

In this Chapter, we propose to perform early fault diagnosis using spectral analysis based on high resolution MUSIC algorithm to detect bearings faults in electrical asynchronous machine. While most research works focus on mechanical vibration signals analysis. The originality of our work relies on the use of high-resolution method to stator current. We present the results obtained for real data of electrical signals to detect inner raceway and outer raceway bearings defects made artificially as well as bearing defects obtained through element aging. The results shows that the proposed method yields better detection than classical spectrum analysis