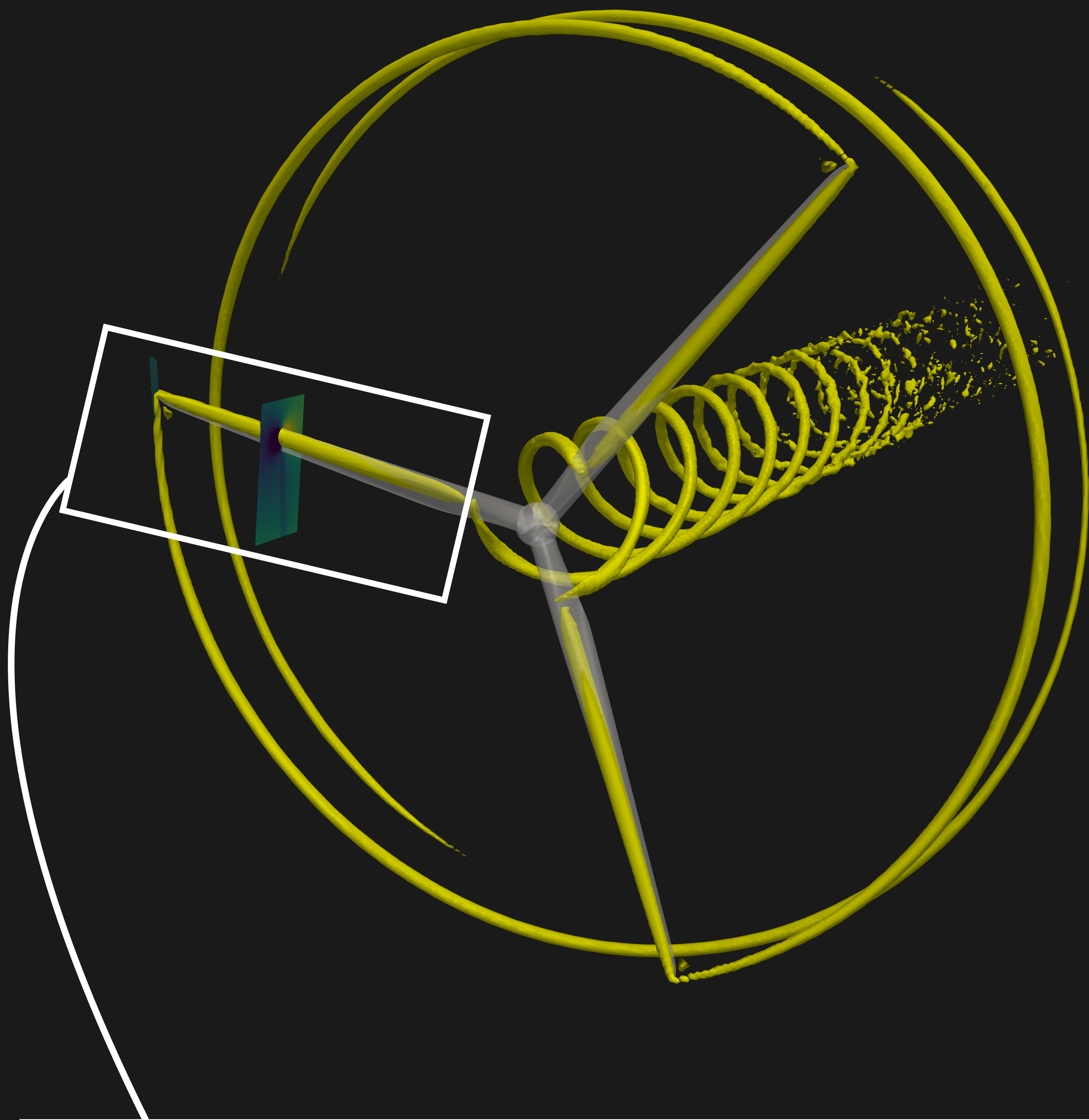


Large Eddy Simulation of an Actuator Line Model of a Wind Turbine with Optimal Body Force Projection

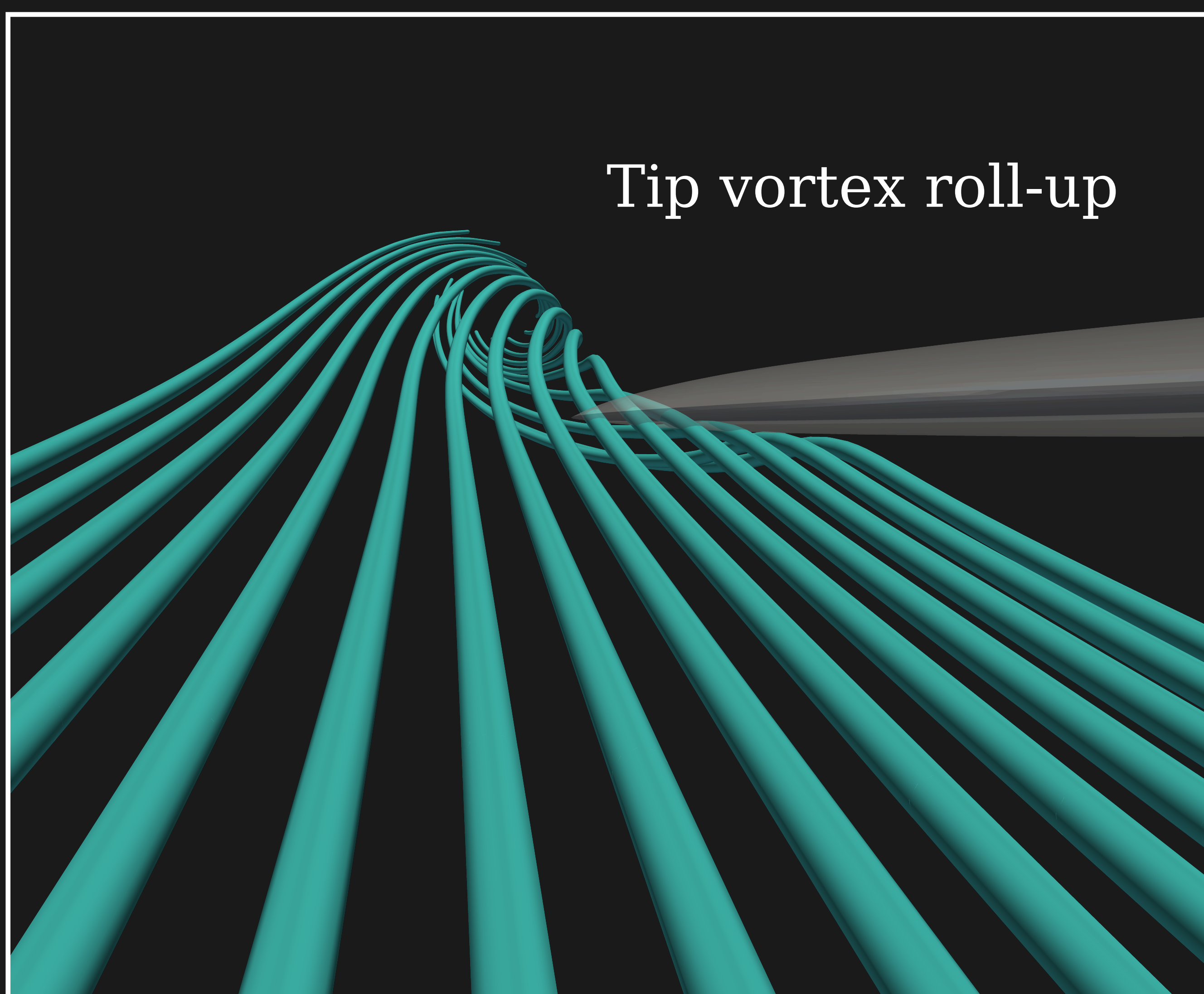
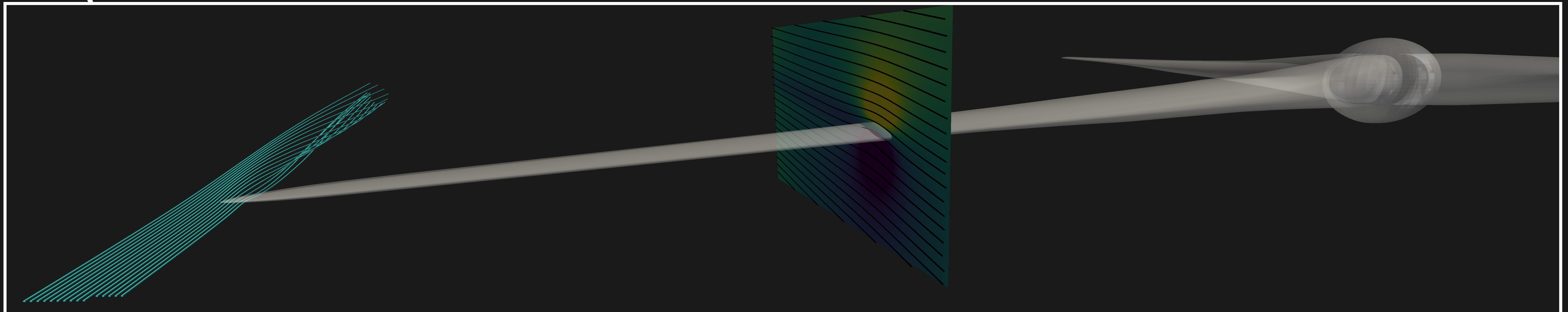


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The actuator line model is used to represent the wind turbine blades through body forces, without having to resolve the geometry of the blades. Using a theoretically determined optimal body force distribution, the shape of the blade is accurately captured by the model. Volume rendering of the Q criterion shows the tip and root vortices. Streamlines show the flow over the blade in the reference frame of the blade and the roll-up of the tip vortex. The turbine blades are shown for visualization purposes.



Tip vortex roll-up

