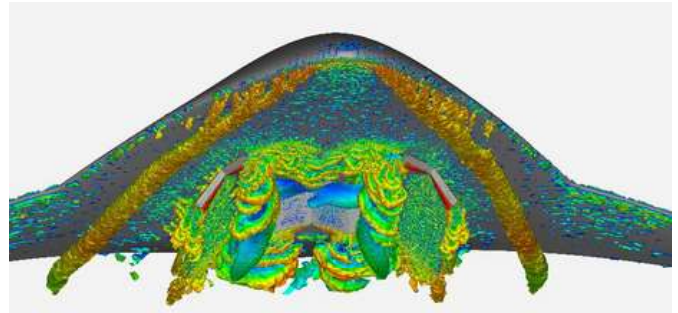


## **WEAPONS BAY AERODYNAMICS AND ACOUSTIC**

Modern combat aircraft design requirements impose the adoption of weapons bays to reduce radar signature and aerodynamic drag at transonic/supersonic speeds. Nevertheless, upon opening the bay, to release the store, aerodynamics and acoustic issues are generated which may potentially damage the structure of the cavity and the gimbal/sensors of the ordnance. Additionally, the trajectory of the store is strongly coupled to the unsteadiness of the aerodynamic field posing a hazard to a safe separation. Successful designs have been employed in current, low-signature, combat aircraft generation (F22, F117, F35, B2, J20, Su57), though each new design requires detailed studies to optimise the final architecture. In this webinar, the fundamentals of weapons bays aerodynamics and acoustic will be discussed. Attendees will learn to identify the major issues characterising the topic, and what are the main difficulties during store release procedures. Numerical and experimental approaches for design procedures will be discussed as well.



### **LEARNING OBJECTIVES**

- Definition of main design challenges
- Design approach and common solutions (including palliatives)
- Fundamentals of store release
- Examples of numerical and experimental approaches

**Target audience:** Doctoral students, non-academic professionals.

**Dates and time:** 20 October 2023, 10:00–13:00 CET

### **REGISTRATION AND CONTACTS**

**Course Code:** 20231020

This course is part of the 2023 institutional activity for AIDAA members. The registration requires the purchase of one of the packages described here <https://www.aidaa.it/package-list/>, and the completion of the online form available on AIDAA webpage.

**Course platform:** Webex, a link will be sent via email as the registration is complete.  
At the end of each course, **attendance certificates** will be sent to participants via email.

For further info, please, contact [academy@aidaa.it](mailto:academy@aidaa.it)

### **SPEAKER**

**David Bacci** is a Senior Research Fellow at the University of Oxford, with experience in Acoustic and Thermofluid-dynamics. He also holds a position of Visiting Research Fellow in Defence Aeronautics and Military Aircraft Design at Cranfield University (Defence Academy of the UK)

His research interests range from combat aircraft development (weapons bays aero-acoustic, combat performance evaluation, integration of aerodynamic design with radar and infrared signature requirements) to next-generation turbojets (acoustic and thermal analysis, thermal management, cooling).

He is an active consultant in projects of 5th and 6th generation combat aircraft and operates as a technical advisor within the UK aerospace industry (Rolls-Royce, British Aerospace).

