

基于遗传算法的电涡流测功机预测控制

程广伟 周志立 邓楚南 徐立友

洛阳理工学院

关键词: 电涡流测功机 动态矩阵控制 遗传算法 动态特性

摘要: 利用电涡流测功机加载转矩对外控输入电压的响应特性,建立了电涡流测功机预测控制的动态矩阵,采用遗传算法对动态矩阵控制(DMC)的参数进行了整定,在对电涡流测功机的机械特性进行研究的基础上,对动态矩阵预测控制方法在电涡流测功机控制中的应用进行了研究。仿真试验表明,采用基于遗传算法整定DMC参数设计的DMC控制器进行DMC控制,转矩从零上升到320 N?m用时约800 ms,比不采用DMC控制时提高了60%,控制稳定时转矩误差为10 N?m。According to the response characteristics of the load torque to the external input voltage by the eddy current dynamometer, the dynamic matrix for predictive control of the eddy current dynamometer was established. The parameters of the dynamic matrix control (DMC) were tuned by adopting genetic algorithm. Based on the research of the mechanical characteristics of the eddy current dynamometer, the application of the dynamic matrix predictive control method on the eddy current dynamometer was studied subsequently. The simulation results show that the time consuming of raising the turning torque from zero to 320 N?m is about 800 ms by using the DMC controller based on the genetic algorithm. The efficiency is improved by 60% and the torque error is 10 N?m under stability control.

[查看全文 \(请使用Adobe Acrobat 6.0版本浏览\)](#) [返回首页](#)

[引用本文](#)