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## V/f Control Strategy with Constant Power Factor for SPMSM Drives, with Experiments

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### Abstract

A simplified sensorless V/f control for surface permanent magnet synchronous motor (SPMSM) drives with two stabilizing feedback corrections is developed. The stabilizing corrections are the voltage-vector speed correction based on the active power variation, and the voltage amplitude correction based on power factor angle regulation loop. The dq axis inductances are experimentally determined and the iron losses are taken into account with validation based on close results between simulation and experiment. The proposed scalar V/f control structure, with real-time implementation on DSP, is experimentally compared with standard Field Oriented Control (FOC) strategy, that uses position encoder, proving good dynamics.

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