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Interactive comment on "Characterization and Mechanical Testing of Manufacturing Defects Common to Composite Wind Turbine Blades" *by* Jared W. Nelson et al.

Anonymous Referee #2

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Overall: The paper deals with relevant scientific and industrial topics: mechanical performance of wrinkles and porosity in composite laminates used for wind turbine blade application. The structure of the paper is overall good and well written. Experimental testing is well conducted.

Specific remarks: - All figure references are not showing correctly. - Fig 1: What is the natural waviness of a ply compared to the measured fibre misalignment? - Fig 4. Are you using the maximum misalignment angle for comparison? If so, then clarify remaining plots to reflect maximum angle and not just 'Fibre angle'. If not, then elaborate what fibre angle is used. - P2 Line 12: where is the field data originating from? Blade cut

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Discussion paper

outs? Can these data be public assessed? - Fig 7: It is unclear whether you choose to using normal or Weibull distribution going forward. - Eq. 3: what is the value of Weibull modulus, m? It is a good idea to use the scale effect to design test samples. - P9 Line 6: Did you succeed in finding your goal? Please elaborate. - Fig 10 cmt 1: It is a shame the compression results for OP waves are not presented as these are probably the most interesting. Can it be included in spite of the variation? - Fig 10 cmt 2: It is unclear how the sine-fit is generated, please elaborate. The fit originates from Eq (7), but the connection to Fig. 10 is not obvious. - Fig 10 cmt 3: Can the plot be shown as a relative strength knockdown, ie. normalised by pristine strength? - P10 Line 18: Elaborate on why porosity has larger effect on compression than tension? - Fig 12: What is a typical level of porosity using a VARTM process? I imagine that >10% would indicate unwetted fibres, and can no longer be considered as porosity. Looks like the fit to compression data is quite vague, what is the correlation coefficient for the fits? Is there even a valid trend? What are the findings from other studies testing porosity? - Section 4.2.2: The content of this section is relative thin. Can this section be elaborated and show some DIC strain plots of the various strain components for instance? - Fig 13: Relate the damage stages to the stress-strain curve or at least state the load fraction at the given spot. The DIC plot to the far right is useless; no scalebar is shown and it does not state which strain component is shown. - P14 Line 9ff: For OP waves it is unclear what the failure mode is; is it interlaminar delamination or buckling? What is the failure mode in compression? - References: align reference list as per journal standard (italic font, use of capital letters, etc).

General remarks: - Have you considered fatigue? - What is the effect of wrinkles on blade reliability? - How are 'common defects' handled in the blade strength design? - The method used for identifying the wrinkles is destructive, any ideas on a non-destructive evaluation method?

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