

HURST ANALYSIS OF INDUCTION MOTOR VIBRATIONS FROM AGING PROCESS

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ABSTRACT

Different algorithms for Hurst exponent estimation, namely aggregated variance, absolute moment, Higuchi and Peng method, are applied to eight different vibration signals obtained in induction motor aging process. Signals were obtained with accelerometers during an artificial fluting, thermal and chemical aging process. Applicability of Hurst exponent analysis for motor age detection is discussed based on estimation results. Drop of the exponent value for degraded states with respect to the original state is detected, while no monotonic relationship between subsequent states is found. The anti-persistent nature of vibrations is confirmed.