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Abstract:

PI controller is still the most commonly used controller in the industrial applications despite the development of advanced control techniques due to their simplicity. Usually, the conventional PI controller constants are determined by trial and error, which suffer from the instability for the variation of disturbance and system parameters. Also, always steady state error is occurred where PI controller constants are chosen by trial and error. Therefore, to overcome such a drawback, in this paper an improved PI speed control of SVM technique of PWM inverter fed indirect field-oriented induction motor is designed. To improve the steady state error and the stability of the proposed PI controller, the gain of PI controller is selected using the pole-placement technique. The poles of closed loop controller are chosen as negative real from the dynamic motion of induction motor. The effectiveness of the proposed method has been demonstrated by simulation study. The simulation results show good performance using the improved PI controller.

Keywords: PI Controller, Pole Placement, Speed Control, Indirect Field Oriented Control, Induction Motor