TOWARDS NEXT-GENERATION AIRCRAFT DESIGN WITH HIGH-FIDELITY SIMULATION TECHNOLOGIES

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The proposed STS will cover computational methodologies and their applications to aircraft design with particular interest in technologies available for next-generation aircraft such as a "greener" aviation to mitigate an environmental impact. Examples of the computational methodologies include multi-objective design optimization, multi-physics simulation including fluid-structure interaction analysis, (unsteady) aerodynamic simulation, and geometrically nonlinear and/or material nonlinear analysis of structures.

The application of these methodologies may include but are not limited to a reduction of the airframe weight by utilizing carbon-fiber-reinforced plastics (CFRPs) and/or thermoplastics (CFRTPs), optimization of the stacking sequence of CFRPs, a reduction of the aerodynamic drag by laminarization technology, and design constraints considering flutter and buffet boundaries by fluid-structure interaction analyses. Furthermore, presentations from industries and governmental organizations are also welcome to introduce a current status and potential problems on the development of aircraft with existent simulation technologies.

Finally, we will not limit our scope to the examples above and encourage participants to propose a wide range of possible simulation technologies and frameworks that would benefit the development of a new-generation aircraft.