



# Chisachi KATO LAB.

[Numerical Simulation of Unsteady Fluid Flow]  
[Research on Energy Conversion Systems]

Center for Research on Innovative Simulation Software

Fluid Flow and Thermal Systems Control

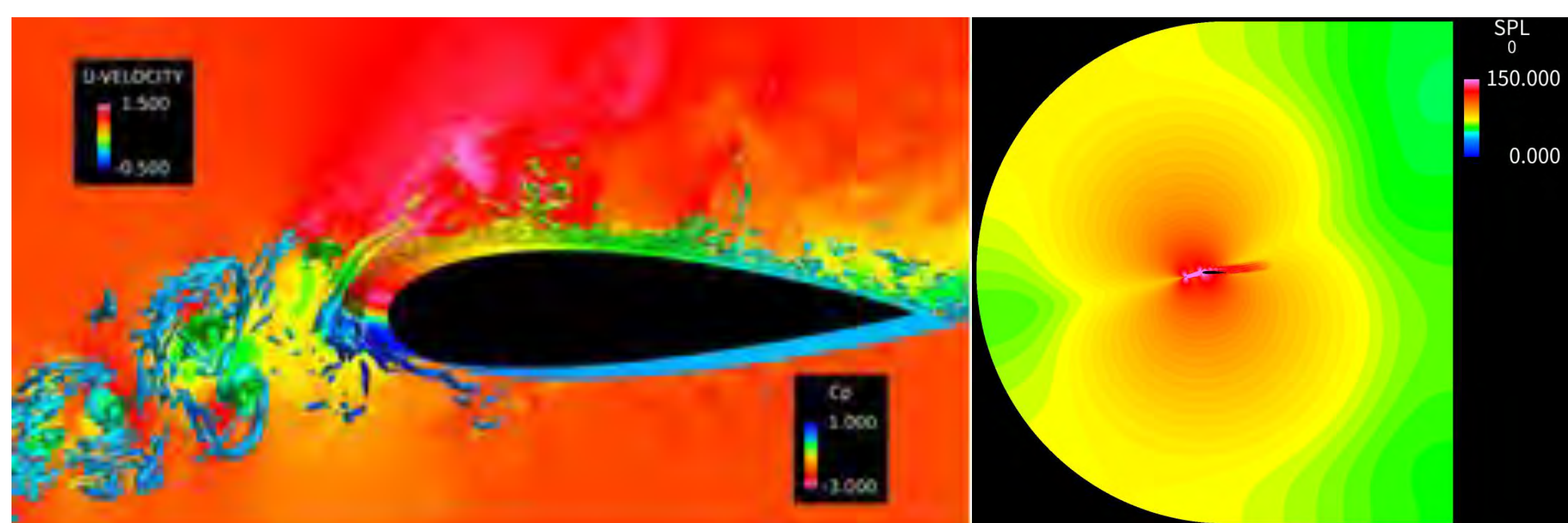
Department of Mechanical Engineering

<http://ckatolab.iis.u-tokyo.ac.jp/>

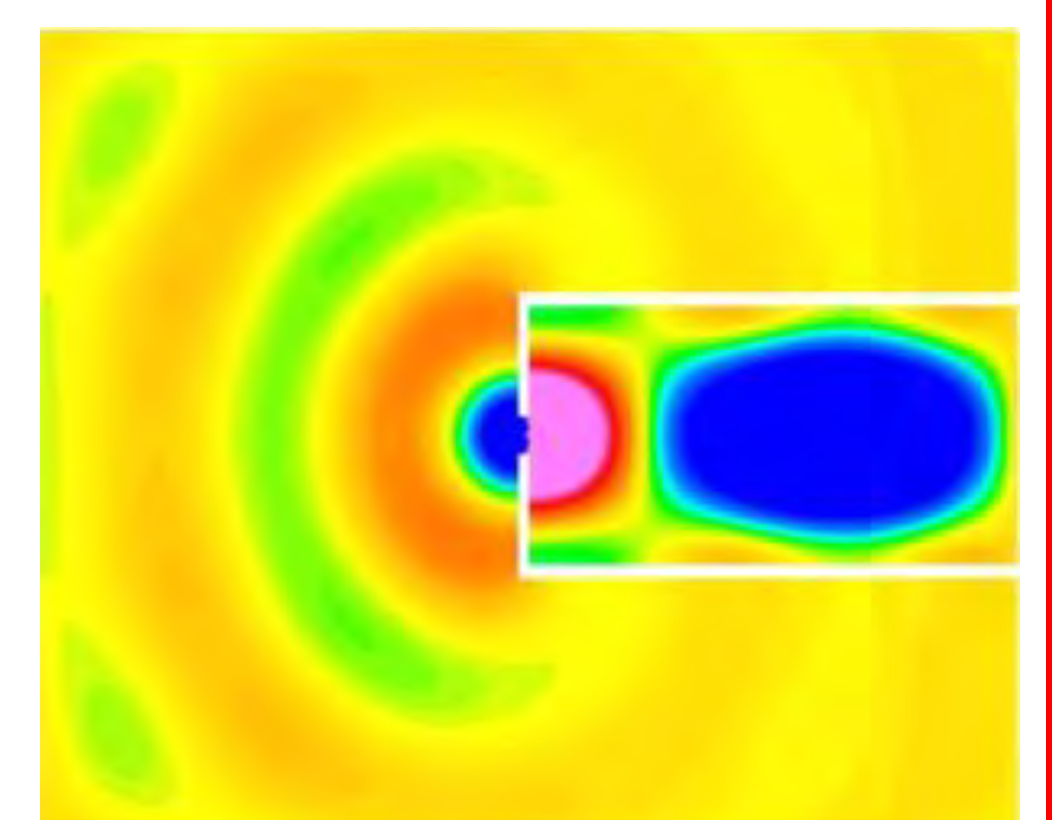
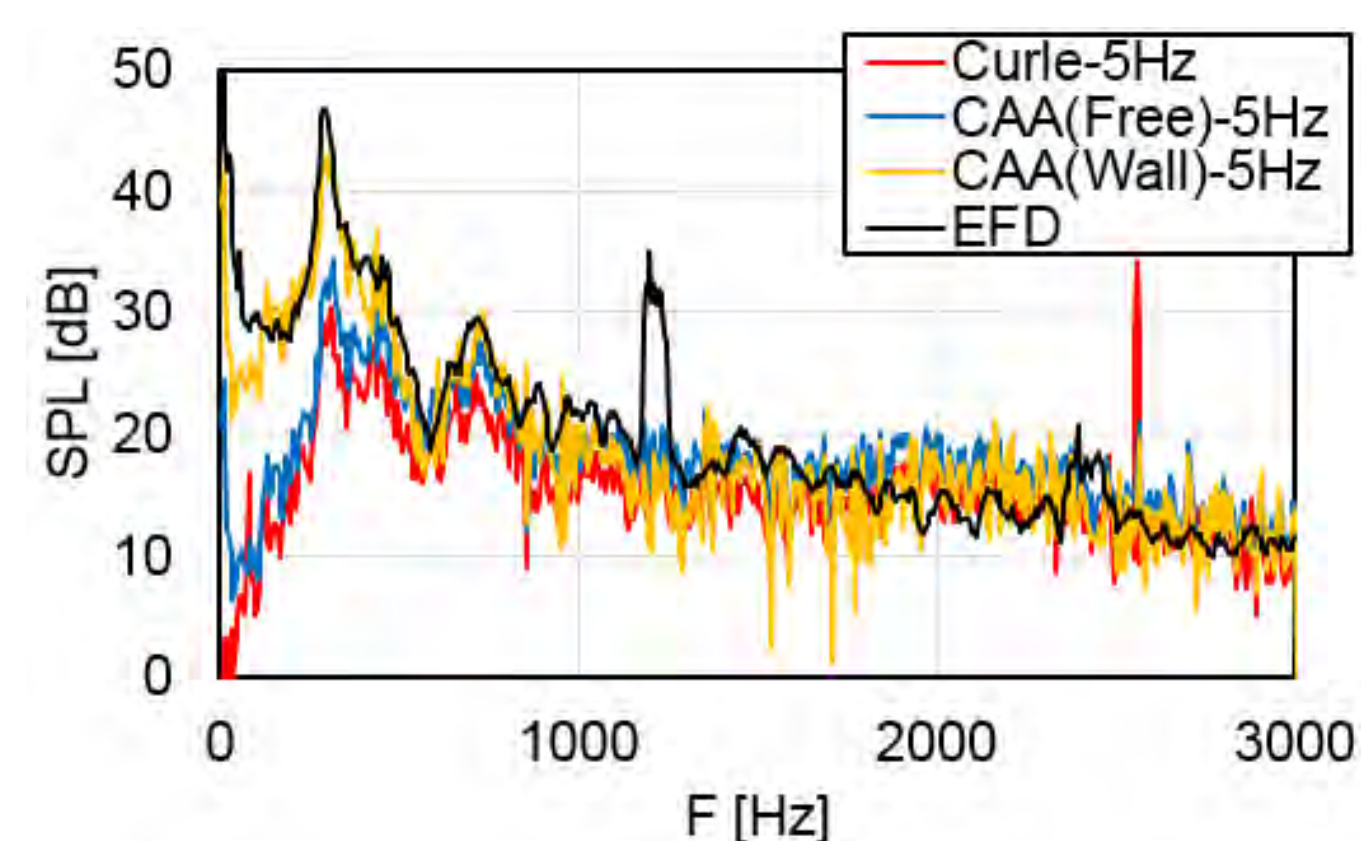
**Turbomachinery such as fans and wind turbines, and transportation vehicles such as automobiles and ships are influenced by unsteady-flow phenomena, which may deteriorate their performance and liability, and/or radiate unwanted noise. We are developing application software for predicting unsteady flows and resulting sound in K and Post-K projects. By collaborating with industrial partners and universities, we also do application research aimed at replacing conventional tests and improving performance of various products. We also do basic research for clarifying the essential mechanism of unknown phenomena, and/or proposing new physical models.**

## Numerical Simulation of Unsteady Fluid Flows

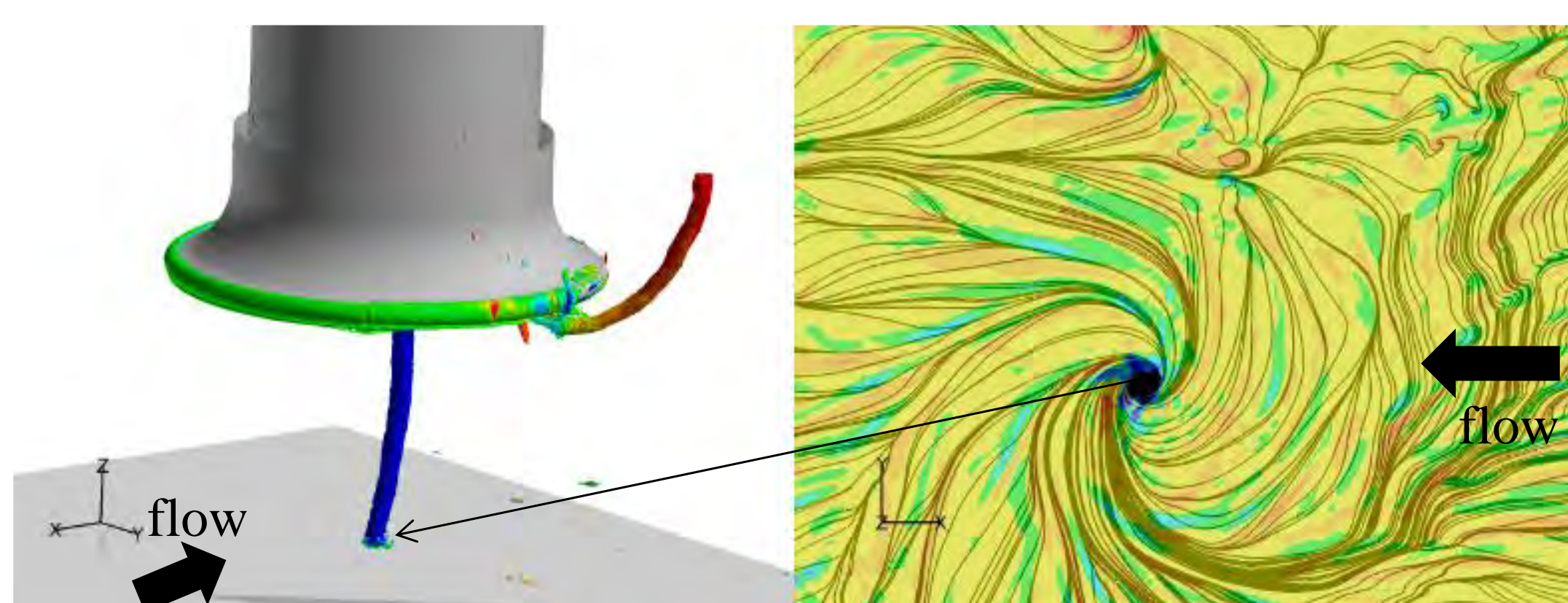
Airfoil flow subjected to inflow turbulence



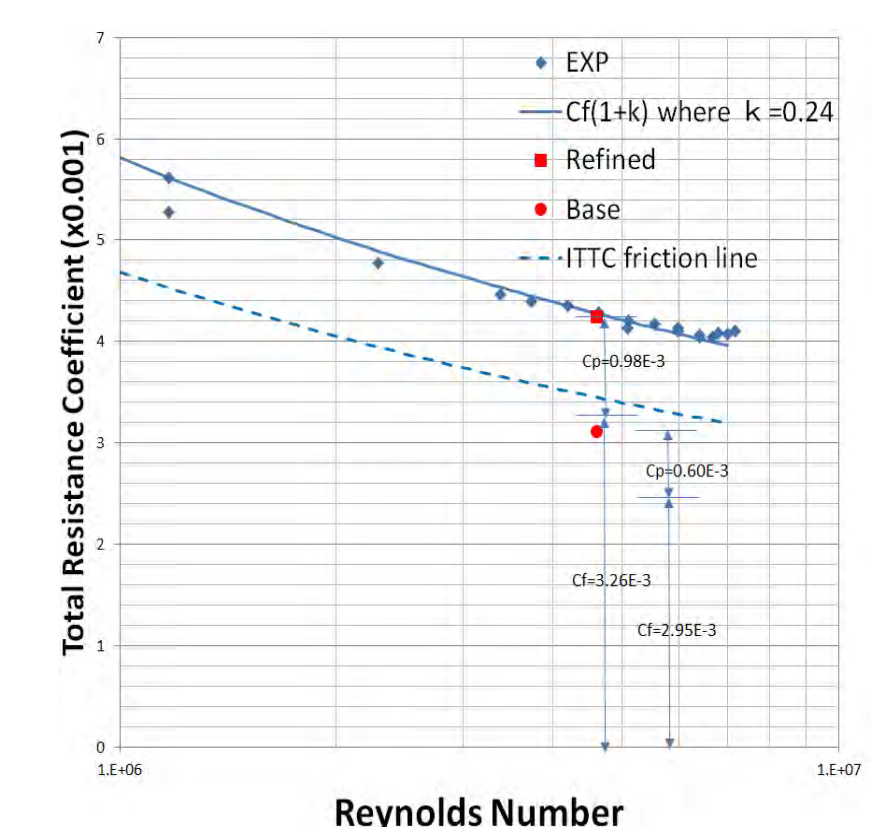
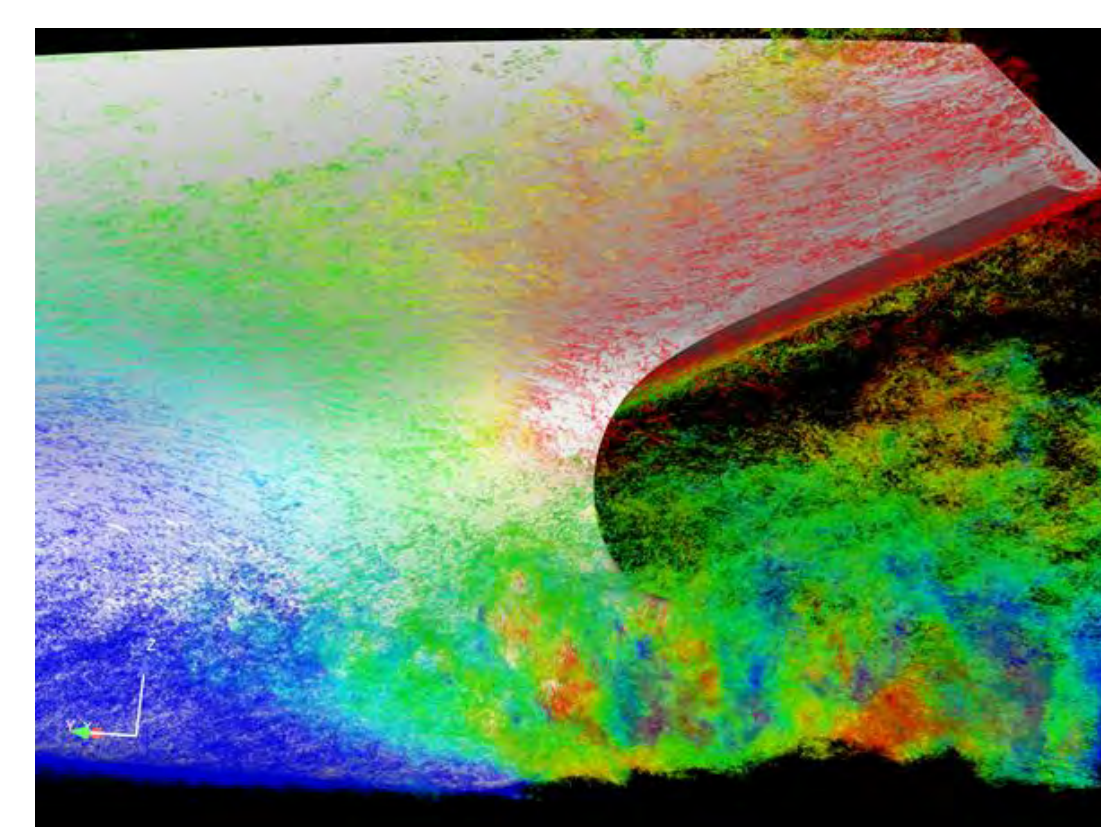
Prediction of sound from a cooling small fan



Investigation of vortex formation mechanism

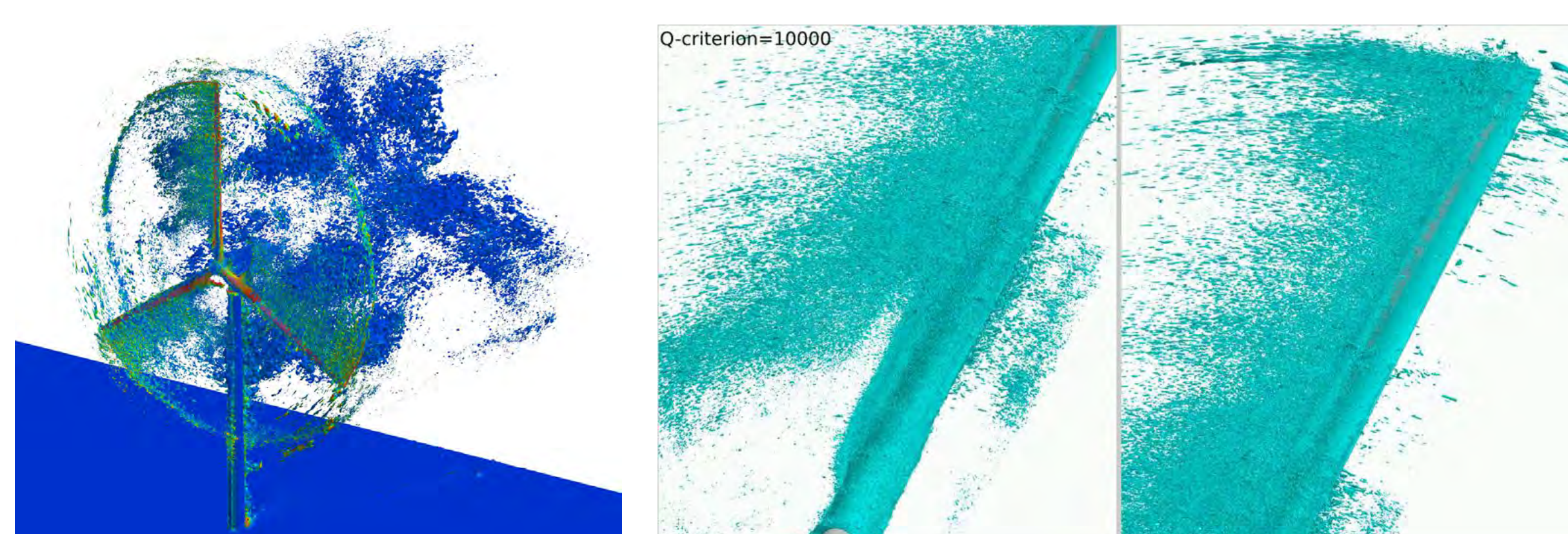


Development of numerical towing tank



## Research on Energy Conversion Systems

Prediction of offshore windturbine flows



Application of wall model to blade flows

