DANISH CENTER FOR APPLIED MATHEMATICS AND MECHANICS

The 2021 DCAMM Annual Seminar Speaker

Fernando Porté-Agel

Professor
EPFL ENAC IIE WIRE
Lausanne, Switzerland

gives the following lecture at the

Technical University of Denmark

Meeting Room S09, Building 101, Kgs. Lyngby

Fluid Mechanics of Wind Farms: Modelling and Control

Wednesday, October 27, at 14:00

There will be an open discussion after the lecture.
At 15:00 refreshments are served

This lecture aims at popularizing mechanical science to a broad audience of interested students and staff as well as engineers working in industry

The Danish Centre for Applied Mathematics and Mechanics, DCAMM, is a framework for internationally oriented scientific collaboration between staff members at a number of departments at the Technical University of Denmark, Aalborg University, Aarhus University and University of Southern Denmark. The "DCAMM Annual Seminar Speaker" is an initiative created to disseminate mechanics to a broader audience.
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Abstract

Global wind power generation is expected to grow substantially over the coming decades and play a key role in mitigating climate change and achieving energy sustainability. One of the main challenges in optimizing the design, operation and control of wind farms is the prediction of their performance, owing to the complex multiscale interactions between wind farms and the turbulent atmospheric boundary layer (ABL).

Particularly important is the effect of ABL turbulence on wind-turbine wake flows, as they are responsible for substantial turbine power losses and fatigue loads in wind farms.

This presentation will focus on recent experimental and computational research efforts aiming at improving the prediction of wind turbine wake flows and guiding the development of wind-farm wake mitigation strategies such as active yaw control.