

# Agenda

## Rotating machinery dynamics

- 8 a.m. Welcome and coffee
- 8:30 a.m. Order analysis and tracking
- What is an order? How is it calculated?
  - How are orders measured, simulated and interpreted?
  - Review of orders generated by common equipment
- 9:30 a.m. Torsional vibration
- What is torsional vibration?
  - How are torsional vibrations measured and analyzed?
  - Resonances, drivelines, engines and other examples
  - Lumped parameter models of torsional vibration
- 10 a.m. Break
- 10:15 a.m. Gears
- Gear transmission error
  - Gear sideband orders: eccentric gears and offset rotation
- 11:30 a.m. Lunch
- 12:30 p.m. Bearings
- Bearing frequencies: inner race, outer race, fundamental train frequency
  - Bearing faults and envelope analysis
- 1 a.m. Pumps
- Hydraulic pump basics
  - Cavitation
- 1:30 a.m. Electric motors
- AC and DC motors
  - Computation orders
  - Switching frequencies and PWM Controllers
- 2 p.m. Break
- 2:15 p.m. Balancing
- Imbalance: mass vs speed effects
  - Influence coefficients
  - Shaft centerline plots
- 2:45 p.m. Angle domain processing

- Angle versus time data
- Viewing data in degrees, revolutions or cycles
- Examples of angle domain analysis: piston slap, pilot ignition, etc.

3:15 p.m

Resonances

- What is a resonance? How is it identified?
- Operational deflection shapes
- CAE and test correlation

4:30 p.m.

Close – General Q&A

Agenda changes will be made at the discretion of Siemens PLM Software

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