

CCLRC Rutherford Appleton Laboratory

People

Geoff Dutton

Dr. Geoff Dutton will lead the research effort at CCLRC Rutherford Appleton Laboratory. Geoff was research manager for the Energy Research Unit Test Site for 10 years and specialises in the application of non-destructive testing techniques to wind turbine blades.

Paul Bonnet

Paul Bonnet, who will perform the finite element analyses at CCLRC, is a mechanical engineering graduate from ESTACA in France, with 4 years experience in automotive industry R&D and 4 years Ph.D. research in structural dynamics at the University of Oxford.

Relevant Expertise

The **Energy Research Unit (ERU)** at CCLRC has been supporting and leading **wind energy** projects for more than **25 years**, including:

- Acoustic emission monitoring of blades
- Design of sectional blades
- Optimal use of materials for wind turbine blades (OPTIMAT Blades, EC, FP6)
- Measurement of dynamic 3D flow effects around blades (with Imperial College)

The ERU operates a **Wind Energy Test Site**, works closely with the Advanced Materials Group at CCLRC and is a member of the current EC FP6 project UPWIND. The ERU acknowledges support from the EC, EPSRC, and its industrial and university partners.

Technical role within Supergen Wind

CCLRC will lead the activities of Theme Y: **Structural Loads and Materials**.

The main activity of CCLRC is in blade structural modelling. **Finite element models** of large blade structures will be implemented and used to assess the potential of condition monitoring techniques and the possible use of **advanced materials** in future blade designs. The overall aim will be to reduce the mass and cost of future wind turbines and identify potential limits of the design envelope.

The structural **control** of blades will also be analysed and various design principles for **smart blades** investigated in order to optimise aerodynamic performance and minimise fatigue loads.

Based across 3 sites in the UK, the **CCLRC** operates world class scientific facilities. The **ERU** is based at the Rutherford Appleton Laboratory, in **Oxfordshire**.

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