Effect of Rotor Position Error on Commutation in Sensorless BLDC Motor Drives

Lin Mingyao, Li Qiang, Gu Weigang
Dept. of Electrical Engineering, Southeast University, Nanjing 210096, P. R. China

Abstract---In this paper, two kinds of commutation modes of the brushless DC (BLDC) motor drives, the delaying commutation and the leading commutation, are discussed in detail. The current of the unexcited phase is calculated under an ideal operation condition, and the condition of circulating current occurring is analyzed. The result with the compensated commutation is provided. The theoretical analysis is confirmed by the experiment results.