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Aircraft Modeling and Simulation

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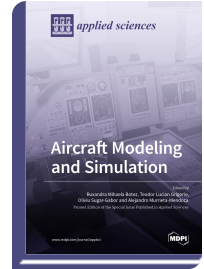
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Various aerodynamics, structural dynamics, and control design and experimental studies are presented with the aim of advancing green and morphing aircraft research. The results obtained with an in-house CFD code are compared and validated with those of two NASA codes. The aerodynamical model of the UAS-S45 morphing wing as well as the structural model of a morphing winglet are presented. A new design methodology for oleo-pneumatic landing gear drop impact dynamics is presented as well as its experimental validation. The design of a nonlinear dynamic inversion (NDI)-based disturbance rejection control on a tailless aircraft is presented, including its validation using wind tunnel tests.



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