NON HOMOGENOUS BLADES

Inspired by insect wings, the researchers developed flexible wind turbine blades that increase energy efficiency by over 35%.

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PRESENTATION

Wind turbines are used more and more to participate in the energy transition of countries. However, their operating range is limited depending on windy conditions, which could jeopardize the viability of certain projects.
The technology developed makes it possible to respond to this problem. The researchers have developed a process that allows, depending on the wind turbine installation conditions, to select the most suitable material. The latter will deform according to the chord under the force of the wind and the centrifugal force to optimize the efficiency and the operating range of the wind turbine, while ensuring its proper functioning in the face of strong winds.

Blades - Wind - Hydrokinetic - Power windmill - Flexible - Conversion rate

APPLICATIONS

- Wind Power
- Hydrokinetic power
- Mixer / Mixer rotor

COMPETITIVE ADVANTAGES

- Large operative range
- 35% more efficient
- Low energy for manufacturing
- Lightness of the material which makes it easy to starting of the blades
- Resistance to strong winds

PUBLICATIONS

- V. Cognet, S. Courrech du Pont, I. Dobrev, F. Massouh, B. Thiria, Bioinspired turbine blades offer new perspectives for wind energy, Proc. R. Soc. A 473 (2198) (2017), 20160726.
- V. Cognet, S. Courrech du Pont, B. Thiria, Material optimization of flexible blades for wind turbines, Renewable Energy (2020).

INTELLECTUAL PROPERTY

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DEVELOPMENT PHASE

- A prototype has been developed and tested in a wind tunnel in the laboratory. TRL3 / 4