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MODELLING OF CONTROL SYSTEM FOR AN ACTIVE MAGNETIC BEARING

ABSTRACT *Active Magnetic Bearing (AMB) supports a rotor by magnetic attractive forces, without any mechanical contact. The paper presents a field-circuit model of an active magnetic bearing including its control loop. The basic parameters of the active magnetic system has been obtained from a FEM analysis of an magnetic bearing actuator. The position control system is based on operation of the local conventional PID controller, which has been widely used in industrial applications of the active magnetic bearing systems. The parameters of the controller have been obtained with the use of the root locus method. The obtained simulation and experimental results are compared in case of lifting the rotor.*

Keywords: *modelling, control system, magnetic bearing control system, Finite Element Method, controller, simulation, rotor, levitation control algorithm, force, flux density transfer function, transmittance.*