

# Stator faults detection and diagnosis in reactor coolant pump using kohonen self-organizing map

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## Description

Nuclear power industries have increasing interest in using fault detection and diagnosis (FDD) methods to improve availability, reliability, and safety of nuclear power plants (NPP). In this paper, a procedure for stator fault detection and severity evaluation on reactor coolant pump (RCP) driven by induction motor is presented. Fault detection system is performed using unsupervised artificial neural networks: the so-called Self-Organizing Maps (SOM). Induction motor stator currents are measured, recorded, and used for feature extraction using Park transform, Zero crossing times signal, and the envelope, then statistical features are calculated from each signal which serves for feeding the neural network, in order to perform the fault diagnosis. This network is trained and validated on experimental data gathered from a three-phase squirrelcage induction motor. It is demonstrated that the strategy is able to ...