

STS Proposal

The impact of Multi-Disciplinary Optimization, Artificial Intelligence and Uncertainty Quantification for a Greener Aviation and Transport system

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Abstract:

Industrial design is facing new challenges in a world threaten by global warming, economical and geo-political instability. In this contest, the need of decreasing emissions in air, for all the activities related to aviation, transport and renewable energy, has become an utmost priority, also considering the commitments made by the European Commission for the next years.

In particular, net greenhouse gas emissions will have to be reduced by at least 55% by 2030, and at the same time it will be necessary to fulfil the growing energy demand of all the EU industrial countries.

Following this perspective, the new emerging technologies in Industrial design, many of them already developed in the framework of several European Programme of Research & Innovation projects, need to reach soon a TRL of over 8-9 level, which means that they need to be implemented in a complete and qualified system, ready for the commercialization.

This STS addresses all the emerging technologies which aim to reach a greener transition of the industrial design, and includes in a non-exhaustive way efficient Multi-Disciplinary Optimization (MDO) methodologies, Design based on Artificial Intelligence, whether by Surrogate Models, Machine Learning, Reduced Order Models or Multi-Fidelity Models, and Robust Design or Design under Uncertainties.

This STS invites experts from industry, research institutions and universities, to present their recent studies and applications of the new emerging technologies above mentioned in the design of greener, more efficient and more sustainable aviation and transport systems, or renewable energy.