

A Study on the uncertainty and sensitivity in numerical simulation of parametric roll - DTU Orbit (09/11/2017)

A Study on the uncertainty and sensitivity in numerical simulation of parametric roll

Uncertainties related to numerical modelling of parametric roll have been investigated by using a 6-DOFs model with nonlinear damping and roll restoring forces. At first, uncertainty on damping coefficients and its effect on the roll response is evaluated. Secondly, uncertainty due to the "effective (equivalent) wave" concept in calculation of restoring moment is studied. Finally, uncertainty to roll response from different methods of GZ calculation has been checked. It is found that the equivalent wave concept is sufficiently accurate for the purpose of GZ calculation. Two different GZ approximations give a good agreement with direct calculation method if relevant coefficients have been properly found in the fitting.

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Authors: Choi, J. (Intern), Nielsen, U. D. (Intern), Jensen, J. J. (Intern)

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