

A comprehensive global sensitivity analysis study of wind turbine aeroelastic models

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Abstract

Keywords: Wind energy, global sensitivity analysis, UQ, aeroelastic models

1. Introduction

2. BEM model

3. Global sensitivity analysis

3.1. *PCE Ordinary Least Square (PCE_OLS)*

5 3.2. *PCE Least Angle Regression (PCE_LAR)*

4. Parametrization of uncertain inputs in the BEM model

4.1. *Geometric uncertainty*

4.1.1. *NURBS based parametrization*

4.2. *Model uncertainty*

10 4.3. *Wind velocity*

5. Description of test case

6. Numerical experiment

7. Interpretation of global sensitivity analysis result

8. Conclusions

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