

Direct Numerical Simulations of spanwise flexible wings in tandem configuration

Researchers:

- Oscar Flores. Universidad Carlos III de Madrid ([UC3M](#) [1]).

Language Undefined

Description:

Proyecto asignado a través de la Red Española de Supercomputación ([RES](#) [2]).

The objective of this activity is to evaluate the effects that spanwise flexibility has over the aerodynamic performance of a pair of flapping wings in tandem, in a configuration similar to that of a dragonfly. The kinematics of the wings are chosen to be the optimal ones in 2D simulations of two airfoils in tandem, and they are implemented here for rectangular wings of aspect ratio 2 and 4 for a pitching and heaving (vertical) motion imposed at the mid-span section of the wing. The results of the 3D simulations will allow the analysis of the impact that spanwise flexibility has over the global system in terms of total forces and power, and their relation with the interactions of the vortical structures over both wings, comparing their behaviour with those of wings that are rigid.

Source URL: <http://www.cenits.es/en/proyectos/direct-numerical-simulations-spanwise-flexible-wings-tandem-configuration>

Links

[1] <https://www.uc3m.es/>

[2] <https://www.res.es/>