# Identyfication of stiffness and damping coefficients of the rotor supported in electromagnetic bearings.

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There are various examples of application of the electromagnetic systems in order to excite or control of vibration in real mechanical systems. For example, magnetic bearings are used to control flexible rotors [1] , active dynamic absorbers are adopted for the effective controlling of the vibration of structures [2] or electromagnetic excitors are applied in electromagnetics vibrating feeders.

On the other hand, the electromagnetic forces are mostly nonlinear and coupled with the air gap. In order to obtain effective results during the control of machines influenced by electromagnetic field, the identification of dynamical characteristics between electromagnetic forces and vibrating displacements is necessary.

This work presents a method for identyfying the matrix of stiffness and damping coefficients between the electromagnetic forces and vibrating displacements using a phase resonance approach.
A two degrees of freedom system serves as an example to illustrate the method.

REFERENCES

[1] B.Nagai and Y.Okada, "Modal control of flexible rotor by digital magnetic bearings", Proc. of ISEM- Sendai, 1991.
[2] K.Seto and K.Sawatari, "A study on active dynamic absorbers", Proc. of ISEM- Sendai, 1991.