Wind turbine impeller

What are the different types of turbine impellers?
In the present work, laser-doppler anemometry measurements as well as CFD simulations have been performed for the flow generated by various impellers, namely disc turbine (DT), a variety of pitched blade down flow turbine impellers varying in blade angle (Standard PBTD60, 45 and 30) and hydrofoil (HF) impeller.

What is the difference between an impeller and a turbine?
An impeller pumps fluid by importing momentum to it,while a turbine converts fluid energy back into mechanical energy. In our discussion,pumps are considered as devices that generate a high pressure (P) and relatively low flow rate (Q). The torque converter is a low P,high Q device.

Can logical framework and pseudo-code be used to model wind turbine impeller?
Therefore,one high efficient approach for geometric modeling of wind turbine impeller is proposed by this study,and the validityof logical framework and pseudo-code of each part correspondingly is confirmed through several applications upon modeling of impeller,with time-efficient to shape in the process-designed.

Can 3D model of impeller for wind turbine improve CFD analysis?
It is a very important fundamental work that 3D-model of impeller for wind turbine can be achieved precisely,in order to enhance the credibilityof CFD analysis in subsequent calculations. However,the current studies do not emphasize closely on the modeling with time-saving and high efficient.

Plan view of the impeller wind turbine presented in Fig. 2. The model has three sections of scoop-vanes, which are 120 0 to each other and joined with the main output shaft. Power output ...

Maeda et al., conducted experimental measurements on the surface pressure distribution of horizontal-axis wind turbine impellers with rotor diameters of 10 m and 2.4 m under different yaw angles, in which spanwise ...

An attempt has been made in this regard in the present paper by designing a new impeller type wind turbine and evaluating its performance by conducting experiments in a low speed wind ...

The icing of wind turbine blades can cause changes in airfoil shape, which in turn significantly reduces the aerodynamic performance and affects the power generation efficiency ...

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Also, the wind turbine generators used in home wind electric applications are typically high speed permanent

magnet AC generators supplying 120 or 240 volt power to the home or utility grid. Wind electric water pumping systems are ...

However, under turbulent inflow, turbulence intensity behind the wind turbine is significantly enhanced by blade deformation. Additionally, the wake vortices of the wind turbine ...

This paper proposes the impeller wind turbine, which uses more effectively the wind energy and depends only on the acting area of the vanes. The vane wind turbine is designed to increase ...

The blade is one of the core components of wind turbine impeller. The material of blade, the design of airfoil, and the structural form of blade directly affect the performance and ...

In these regions, the high humidity and low temperatures in winter will lead to ice accumulation on the wind turbine impeller. A different icing location or mass will lead to ...

With the continuous increase in the total quantity and quality of wind energy used by society, the aerodynamic complexity of wind turbine impellers has also gradually increased. This requires ...

The dynamic yaw motion of the wind turbine will affect the overall aerodynamic performance of the impeller and the corresponding wake flow, but the current research on this ...

The floating offshore wind turbine (FOWT) consists of an impeller, a floating platform, and a mooring structure. The idea of an FOWT was first introduced by Heronemus in 1972, who installed a series of miniature ...

In summary, compared with the ordinary vertical shaft lift-type wind turbine, the vertical axis wind turbine with an adaptive lift resistance composite structure can reduce the starting wind speed of the wind turbine by ...

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