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Presentation Title:

Design & Optimization of Hybrid Drones : State of Art and Future Challenges

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Drones are more and more present in our society and in particular in the field of cartography and surveillance. However, several challenges are related to these applications in particular : autonomy, control and the payload. these criteria are the boundary for the design domain (design triangle).

The hybrid drones often refers to either hybrid energy or hybrid flight (mix of fix and rotor flight). In this research work, we will focus on the optimal design and structural optimization for the new generation of Drones (hybrid flight). After the state of art, we will present the future challenges for energy integration, stability & control and optimal payload.

Keywords : Optimization , Hybrid Drones, Design,

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Bibliography

David BASSIR is as Professor at the French University of Technology and Senior Researcher at the Mathematical Center & Applications (CMLA), CNRS -UMR 8536 –ENS Cachan (France). He's also a foreign expert for at the Chinese Academy of Sciences-GZIIIT-CAS. Previously, he was the Dean of the University of technology (IUT) at the University of Lorraine (France), Consult for Science and Technology at the French Embassy to serve at the Consulate General of France in Guangzhou (China), General Director of Research at the Ecole Speciale des Travaux Publics, du Batiment et de l'Industrie (Paris) and Space Craft engineer at GECI Technology in different Space Agencies such as Arianespace (France) and Matra Marconi Space (Astrium Group). He joined the Mechanical Department of the UTBM as Associate professor in 2001 and the Chair of Aerospace Structures at Technical University of Delft as visiting professor in 2008. He holds a Master and a PhD degree in structural optimization from the University of Franche-Comte (France), with the most honorable mention. He has published more than 150 papers in journals, books and conference proceedings, including more than 33 articles in indexed journals. He is the founder of the ASMDO association "Association for Simulation and Multidisciplinary Design Optimization" and the Int. journal IJSMDO that is published by EDP Sciences. He serves as member of various expert committees in many international organizations and highly estimated scientific societies.

He's actual scientific research activities are related to Simulation and Modelling of Advances Materials using optimization strategies based heuristic methods, Artificial Neural Networks, Artificial Intelligence to solve industrials applications.

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