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## Nonlinear Control of a Grid Connected Wind Turbine

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### Abstract

*A non-linear control design for a Doubly Fed Induction Generator (DFIG) that is connected to grid is proposed. The main purpose of this design is to improve power efficiency while ensuring smooth voltage performance. The control approach is realized in the rotor reference frame and is based on Asymptotic non-linear control technique. Two models have been studied the first one represents the doubly-fed induction generator while the second relates to the grid side converter command models . A nonlinear representation of the two cases are developed. Matlab program is applied to simulate and test the proposed control technique. The results are featured to show the effectiveness of the proposed control design.*

### Author Keywords

Renewable Energy, Feedback, Asymptotic Tracking

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