Dieter Scholz

Special Issue "Aircraft Design" of the Open Access Journal "Aerospace" at MDPI

Abstract

Usually special issues of a journal are introduced for "hot topics" and are titled as such. The idea is here, to use the subset **"Special Issue"** of the well established journal "Aerospace" (ISSN 2226-4310) at MDPI **for a specialized scientific domain** - Aircraft Design - within the coverage of the journal "Aerospace".

Motivation

Activities in the past showed that aircraft design may be a field too small to justify its own (subscription-based) journal. A continuous open access special issue may fill the gap. As such, the Special Issue "Aircraft Design" can be a home for all those working in the field of aircraft design who (so far) regret the absence of an aircraft design journal. People working in the domain of aircraft design have always seen each other as a closely knit community. In Europe they have come together frequently under activies like the European Workshop on Aircraft Design Education (EWADE) or the Symposium on Collaboration in Aircraft Design (SCAD), both independent activities under the CEAS Technical Committee Aircraft Design (TCAD). Please see http://AircraftDesign.org for details on these activities. Instead of a dedicated journal for this community, the Special Issue "Aircraft Design" offers to be its publishing home.

History

The current Special Issue Aircraft Design (SI-2/2020) follows the Special Issue Aircraft Design (SI-1/2017) and continues the tradition of the journal Aircraft Design (ISSN: 1369-8869), which Prof. Egbert Torenbeek had started together with Prof. Dr. Jan Roskam as Editors at Elsevier in 1998. The subscription-based publishing model proved inadequate to serve the rather small aircraft design community. For this reason, the Elsevier title had to be discontinued in 2002. This pitfall is avoided with the Open Access publishing model used by MDPI for all its journals including this Special Issue.

Aims and Scope

The Special Issue "Aircraft Design" is open to the full range of **article types**. In addition to original **research** articles also review papers, letters or communications, technical reports, and extended version of conference papers are accepted. An interest exists also in aircraft design **education**. Certainly, it is also the place to discuss topics like zero-emission airplanes, electric flight, urban air mobility—**you name what is currently debated**. Nevertheless, the **classic topics in aircraft** design remain:

- Innovative aircraft concepts
- Methodologies and tools for aircraft design and optimization
- Reference aircraft designs and case studies with data sets
- Aircraft design education

Keywords are: aircraft, design, OAD, configuration, requirements, payload, range, certification, safety, constraints, objectives, synthesis, optimization, aerodynamics, drag, high-lift, structure, mass, performance, stability, control, aeroelasticity, engine, systems, operating costs, DOC, passenger, cabin, ticket, price, environment, profit, asset, wing, fuselage, tail, undercarriage, landing gear, engine, systems.

Authors from all economic sectors (private, public, civic, and general public) can submit to this Special Issue (SI). Education and training in aircraft design is considered as important as research in the field.

The journal "Aerospace" at MDPI

"Aerospace" is a **well reputed** journal as can be seen from the authors publishing with "Aerospace". Its latest CiteScore, SRJ and SNIP (from Scopus, Elsevier) can be seen on the journals homepage. Articles have a **high visibility**: Papers will be visible Open Access at the journal "Aerospace" and also alongside the Special Issue "Aircraft Design" as soon as they are ready. The journal "Aerospace" is covered by many **databases and archives** including Web of Science (Clarivate Analytics) and Scopus (Elsevier). The journal is known for **rapid publication**: Manuscripts are peer-reviewed and a first decision provided to authors approximately 18 days after submission; the length of the peer review itself can vary considerably, but reviewers are reminded by the editorial office to make the review a priority; acceptance to publication is undertaken in 6.3 days. Once accepted, the manuscripts undergo professional copy-editing, proofreading by the authors, final corrections, and publication on the www.mdpi.com website. This means that papers will be visible alongside with the Special Issue - "Aircraft Design (SI-2/2020)" as soon as they are ready.

Closing Date(s)

This special issue (SI-2/2020) has a nominal closing date of 31 December 2020. The set up is such to continue with more Special Issues "Aircraft Design" on a regular or less regular basis. In "2/2020" the first number stands for the issue and the second number for the year. In this way issues and years can be combined also in the future in a flexible way.

Article Processing Charges

Article Processing Charges (APC) apply. See https://www.mdpi.com/journal/aerospace/apc for details. **Discounts are available for authors from** the **CEAS Technical Committee Aircraft Design (TCAD)**, the European Workshop on Aircraft Design Education (EWADE) or the Symposium on Collaboration in Aircraft Design (SCAD). Please see http://journal.AircraftDesign.org for details. Reviewers who provide timely, thorough peer-review reports receive vouchers entitling them to a discount on the APC of their next publication. This means **Article Processing Charges can be reduced** to a bearable amount, which is usually acceptable to the author's institution.

Homepage

The Special Issue has a Homepage at two locations Aircraft Design (SI-2/2020) Special Issue
Homepage **at CEAS**: http://journal.AircraftDesign.org
Homepage **at MDPI**: http://www.mdpi.com/journal/aerospace/special_issues/Aircraft_Design

Special Issue Editors

Guest Editor of the Special Issues Aircraft Design is **Prof. Dr. Dieter Scholz** of Aircraft Design and Systems Group (AERO) at Hamburg University of Applied Sciences.
Website: http://english.ProfScholz.de

Honorary Guest Editor is **Prof. em. Egbert Torenbeek** of Flight Performance and Propulsion at Delft University of Technology.
Website: https://en.wikipedia.org/wiki/Egbert_Torenbeek

Aircraft Design

Aircraft design is the **first fascinating step** in the life of an aircraft, where visions are converted into reality.

In a **practical** sense, aircraft design supplies the geometrical description of the aircraft. Traditionally, the output is a three-view drawing and a list of aircraft parameters. Today, the output may also be an electronic 3D model. In the case of civil aircraft, a fuselage cross-section and a cabin layout are provided in addition.

In an **abstract** sense, aircraft design determines the design parameters to ensure that the requirements and constraints are met and design objectives are optimized. The fundamental requirements for civil aviation are payload and range. Many constraints come from certification rules demanding safety. The objectives are often of a financial nature, like lowest operating costs. Aircraft design always strives for the best compromise among conflicting issues.

The **design synthesis** of an aircraft goes from the conceptual design to the detailed design. Frequently, expert knowledge is needed more than computing power. Typical work involves statistics, the application of inverse methods, and use of optimization algorithms. Proposed designs are analyzed with respect to aerodynamics (drag), structure (mass), performance, stability and

control, and aeroelasticity, to name just a few. A modern aircraft is a complex, computer-controlled combination of its structure, engines, and systems. Passengers demand high comfort at low fares, society demands environmentally friendly aircraft, and investors demand a profitable asset.

Overall aircraft design (OAD) comprises all aircraft types in civil and military use, considers all major aircraft components (wing, fuselage, tail, undercarriage) as well as the integration of engines and systems. The aircraft is seen as part of the air transport system and beyond contributing to multimodal transport. Aircraft design applies the different aerospace sciences and considers the aircraft during its whole life cycle.

References

Jorunal "Aerospace" at MDPI:
https://www.mdpi.com

Journal "Aerospace" Profile:
https://www.mdpi.com/journal/aerospace/aerospace_flyer.pdf

MDPI Publisher's About Page
https://www.mdpi.com/about

Special Issue Aircraft Design (SI-1/2017):
https://www.mdpi.com/journal/aerospace/special_issues/aircraft_design_1_2017

CEAS Technical Committee Aircraft Design (TCAD):
http://AircraftDesign.org

European Workshop on Aircraft Design Education (EWADE):
http://ewade.AircraftDesign.org

Symposium on Collaboration in Aircraft Design (SCAD):
http://scad.AircraftDesign.org

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Message from the Editor-in-Chief

You are welcome to contribute a research article or a comprehensive review for consideration and publication in *Aerospace* (ISSN 2226-4310), an on-line, open access journal. *Aerospace* adheres to rigorous peer-review as well as editorial processes and publishes high quality manuscripts that address both the fundamentals and applications of aeronautics and astronautics. Our goal is to enable rapid dissemination of high impact works to the scientific community.

Author Benefits

- **Rapid and Thorough Peer-Review** manuscripts are peer-reviewed and a first decision provided to authors approximately 20 days after submission; acceptance to publication is undertaken in 5.67 days (median values for papers published in this journal in 2018)
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- **High Visibility** Indexed in Emerging Sources Citation Index (ESCI - Web of Science) from Vol. 3, Scopus and INSPEC (IET) from Vol. 4

Aims and Scope

Aerospace (ISSN 2226-4310) is an international, peer-reviewed, open access journal devoted to the rapid publication of original papers, review articles, short notes and communications related to all fields of aerospace science, engineering and technology, disclosing theoretical, fundamental and applied results linked to potential applications that are related to research, design, manufacture, operations, control and maintenance of aircraft and spacecraft. Researchers are encouraged to publish the results of their recent theoretical and experimental developments with as much detail as possible. There is no restriction on the length of the papers. We aim to publish high impact experimental and theoretical findings with very rapid turnaround time.

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