Rotordynamics Software with Nonlinear Magnetic Bearings, Flexible Rotor and Flexible Foundation Effects (Wan Zhong)

**Objective:**

Develop user friendly simulation software for rotordynamic systems with nonlinear magnetic bearings, flexible rotor and flexible support and integrate this into XLTRC2.

**Purpose:**

1) Improve the reliability of the predictions of stability and response by including nonlinear properties for saturation, flux-force and gaps, and 3D thermal “hot spot”, 3D flux and power loss capabilities.

2) Optimization design of the magnetic bearing system and the controller to achieve the best performances simultaneously, such as the minimum actuator mass, the minimum rotor vibration amplitude, the maximum static load and the actuator power losses.