# ROTORINSA®

Development: Guy Ferraris, Marie Ange Andrianoely, Alain Thivillier
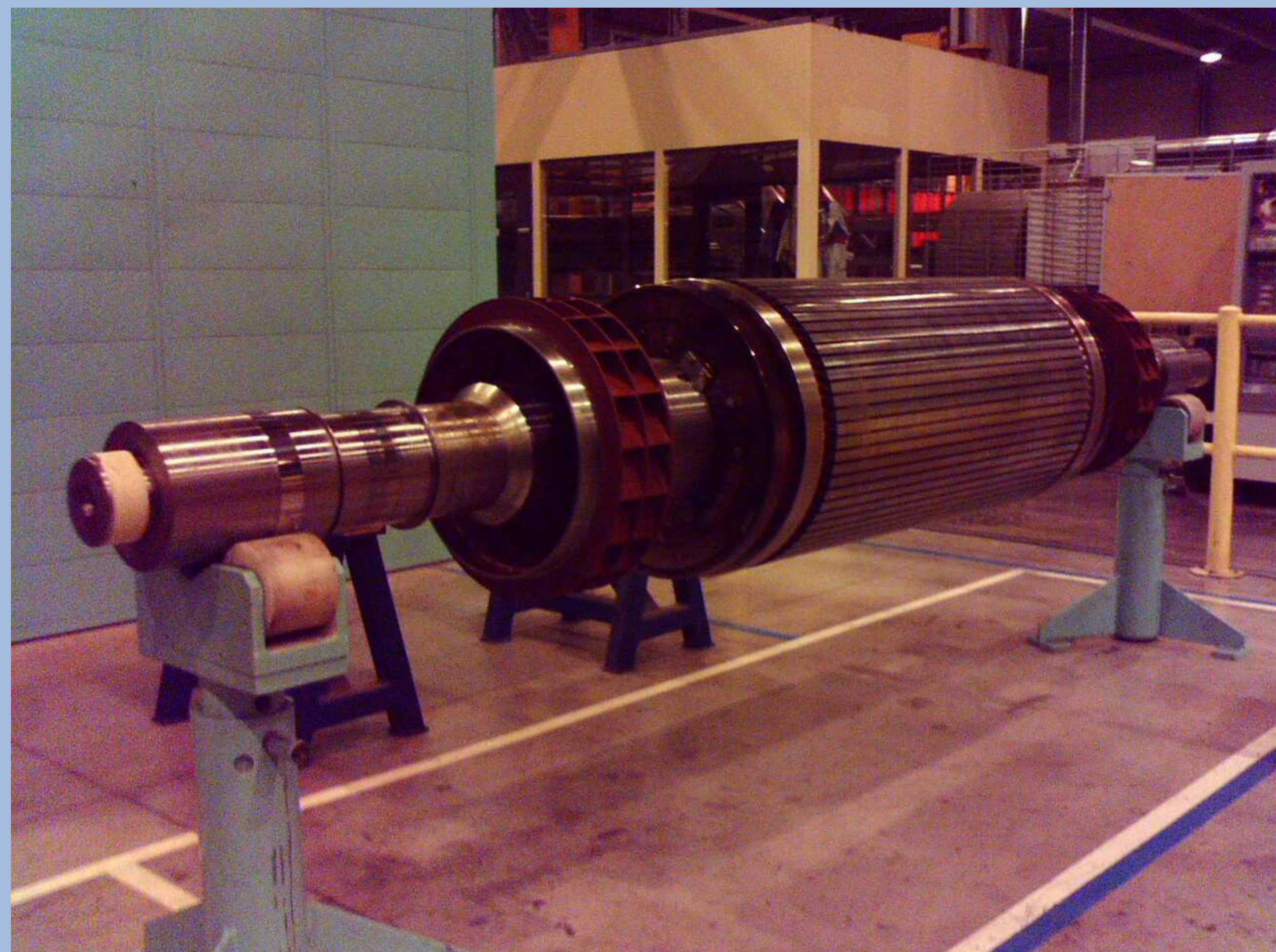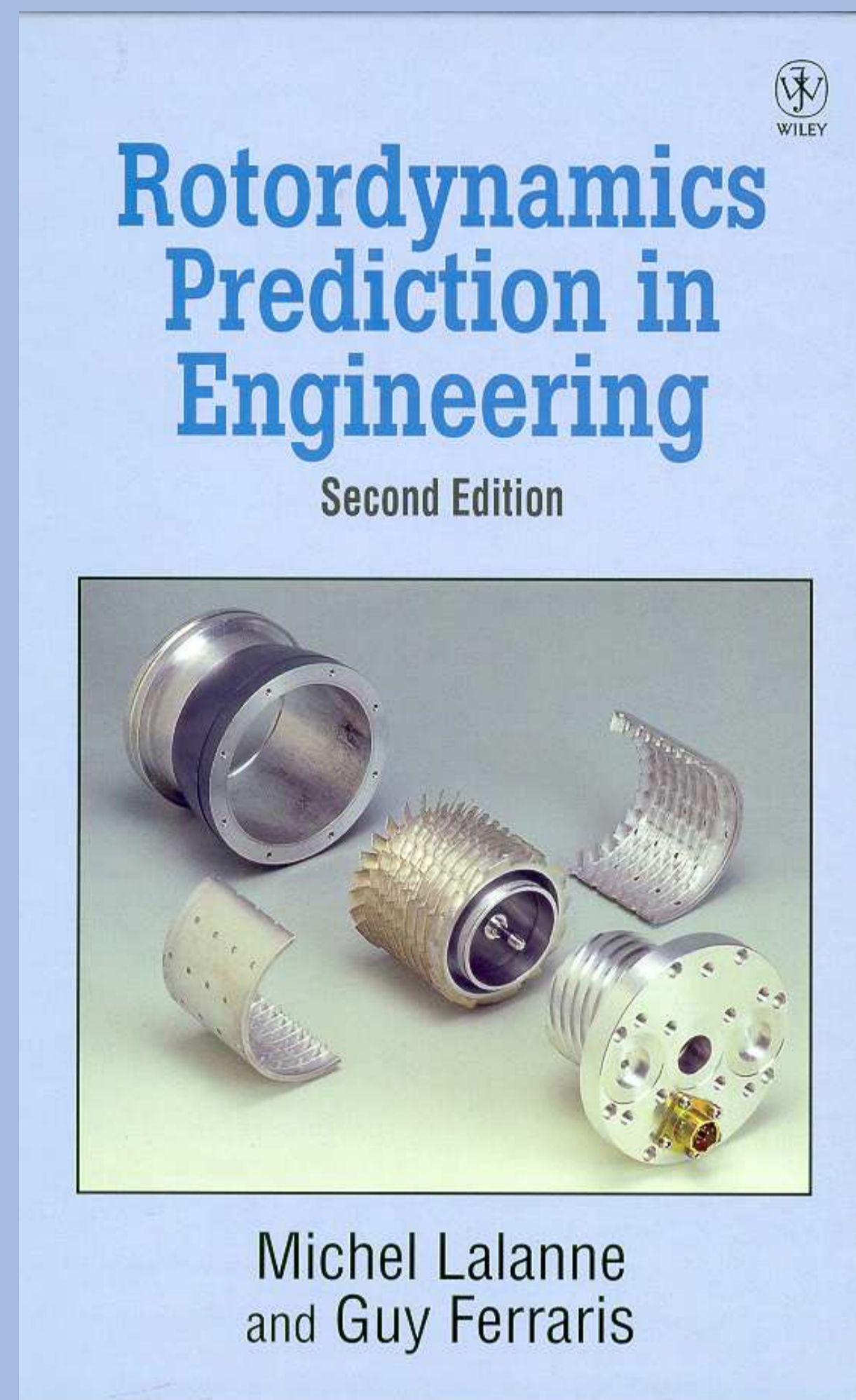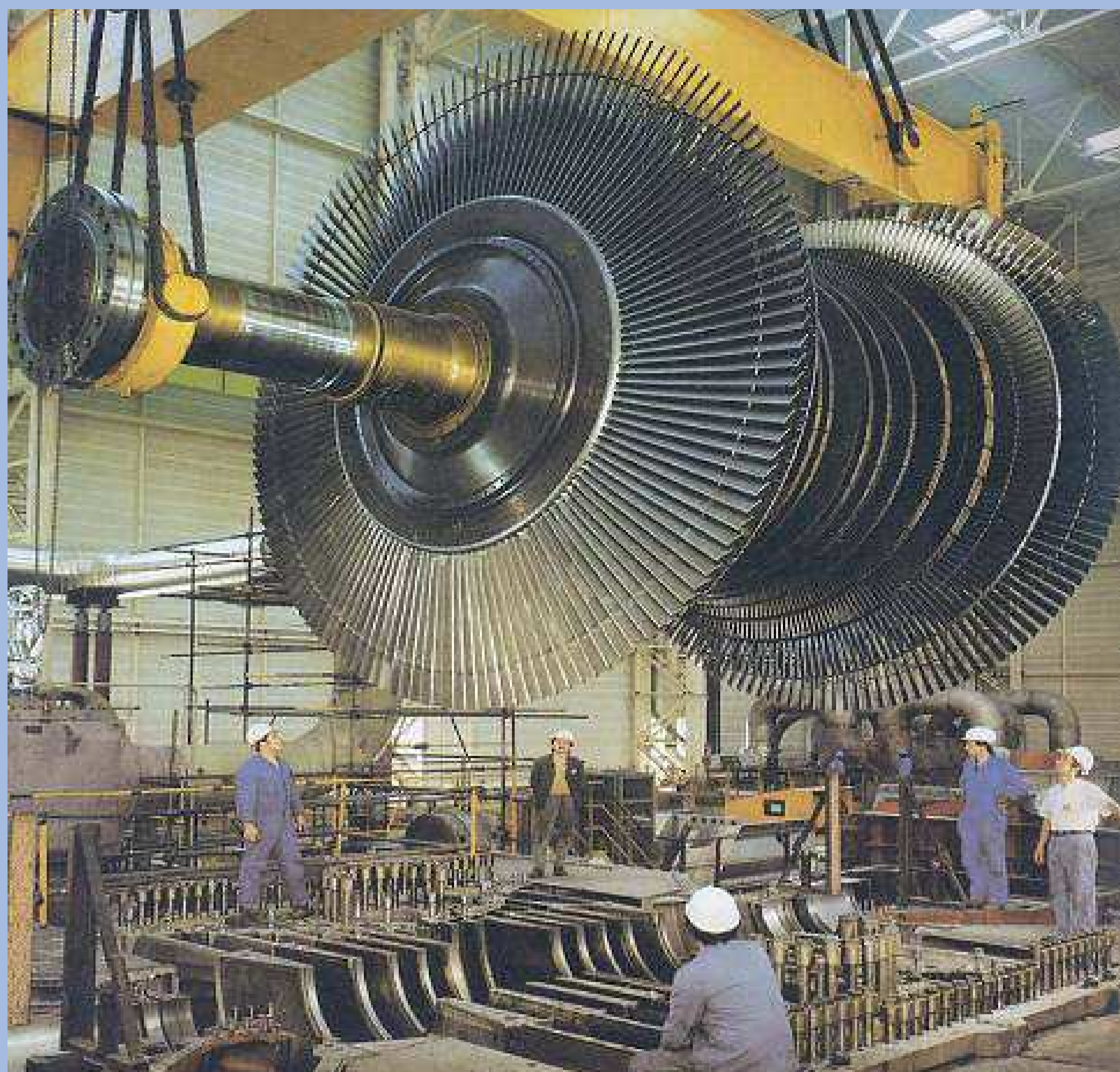LaMCoS, INSA-Lyon, CNRS UMR 5259

**LaMCoS** UMR 5259

## Finite element software for the prediction of the dynamic behavior of rotors in bending



Rotordynamics Prediction in Engineering
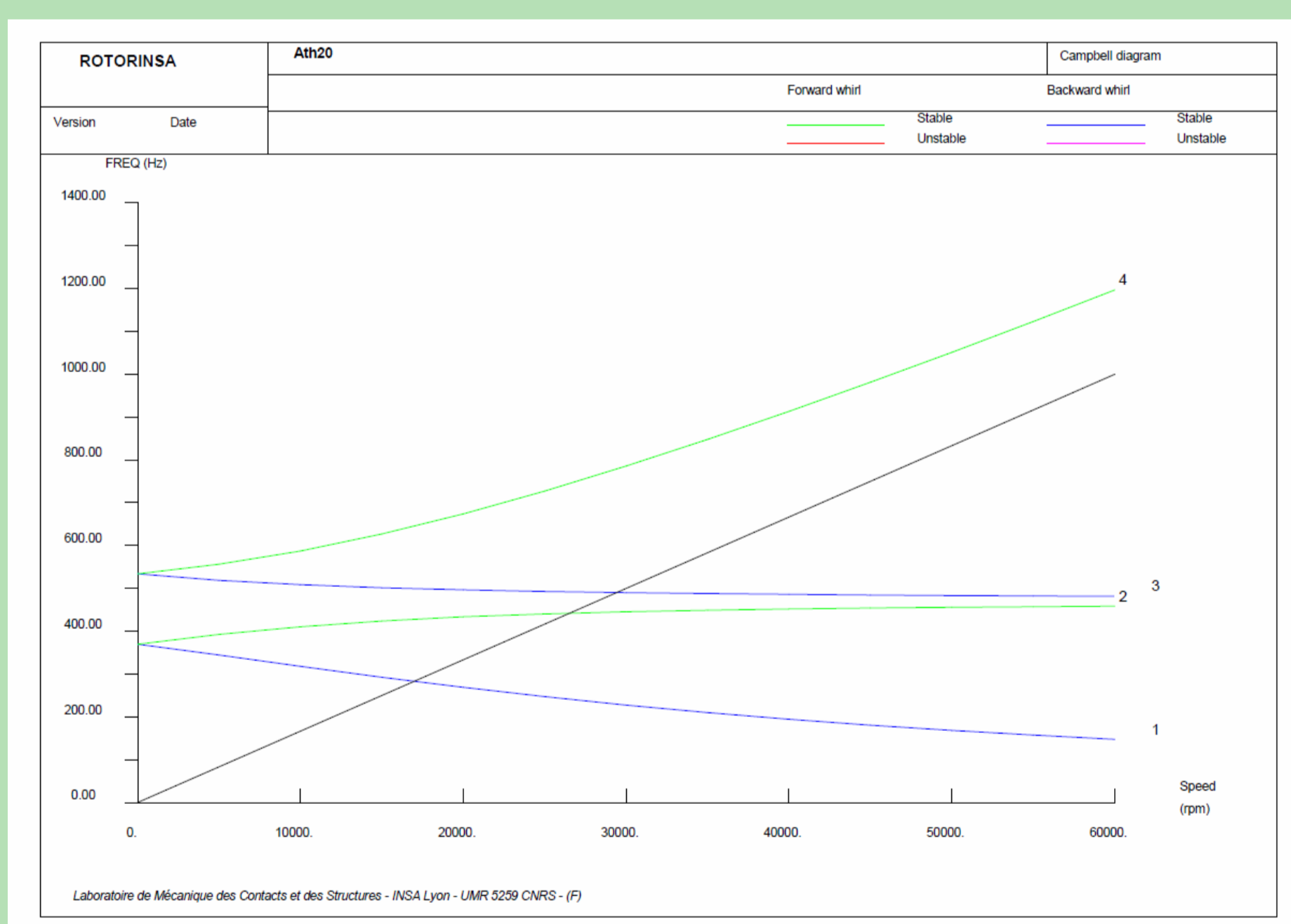Second Edition

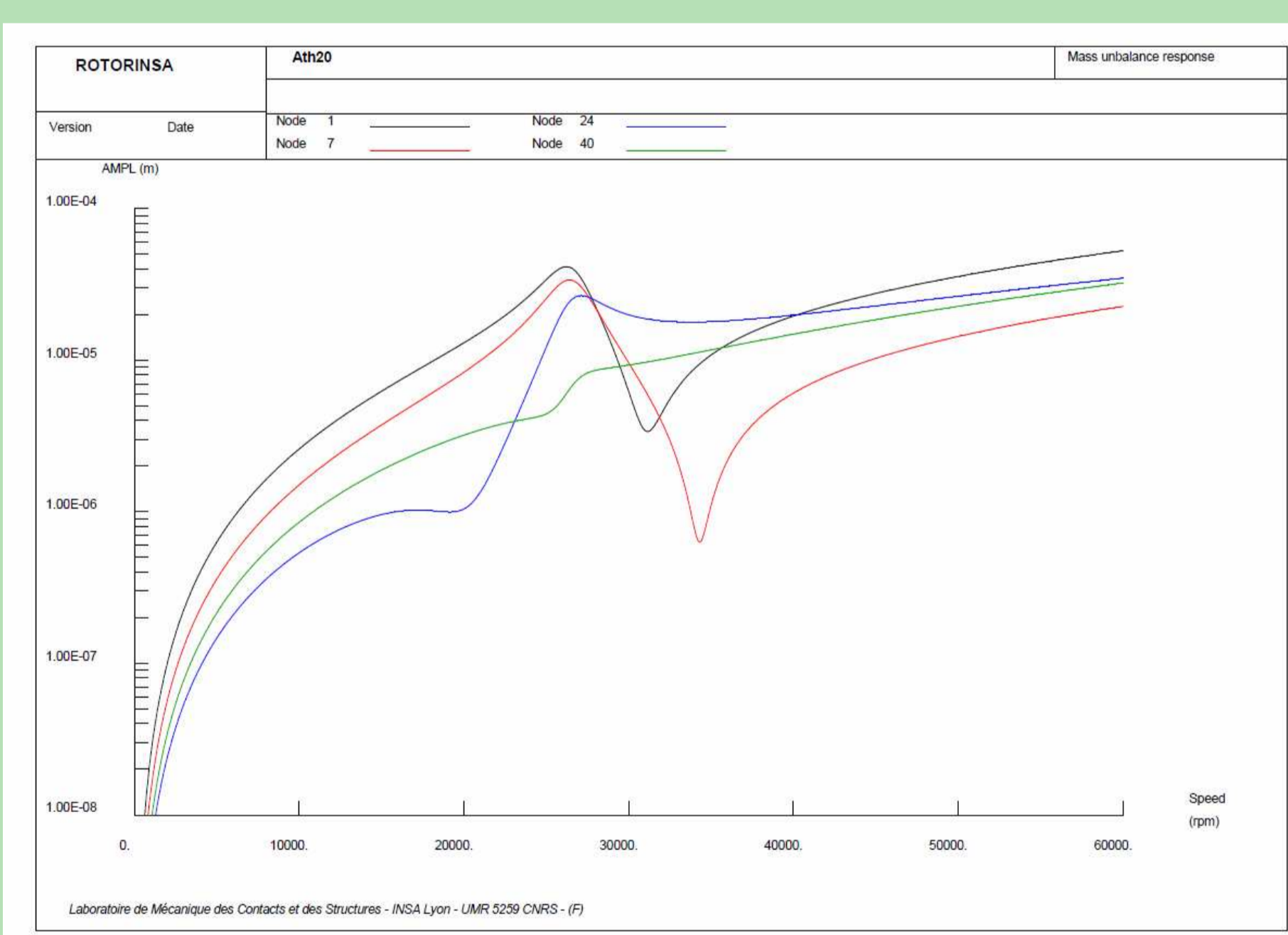Michel Lalanne and Guy Ferraris

## Preprocessor



## Capabilities

- Static deflection: gravity body force, concentrated forces.
- Natural frequencies, mode shapes, damping factors, instabilities.
- Mass unbalance response.
- Asynchronous force response.
- Harmonic response to a force fixed in space.
- Magnetic force.
- Active Magnetic Bearing.
- Maximum stresses, maximum loads on bearing.
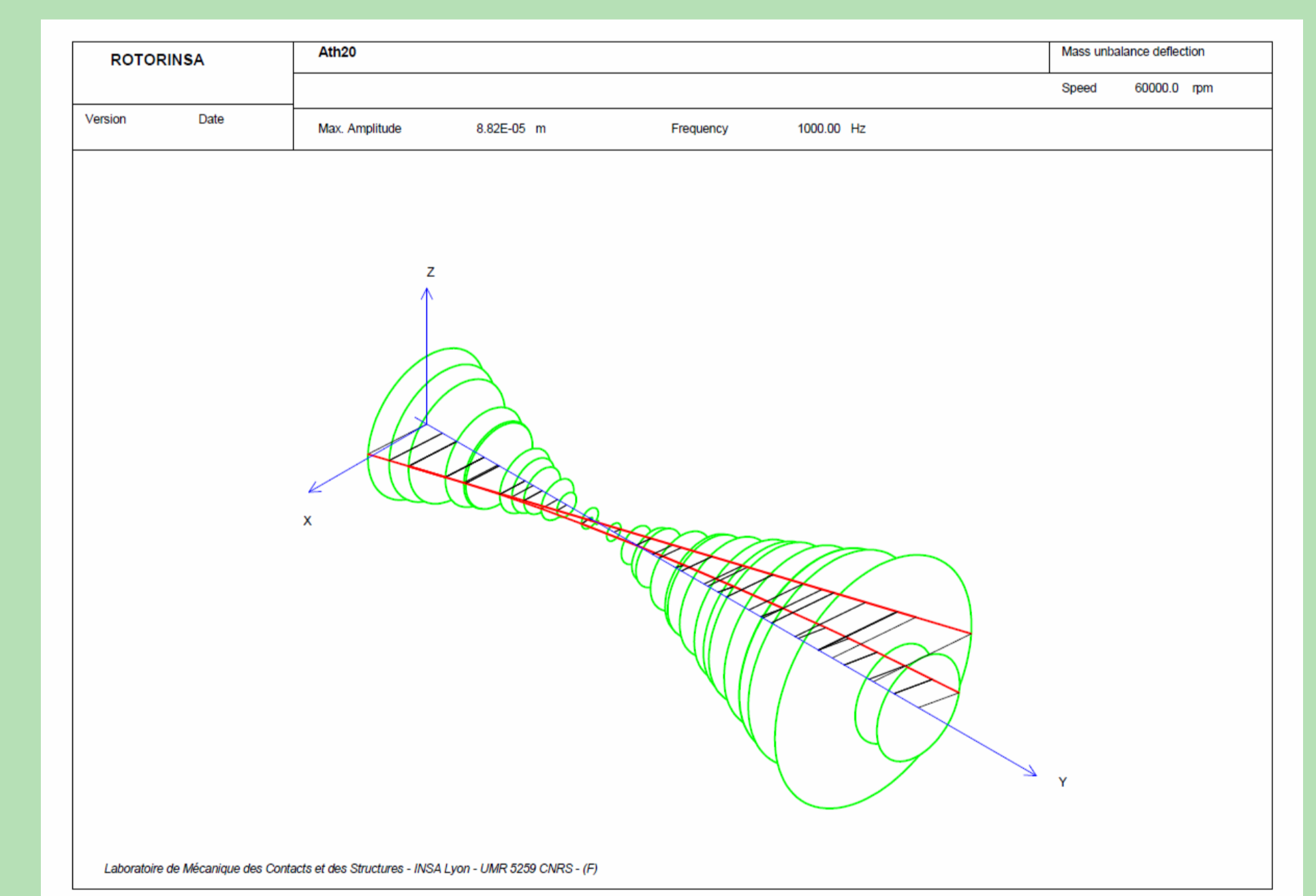- Elementary energies.

## Campbell diagram



## Response amplitudes



## Deflection



## Expertise

The expertise of the Laboratory on rotordynamics has been greatly gained from contacts with companies and state organizations over a period of nearly thirty years.

- Air Technologies,
- ALSTOM,
- AREVA – Jeumont,
- CEA,
- Converteam,
- Danfoss,
- EADS Eurocopter,

- EDF & Code_Aster,
- FLENDER Graffenstaden,
- Honeywell Turbo Technologies,
- IFP,
- Leroy-Somer
- Liebherr
- Metravib,
- Microturbo,

- Petrobras,
- SAGEM,
- SNECMA,
- Technofan,
- Tecumseh Europe,
- Thermodyn  GE Oil & Gas,
- Total,
- Vibratec…

## Other rotordynamics softwares

- Torsion
- Multirotor

## Course

- INSA Lyon, INPG Grenoble,
- University of Campinas, Petrobras Rio de Janeiro, Tufts University Boston,
- Short course: INSACAST, CEA Pierrelatte, CISM Udine, EADS Eurocopter Marignane, …

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