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Wind turbine wakes under high thrust coefficients[1] LUIS MARTINEZ TOSSAS, EMMANUEL BRANLARD, JASON JONKMAN, National Renewable Energy Laboratory — Wind turbines wakes are typically characterized in terms of the thrust coefficient. The thrust coefficient is a non-dimensional number that describes the force exerted by the turbine in the axial direction to the incoming momentum of the flow. In the case of a wind turbine with a high-thrust coefficient, the wake becomes turbulent very close to the rotor and the recovery is enhanced. In this work, we study the behavior of wind turbine wakes under high thrust coefficients using large-eddy simulations and propose a simple model to predict the wake deficit of a wind turbine with a high-thrust coefficient.

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