

# Chisachi KATO LAB.

[Software capable of large-scale simulations and its application to basic and applied research]



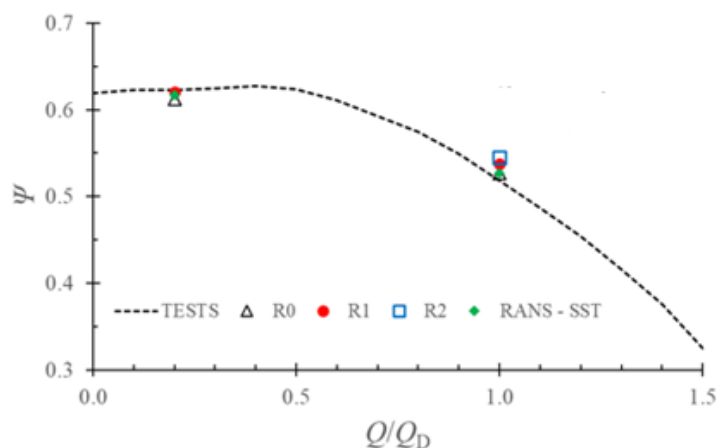
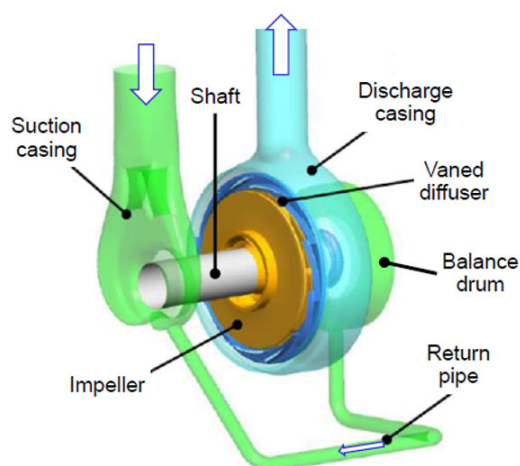
Center of Research on Innovative Simulation Software

Fluid Flow and Thermal Systems Control

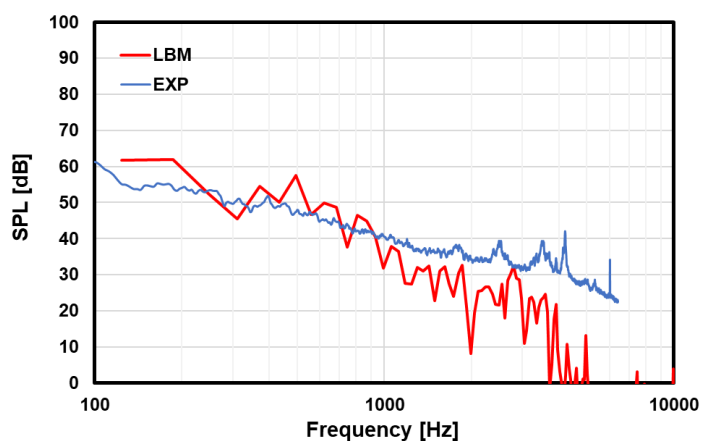
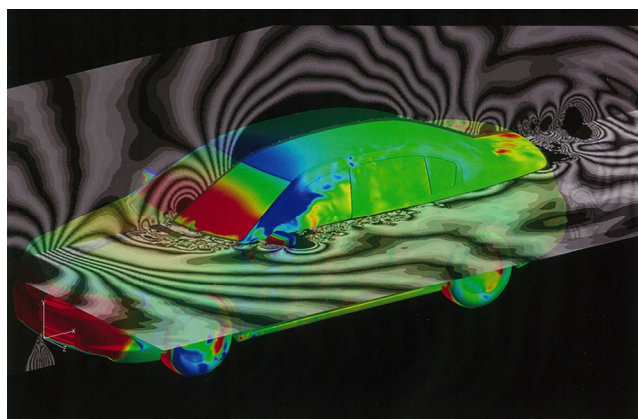
Department of Mechanical Engineering

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We have developed two large-scale LES solvers: FFB based on finite element method and FFX based on Lattice Boltzmann method. FFB has been applied a number of industrial computations by using up to 100 billion computational grids. FFX uses the hierarchical Cartesian coordinates and is capable of fully automatically generating the grid for complex geometries. It can be applied up to 2 trillion grid-size industrial computations.



**Internal flow and performance predicted for centrifugal pump by FFB**



**Aeroacoustics predicted for automobile by FFX**