

Popular scientific summary of the project

The automation and drives industry is searching for solutions to improve the comfort, cost saving and as well as the security for the customers. Connecting these demands with the increasing amount of induction motor applications cause also a high interest in the research area of monitoring and fault detection of electrical drives. The proposed project covers this industry desires and will expand the knowledge in the domain of fault detection of innovative drives. The object of investigation is a five phase induction machine. Such drives are prominent, because of their high reliability and fault tolerance. This factors are especially important for security reasons of drives used in aircrafts or electrical vehicles. This project will also cover the cost saving aspect with increasing the lifetime of the motor by using a filter with improves the supplied voltage into a close to the sinusoidal waveform. However, the most important part of the project is the procedure invention of mechanical fault of a multiphase drive with inverter output filter. The innovation on it will be the investigation of a way to detect the mechanical faults in a torque transmission system with only the usage of the sensor which are built in a voltage inverter by default. To aim the goal, the applicants will develop a test bench to simulate different mechanical faults and to apply observer techniques to identify mechanical faults.