

Power Area Graduate Seminar

Monday, April 22, at Noon
Room 104 Emerson Electric Company Hall

New Sensorless, Efficient Optimized and Stabilized V/f Control for PMSM Machines

Presented by Hesam Jafari, Missouri S&T

Abstract: A sensorless stable V/f control method for permanent-magnet synchronous motor (PMSM) drives was proposed in earlier works by employing frequency modulation method to adjust a predefined commanded electrical speed and voltage frequency base on the perturbations at the input real power in order to address the instability problem associated with PMSM that using V/f methods. This presentation focuses on optimization of the V/f control by minimizing the d-axis current which is proportional to the reactive power in the machine to reduce the motor losses, and supplied input power. The proposed sensorless method only needs machine terminal signals and does not require any additional motor parameters measurements. Minimization of the d-axis current is accomplished through computed reactive power.

Biography: Hesam Jafari received his bachelor's degree in Electrical Engineering from Shahid Beheshti University, Tehran, Iran in January 2011. Since summer 2011 he has been working on his M.S at Missouri University of Science and Technology.