



# SEMINAR

APPLIED MATHEMATICS AND MECHANICS

FS923

10 October 2017

A DCAMM seminar No. 714 will be presented by

**Dr Iain Staffell**  
**Imperial College London,**  
**United Kingdom**

The title of the lecture is

**Modelling the weather-energy-economic nexus**

**Abstract:**

Accommodating high shares of variable and unpredictable wind power is essential for decarbonising many of the world's major electricity systems. Research in this area relies critically on the ability to model time-series of energy production from wind farms, but these techniques are only beginning to develop due to the divide between meteorology, wind engineering and electricity market modelling.

The Renewables.ninja model is a validated, open-source platform for simulating wind and solar farm outputs anywhere in the world. This talk will summarise recent research covering systems integration, geographical smoothing and future outputs. It will then look at ongoing research, quantifying global productivity and understanding the technical drivers behind wind and solar farm performance.

DESSLINEE and MOSSI are electricity market models that simulate pan-European dispatch and national investment/dispatch respectively. These use the technically simplistic merit order stack, but approach dispatch from the profit-maximising (as opposed to cost-minimising) perspective. This talk will show how the business case for storage and transmission may be mis-represented in more complex unit commitment models, and how an interconnected 'North Sea Supergrid' could help the economic prospects of new offshore wind farms.

DATE:	<b>Tuesday, 24 October 2017</b>
TIME:	<b>10:15 – 11:00 + questions</b>
PLACE:	<b>Room 3210-03.070 (NAVITAS building),</b> Aarhus University, Inge Lehmanns Gade 10, 8000 Aarhus C

Danish pastry, coffee and tea will be served 15 minutes before the seminar starts.

All interested persons are invited.

Niels Leergaard Pedersen

**DANISH CENTER FOR APPLIED MATHEMATICS AND MECHANICS**

**• TECHNICAL UNIVERSITY OF DENMARK • AALBORG UNIVERSITY**  
**• AARHUS UNIVERSITY • UNIVERSITY OF SOUTHERN DENMARK**