

Seminarvorträge Wintersemester 2025 / 2026

Stand: 22. Okt 2025

Friday, 24th October 13:00, MW 1701
Dr. **Juan Guzman-Inigo** (City University London)

Aeroacoustic modelling for enhanced prediction of thermoacoustic instabilities in combustion systems.

Multi-scale approaches have improved the prediction of thermoacoustic instabilities in lab-scale combustors by coupling detailed flame dynamics with acoustic models. However, their applicability to real engines remains limited by several challenges, including the difficulty of accurately modelling complex acoustic boundary conditions. This seminar presents recent developments to address this gap. The first part focuses on entropy noise generation at the combustor–turbine interface, which contributes to low-frequency instabilities. The second part examines the acoustic response of perforated plates with bias flow—common in combustor liners and injectors—and efforts to enhance their acoustic damping performance.

Juan Guzman-Inigo works as a Lecturer in the Department of Engineering at City, University of London. Before joining City in 2023, he was a Research Associate at Imperial College London and the University of Cambridge. He obtained a Ph.D. from the Ecole Polytechnique Paris/ONERA in 2015, where he developed data-based techniques for the control and estimation of fluid flows. Juan Guzman's research focuses on sound and fluid mechanics and is aimed at reducing the noise of aircraft, wind turbines, and compressors among others. He is interested in understanding the physical mechanisms involved in the generation of sound and the development of novel techniques to reduce it.