

TECHNOLOGY *Profile*

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Wind Turbine Blade Load Monitoring

Although windmills have been used for centuries, there still is not an accurate method to measure the total physical loads placed on the windmill. This information is necessary to be able to control the rotation made of the windmill, especially in applications like electricity generation. Current technologies have used rpms and thrust (sideway forces) on the windmill as input to control algorithms; however, there is still a need for better information.

Researchers at Purdue have developed an inexpensive and reliable method to give more accurate and timely information about the changing wind profiles to the controllers of the windmill. This technology can maximize efficiency in low wind conditions all-the-while protecting the

windmill from stress damage due to high winds.

Domain:

- Energy
- Mechanical Engineering

Advantages:

- More accurate load measurements than currently possible
- Protect against stress and damage
- Maximize efficiency

INNOVATOR BIOGRAPHY

Dr. Douglas Adams is the Kenninger Professor of Renewable Energy and Power Systems at Purdue University. He earned a B.S. from University of Cincinnati, a M.S. from MIT, and a Ph.D. from University of Cincinnati. Dr. Adams was awarded the Presidential Early Career Award for Scientists and Engineers in 2002, the Technical Medal of Achievement from the US Army Stryker Combat Brigade in 2006, and the Commander's Award from the US Navy and Air Warfare Center in 2010. His research interests include nonlinear structural dynamics and vibration, structural diagnostics/health monitoring and prognostics, applications in energy systems, and noise and vibration control.



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