## عنوان مقاله:

Speed Regulation of Wind Turbine using Pitch Control Based on Estimation of Equivalent Disturbance of Wind Speed on Control Input

## محل انتشار:

کنفرانس بین المللی یافته های نوین پژوهشی درمهندسی برق و علوم کامپیوتر (سال: 1394)

تعداد صفحات اصل مقاله: 6

## نویسندگان:

Neda Mazloum - *Ferdowsi University of Mashhad, Iran*

S. Kamal Hosseini-Sani - *Ferdowsi University of Mashhad, Iran*

## خلاصه مقاله:

Although general principles of electricity generation in wind turbines is simple, many challenges about their efficiency, control systems and requirements for connecting wind turbines to power grids are still remaining. One important challenge is speed/ power regulation of wind turbine against continuous and random changes in wind speed. Using disturbance estimation methods beside pitch controllers, robustness of these systems against wind speed changes will be increased.In this paper, a new method based on estimation of equivalent disturbance of wind speed on control input is exploited to improve disturbance rejection of control system. By means of this method, equivalent disturbance of wind speed is estimated without any knowledge about wind speed or its model of variations. Therefore, the system will have more robust performance in order to regulate wind turbine speed in its rated value. The effectiveness of the proposed method is demonstrated using the FAST aero-elastic wind turbine simulator.

## کلمات کلیدی:

pitch control of wind turbine, state estimator, equivalent disturbance on control input