

WIND-TURBINE FSI 2.0: SIMULATION OF ROTOR YAWING, TURBINE START-UP, AND STABILITY IN ROUGH SEAS

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In this talk recent advances in fluid-structure interaction (FSI) [1] modelling of wind turbines at full scale are presented. Special FSI and Isogeometric Analysis (IGA) [2] techniques are discussed allowing such simulations as rotor turning into the wind, start-up of vertical-axis wind turbines, and stability of floating wind-turbine designs in rough seas. Novel IGA structural mechanics formulations, strong FSI coupling in the presence of free-surface flow, and advanced fluid-mechanics mesh management techniques are the key ingredients contributing to the success of the aforementioned simulations.

REFERENCES

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