

# Rotor Dynamic Online Seminar

by



DELTA JS AG

from April 17<sup>th</sup> to 19<sup>th</sup> 2024

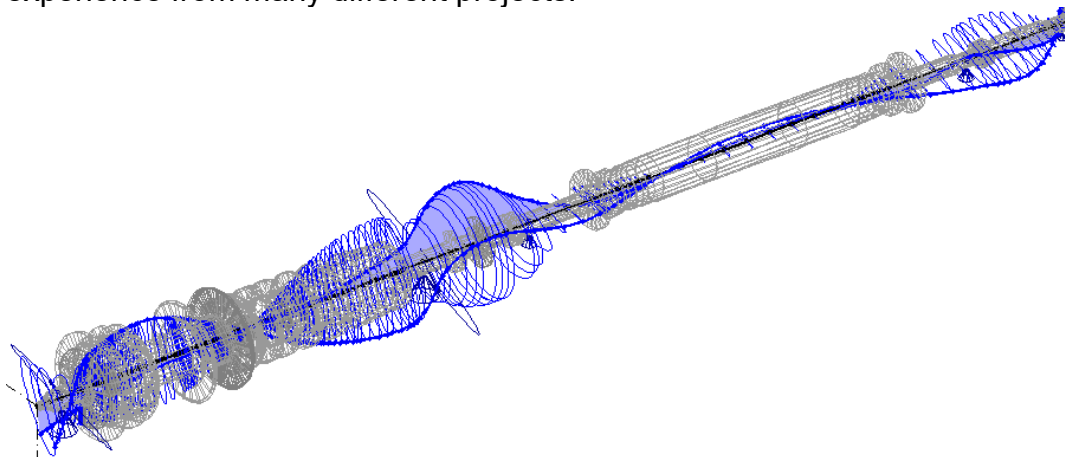
DELTA JS is a leading engineering and consulting company for rotor dynamics. Its in-house developed, commercial software MADYN 2000 is widely used in the realm of rotating industrial machinery to simulate the dynamics of complex rotor-gear-bearing systems with all types of bearings including fluid film bearings, rolling element bearings and active magnetic bearings.

Participants will get an insight into the vast experience of the DELTA JS engineering team with **industrial rotating machinery**. Practical relevance is ensured. Fundamental **rotor dynamic phenomena**, basic **design rules**, different types of **bearings** and their properties as well as **engineering and design standards** (ISO, API) are explained. **Case studies** of experienced problems and phenomena, which are usually not considered in standard engineering practice, are presented as well.

Attendees will be able to better anticipate potential **risks of rotating machinery** and to participate actively in the investigation of **rotor vibration problems**. Thus, the seminar is suited for many engineers of manufacturers, plant constructors, contractors and machine end users (rotating equipment specialists, design engineers, commissioning engineers, sales engineers, and project managers).

For those, who are interested in learning more about the actual **rotor dynamic analysis**, an additional day is offered. During this day participants can actively carry out a lateral and torsional analysis with **MADYN 2000**.

Course instructors are experienced engineers of DELTA JS: Dr. Joachim Schmied, who is the founder of DELTA JS, Dr. Andreas Fuchs, who is a recognised expert in the area of fluid film bearings, Frédéric Gaulard and Gianpaolo Rubbera, who have a wide experience from many different projects.



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## Contents of the Seminar (2 days):

- Basics of Rotor Dynamics
  - The Role of Rotor Dynamics in Machine Design
  - Resonance and Damping
  - Unbalance and Self-Excited Vibrations in Rotor Systems
- Lateral Analyses
  - Consideration of Bearings and Supports
  - Natural Vibration Modes, Stability
  - Unbalance Response
  - Standards for Engineering
- Torsional Analyses
  - Natural Vibration Modes
  - Potential Torsional Resonances
  - Transient Torsional Response
  - Assessment of Coupling Forces and Stresses
- Properties of Different Bearing Types
  - Rolling Element Bearings
  - Fluid Film Bearings, Oil Whirl / Whip
  - Active Magnetic Bearings
- Case Studies (experienced phenomena in real systems)
  - Rotor Stability with Tilting Pad Bearings (synch., non-synch. properties)
  - Coupled Rotor Casing Resonance
  - Coupled Rotor Disk Vibration
  - Coupled Torsional Lateral Vibrations
  - Gear Mesh Excitation
  - Rubbing
  - Internal Friction
  - Acoustic Excitation
  - Hot Spots (Morton Effect)

After each block there will be time for discussions. All attendees will receive the seminar documents in English.

## Additional Day (optional):

### Rotor Dynamic Analysis with MADYN 2000

- Introduction to MADYN 2000
- Guided Exercises: Lateral Analysis of a Compressor,  
Torsional Analysis of a Compressor Shaft Train
- Demonstrations and further Discussions

## Organisational Information

The seminar will take place online. Registered participants will receive a link to log into the seminar. The documentation will be distributed as PDF documents beforehand.

The seminar will take place over a period of 8 hours on each day starting at 9:00 Swiss time. Pure presentation time per day will be about 4 to 5 hours. Between sections of the seminar time to answer questions is foreseen. At the end of each block practical problems of real machinery will be discussed. The description of the problems is part of the documentation. Between blocks and over lunch time there will be breaks. A detailed time schedule will be distributed in advance.

For the optional 3<sup>rd</sup> day each participant will receive a download link to install MADYN 2000 with a temporary licence and examples.

**Please register [Online](#).**

Deadline for binding registration is April 12<sup>th</sup>.

DELTA JS reserves the right to cancel the seminar in case too few people sign up at this date.

## Fee and Payment

**Seminar (2 days): CHF 1'600**

**Optional additional day: CHF 400**

Invoice will be issued upon registration.