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**A comparison between 2-and 3-bladed wind turbine rotors with focus on wake characteristics** FRANZ MHLE, MUYIWA SAMUEL ADARAMOLA, NMBU s, LARS STRAN, NTNU, Trondheim — Due to cost benefit and weight reduction, 2-bladed wind turbines have the potential to become more important for offshore wind applications. In order to optimize the arrangement of wind turbines in wind farms and for accurate forecasts of the power production, a detailed knowledge of the wake flow is needed. In the presented study, three different rotors with varying number of blades and similar performance behavior have been designed and manufactured using the 3-dimensional (3D) printing technology. The performance characteristics of these rotors as well as their wake features are measured experimentally in wind tunnel tests and compared. The velocity deficit is seen to vary only insignificantly for the wakes in distances of  $3D$  (where  $D$  is the rotor diameter),  $5D$  and  $7D$  behind the turbine. However, higher turbulence intensity levels are recorded in the wake of the 2-bladed rotors. This could have potential for a faster wake recovery and thus a narrower turbine spacing.

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