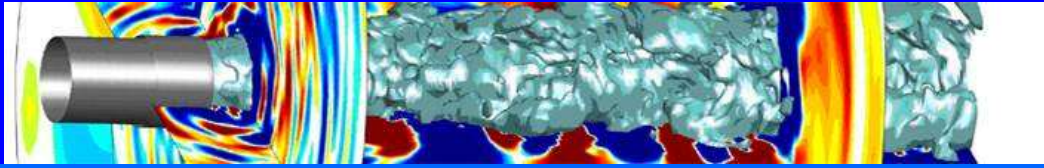


Computational Aeroacoustics, V
TU Graz - Graz, Austria
7th – 8th September 2026



Organizers:

- **Dr Christophe Bogey**, LMFA UMR 5509, Ecole Centrale de Lyon, France
- **Pr Stefan Schoder**, Institute of Fundamentals and Theory in Electrical Engineering, TU Graz, Austria

To register: via ERCOFTAC website:

This course is intended for researchers in industry and in academia including Ph.D. Students with a good knowledge in fluid mechanics, who would like to build up or widen their knowledge in the field of aeroacoustics (modelling, computational tools and industrial applications).

It will provide **a comprehensive overview of aeroacoustic theories** (Lighthill analogy and vortex sound theory, FWH analogy, hybrid approaches, wave extrapolation methods, duct acoustics) and **the issues of the direct computation of aerodynamic noise using CFD methods** (Large Eddy Simulation, Lattice-Boltzmann Method). A number of practical problems involving **the coupling between CFD and CAA** will be also thoroughly discussed (e.g. how design a mesh size for aeroacoustics applications, inclusion of mean flow effects via hybrid formulations such as the acoustic perturbation equations, presence of surfaces, aero-acoustic couplings) and **realistic applications performed by the instructors** (aeronautics, car industry, propulsion, energy) will be discussed. **Advanced computational aeroacoustics methods**, as well as **what we can learn from the direct computation of aerodynamic noise**, will also be presented. Finally, specific topics reflecting participant interests will be discussed.

Lecturers:

- **Dr Christophe Bogey**, Ecole Centrale de Lyon, France, christophe.bogey@ec-lyon.fr
- **Pr Gwenael Gabard**, LAUM, Le Mans Université, France (to be confirmed)
- **Dr Denis Ricot**, CS Group, France (to be confirmed)
- **Pr Stefan Schoder**, TU Graz, Austria, stefan.schoder@tugraz.at
- **Pr Wolfgang Schröder**, Institute of Aerodynamics, Aachen, Germany (to be confirmed)

Programme:

7 September 2026 (Monday)

08:00 – Registration & Coffee
08:30 – Acoustic sources, Lighthill and FWH analogies (S. Schoder)
09:30 – Vortex sound theory (S. Schoder)
10:30 – Refreshments
11:00 – Direct noise computation (C. Bogey)
12:00 – Lunch
14:00 – Examples of direct aerodynamic noise predictions (C. Bogey)
15:00 – Aeroacoustic simulations with unstructured grids (G. Gabard)
16:00 – Refreshments
16:30 – Duct acoustics (G. Gabard)
17:30 – Q&A
18:00 – Close

8 September 2024 (Tuesday)

08:00 – Coffee
08:30 – Hybrid APE/LES Analysis: Part I Theory (W. Schröder)
09:30 – Hybrid APE/LES Analysis: Part II Airframe, Jet, and Combustion Noise (W. Schröder)
10:30 – Refreshments
11:00 – Aeroacoustic simulations using LBM (D. Ricot)
12:00 – Lunch
13:30 – Aeroacoustic simulations using LBM (D. Ricot)
14:30 – Q&A 15:30 – Close