WIND ENERGY SCIENCE DISCUSSIONS

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Interactive comment

Interactive comment on "Progressive Damage Modeling of Fiberglass/Epoxy Composites with Manufacturing Induced Waves Common to Wind Turbine Blades" *by* Jared W. Nelson et al.

Anonymous Referee #1

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The manuscript adresses a relevant scientific question within the scope of WES but does not fulfill scientific quality. I suggest to rejected the manuscript in its current version.

Abstract: The abstract is fluffy and does not clearly state the work/scientific contribution. First the introduction shed some light on the work. The abstract does not provide a concise and complete summary and neither includes quantitative results.

Introduction: The introduction states the work tasks: Flaw characterization and effects of defects. The introduction does not give proper credit to related and relevant work in this area and does not at all quote any related work in the field of progressive damage in composites related to manufacturing induced waves beside from self-citations.

The differentiation between CDM and DDM is not clearly described. Furthermore, section 1.1 and 1.2 are textbook like copy-paste paragraphs from probably the PhD thesis and are not suited for a scientific article.

Section 3: Modelling Techniques: The section is very fluffy. The boundary conditions are not stated, instead referred to experimental work that is not described at all. The tables 1 and 2 are of bad quality.

Section 3.1 is a complete copy of the Abaqus manual.

Section 3.2 is ok, but does not really describe the user-defined subroutine well.

Section 3.4 Cohesive Zone Model. The statement "While previous convention was to utilize cohesive elements only in specific areas, pre-defining the crack path, computation availability has made it conceivable to place cohesive elements throughout the model. Thus, damage and crack progression may occur virtually anywhere in the model where the stress state indicates rather than where the user has placed these elements." is not correct. The damage and crack progression can still only occur where cohesive elements are placed. And since two cohesive elements cannot be connected and crack growth is limited to one direction, cracks can still only propagate inside the cohesive elements and not crack unification is possible.

Section 3.5 The authors state the inexact ability to determine the parameters for traction-separation laws. They might should read the publications from Bent F. Sørensen et al. Moreover, the parametric studies or any values are not shown/described.

Section 4.1 Figure 6: No legends are shown. Do the figures below in Figure 6 represent analytical or numerical results?

The entire results section is more quantitative, where initial models were tuned until a match was more or less reached. The manuscript does not provide any relevant scientific novel concepts, ideas, tools nor data.

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Discussion paper