



# Lyapunov Based on Cascaded Non-linear Control of Induction Machine

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**Abstract:** In this paper is developed Lyapunov based non-linear control to ensure the flux-speed tracking regime of voltage fed induction machine. The control law is determined in two steps, in the first the virtual control, based on Lyapunov function, is obtained in view to impose the flux-speed tracking. After this, is deduced the real control imposing the virtual control law. The simulation results of flux-speed tracking of induction machine show the validity of the proposed method in presence of strong parametric perturbations. Finally, an extension of the proposed method to most voltage alternating current (AC) machines is discussed. This allows to get a unified view for the control of electric AC machines.

**Keywords:** *Lyapunov method; virtual control; flux speed-tracking; induction machine; AC machines.*

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