

## ***Interactive comment on “Modal dynamics of structures with bladed isotropic rotors and its complexity for 2-bladed rotors” by Morten Hartvig Hansen***

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Thanks for the many good comments and questions. I have answered them below and I have also uploaded a PDF with a latexdiff of the original submission and the suggested final submission.

\*) One thing that could be missing is perhaps an example with a non-isotropic 3-bladed rotor.

I agree, but I will leave that important topic for the next paper. As you also write the paper is already very long. I have focused on the description of the methods herein.

\*) Name convention for the modes is different in Figure 4 and the following figures. In

C1

figures 5-23 the author uses a number code. Although it is clearly explained in the text given that the figures are self explained (and this is nice) it would be better to use the same name convention (that describes the shape of the mode) also in plots 5-23.

I have removed the reference to mode numbers, which did not make sense. The modes are now only referred to by their name, which is this procedure: “The naming of the modes shown in Figure 4 is deduced from the harmonic components that dominate the periodic mode shapes observed in Figures 5 – 15 across a large part of the rotor speed range”.

\*) Although the results of the analysis for the 3 bladed rotor are well expected, presentation of these results is found necessary in order highlight the differences between the two types of rotors. However, given the size of the paper (already 37 pages) a suggestion to the author would be to reduce slightly this part by presenting modal results for fewer modes and discuss the rest. Another idea could be to remove the 3D plotting of the modal displacements (at least in some of the plots) since it does not offer much. The picture is made clear already with the 2D plots I guess.

I have gone through the text again and shorten it in places. You are one of the experts on the area of wind turbine dynamics; I am afraid that if I would write a short text appealing to your expert knowledge then I may lose new readers. I would like to avoid removing the 3D plots because they tell us which harmonic components in the other plots have the largest amplitudes.

\*) In section 4.4 the sentence starting “Looking at all figures” should be rephrased. After reading several times I understood the point the author wants to make but it is definitely not clear from first reading. I think the author tries to say something very obvious but in a rather complex way.

I agree and I have also rephrased this section.

\*) Some editorial changes, Page 3, below line 15 “a 2 bladed turbine do not have” Page

C2

5, below eq. 11 “DOFs are order as” Page 9, below eq 30, use upper case symbol on Nd Page 18, below line 10, “in close agreement of..”

Thanks. I have made the corrections.

Please also note the supplement to this comment:

<http://www.wind-energ-sci-discuss.net/wes-2016-27/wes-2016-27-AC3-supplement.pdf>

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