عنوان مقاله:

Shape Optimization of Wind Turbine Winglet by using PMARC

محل انتشار:

نخستین همایش منطقه ای مهندسی مکانیک (سال: 1389)

تعداد صفحات اصل مقاله: 4

نویسندگان:

Ali R. Davari۱, - ۱Assistant Professor, Search and Research Branch, Azad University

Arash Boorboor۲ - ۲Graduate Student, Search and Research Branch, Azad University, Tehran

خلاصه مقاله:

A new optimizing method was proposed in this study to optimizing the wind turbine winglet for increasing the output power of wind turbine by improving the PMARC code. PMARC code has advanced features for calculating the aerodynamics forces and momentum especially at the trailing edge of wind turbine blade sections. PMARC can calculate the wake in high precision so that this method that was proposed in this paper calculates and optimizes by applying the both of the PMARC code and other optimizing code together in the same time so that this method was collected the advantage of PMARC and also the good features of optimizing codes together. Comparing the results of the proposed code with the classic ones approves its higher performance and lower computation time. so optimum airfoils that produced by this method causes higher performance in wind turbines and consequently these blade sections are increasing overall out put power of wind turbines although they are caused a lesser vibration in other hand a minimum maintenance cost is needed by these optimum airfoils. PMARC has a good features to calculating the trailing edge wakes that produced by the air across airfoil surface from the leading edge to trailing edge so that the new method can control the turbulence at the trailing edge for decreasing the fluctuation of the airfoils surface and also it delays the separation because the smoother wake too.

کلمات کلیدی:

airfoil Optimization, PMARC, WindTurbine winglet

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/111064