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Numerical Simulation of Wind Turbines

Guest Editors:

Prof. Dr. Giovanni Ferrara
Department of Industrial Engineering (DIEF), Università degli Studi di Firenze, Via di Santa Marta 3, I-50139 Firenze, Italy

Prof. Dr. Alessandro Bianchini
Department of Industrial Engineering (DIEF), Università degli Studi di Firenze, Via di Santa Marta 3, I-50139 Firenze, Italy

Deadline for manuscript submissions:
closed (13 January 2021)

Message from the Guest Editors

Dear Colleague,

Wind turbines are by far the largest turbomachines of the world, with blade lengths that are now much longer than 100 meters and with a weight of several tons. Moreover, the functioning of a wind turbine involves many different physical scales, ranging from those of atmospheric flows to very small ones on the blades surface. As readily arguable, reproducing reliably full similitude conditions in wind tunnels is intrinsically unfeasible.

Simulations are pivotal to ensure the further development of wind turbines. If engineering models like those based on the Blade Element Momentum theory are well assessed and still largely used in the industry, the next generation of larger rotors will require the use of more refined theories, ranging from medium-fidelity models, to the massive use of high-fidelity CFD.

The present Special Issue of Energies aims to gather improvements and recent advances in existing simulations methods for wind turbines. Topics of interest for the Special Issue include (but are not limited to) numerical models for:

aerodynamics; aeroelasticity; multi-physics; noise; control; inflow modeling.

Looking forward to receiving your contributions.

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Editor-in-Chief

Prof. Dr. Enrico Sciubba
Department of Mechanical and Aerospace Engineering, University of Roma Sapienza, Via Eudossiana 18, 00184 Roma, Italy

Message from the Editor-in-Chief

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Energies Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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