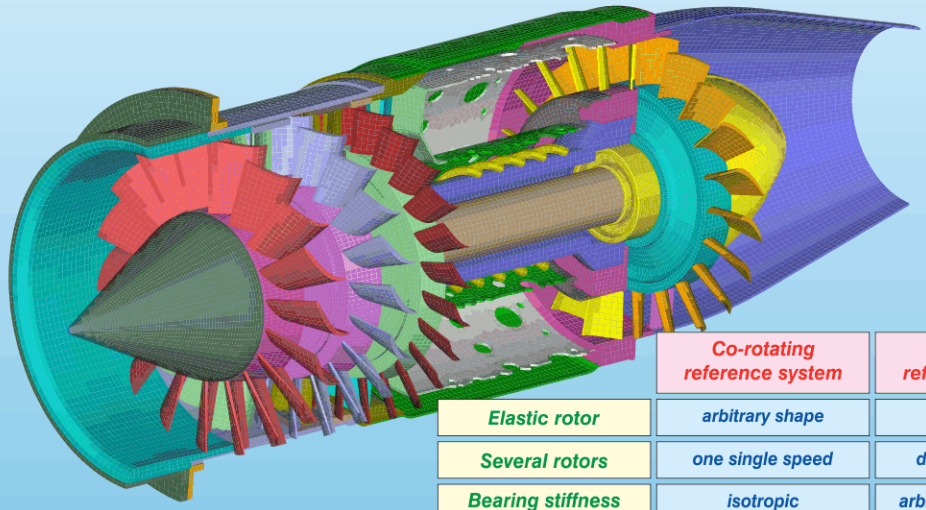
PERMAS

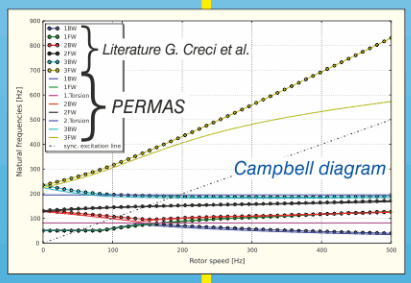
Rotor Dynamics in V14

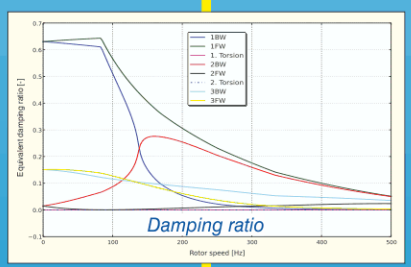
INTES GmbH
Schulze-Delitzsch-Str. 16
D-70565 Stuttgart
Phone: +49-711-784 990
Fax: +49-711-784 9910
E-mail: info@intes.de
Web: www.intes.de

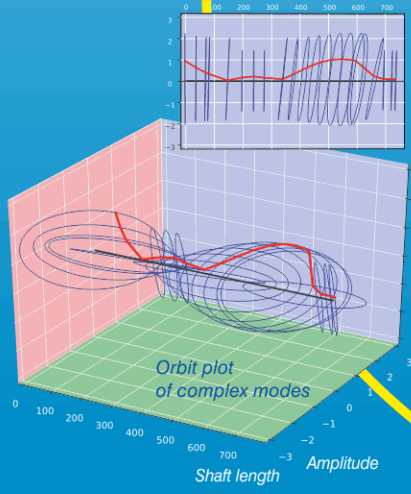


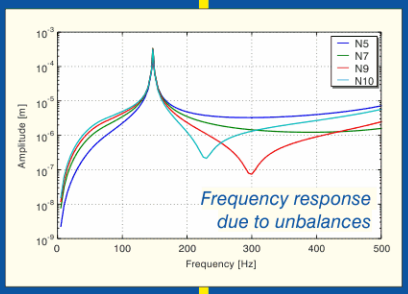
This FE model was created using the geometry from http://grabcad.com/library/2-inch-diameter-3-stage-axial-jet-engine

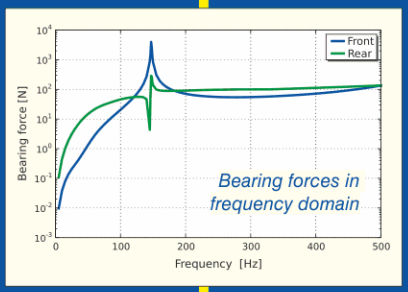
	Co-rotating reference system	Inertial reference system
Elastic rotor	arbitrary shape	axisymmetric
Several rotors	one single speed	different speeds
Bearing stiffness	isotropic	arbitrary, speed dep.
Stator	no	arbitrary shape
Static analysis	subcritical	subcritical
Dynamic analysis	sub- and overcritical	sub- and overcritical
Additional matrices	geometric stiffness, centrifugal stiffness, Coriolis matrix	geometric stiffness, convective stiffness, gyroscopic matrix
Modal damping +	material, viscous	speed dep. bearing, material, viscous in stator
Campbell diagram in one analysis	with mode tracking and stability evaluation	with mode tracking and stability evaluation
Modal and direct response	harmonic, periodic (steady-state), in time domain	harmonic, periodic (steady-state), in time domain
Sizing and shape optimization	for rotor	for rotor, stator, and bearing
Active damping	of rotor	of stator and bearing
Model reduction	of rotor	of rotor and stator



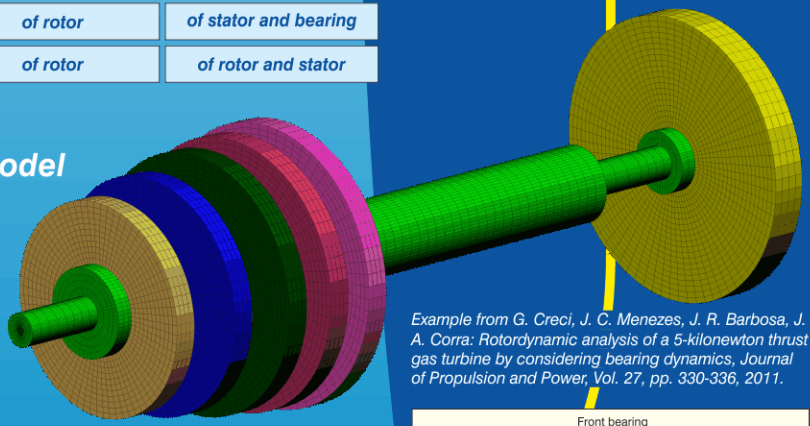








Simplified rotor model of a gas turbine



Example from G. Creci, J. C. Menezes, J. R. Barbosa, J. A. Corra: Rotordynamic analysis of a 5-kilonewton thrust gas turbine by considering bearing dynamics, Journal of Propulsion and Power, Vol. 27, pp. 330-336, 2011.