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基于多传感器数据融合发电机参数的在线估计

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摘 要：发电机实际运行中,由于受外界环境(如电磁波)的干扰以及传感器老化等因素的影响,传感器容易发生参数型故障.为了有效地在线估计发电机工作参数,利用多传感器的冗余和强跟踪滤波器,设计了基于发电机参数数学模型的在线估计器.该估计器具有自然的并行结构,设计参数和计算量较少,尤其适于工程应用.由于失效传感器被有效剔除,该估计器对失效传感器具有很强的鲁棒性.计算机仿真结果证明了该算法的有效性.

关键字：传感器;数据融合;发电机;参数估计

Real-time parameter identification for generator based on multi-sensors

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Abstract: Sensors of generators, subject to sensor aging and environmental electromagnetic disturbances, are prone to parameter faults in practical engineering. To cope with such problems, an online estimator based on strong tracking filter (STF) and multiple sensor fusion is proposed. In the estimator, nonlinear parameter model of generator can be dealt with by STF while redundancy of multiple sensors can be used to separate normal and abnormal sensors. Because of its natural parallel structure, few design parameters and low computation burden,the estimator is very suitable for engineering applications. Furthermore, it has strong robustness for abnormal sensors, which are easily separated and rejected via multiple sensor technique. The simulation shows its effectiveness.

Key words:transducer; data fusion; generator; parameter identification

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