

Research and Development on Turbomachinery

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Fig.1 Inline agricultural water pump Fig.2 Experimental apparatus

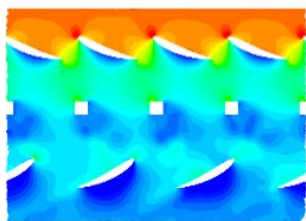


Fig.3 Blade-to-blade flow

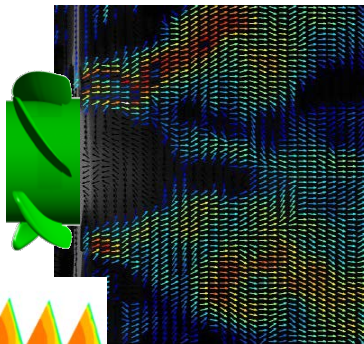


Fig.4 PIV result

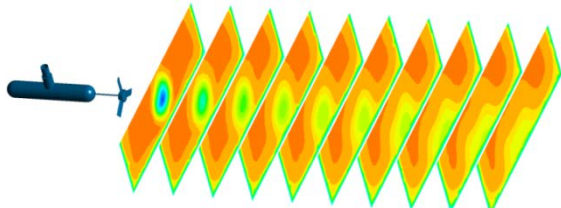


Fig.5 Wake from propeller turbine



Fig.6 rotor

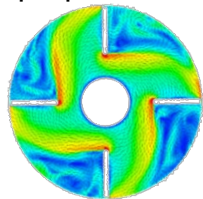


Fig.7 Internal flow of pump

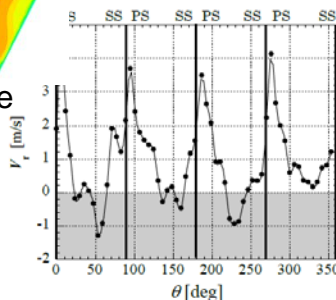


Fig.8 Outlet velocity distribution of pump

Content : Turbomachinery is used wide variety of field of renewable energy, medical and industrial pumps and so on. The targets of our research are to achieve downsizing, high efficiency, high pressure, low noise of turbomachinery based on the experiment. In addition to that, we will try to clarify the internal flow of turbomachinery by using CFD, visualization and PIV and propose the performance prediction method and design guideline based on the internal flow.

Research on renewable energy

(1) Small cross-flow wind turbine for urban district, (2) Inline pico hydroturbine for agricultural water and small scale water supply system, (3) Propeller turbine for agricultural water, small river and tidal current

Research on turbomachinery for achieving high performance

(4) Contra-rotating turbomachinery, (5) Thruster for ship, (6) Research on Industrial pump to improve performance, (7) Small pump for medical and cooling devices, (8) Research on fluid food pump

Keywords : Fluid dynamics,

Fluid machinery, CFD

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