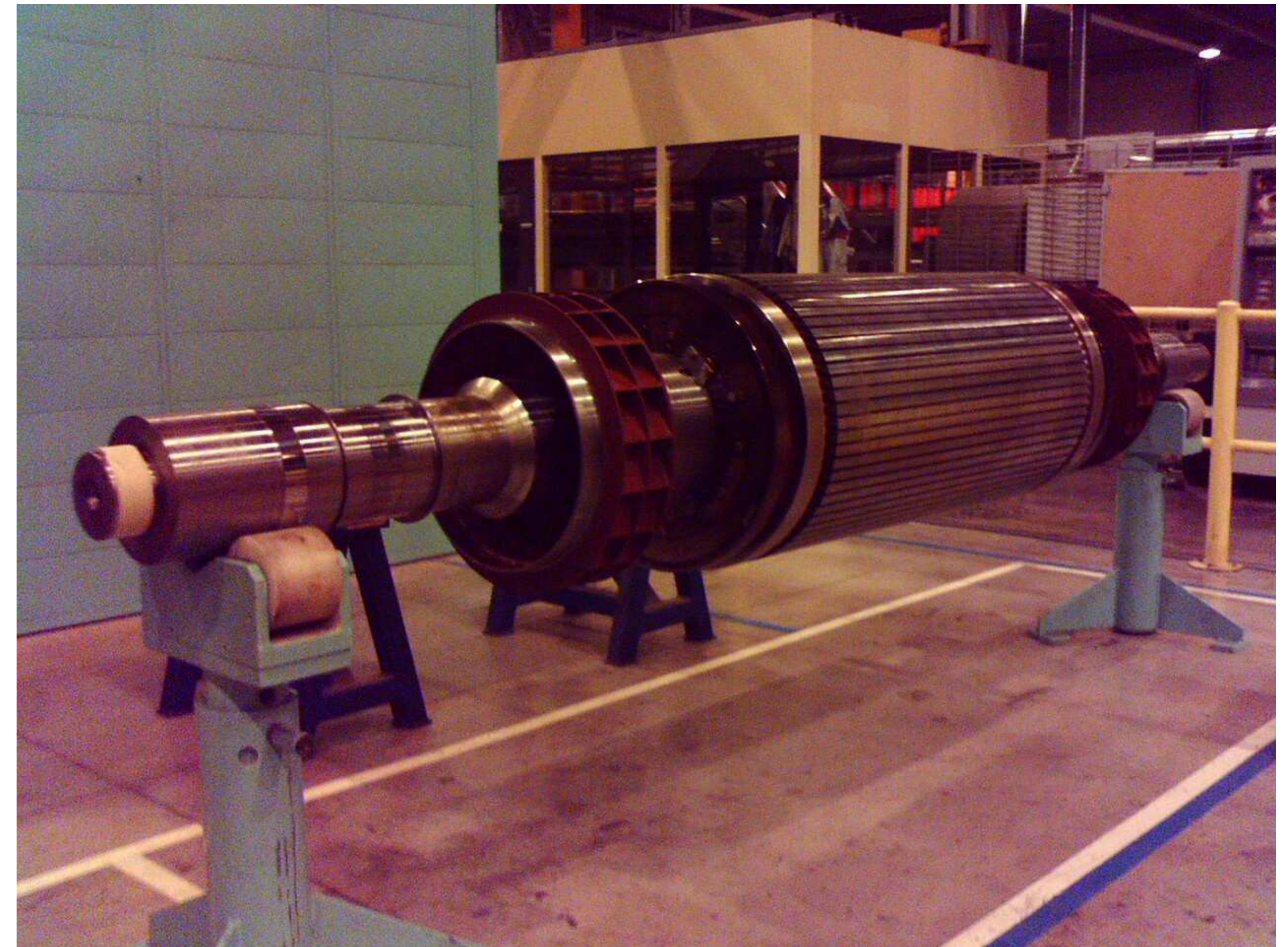
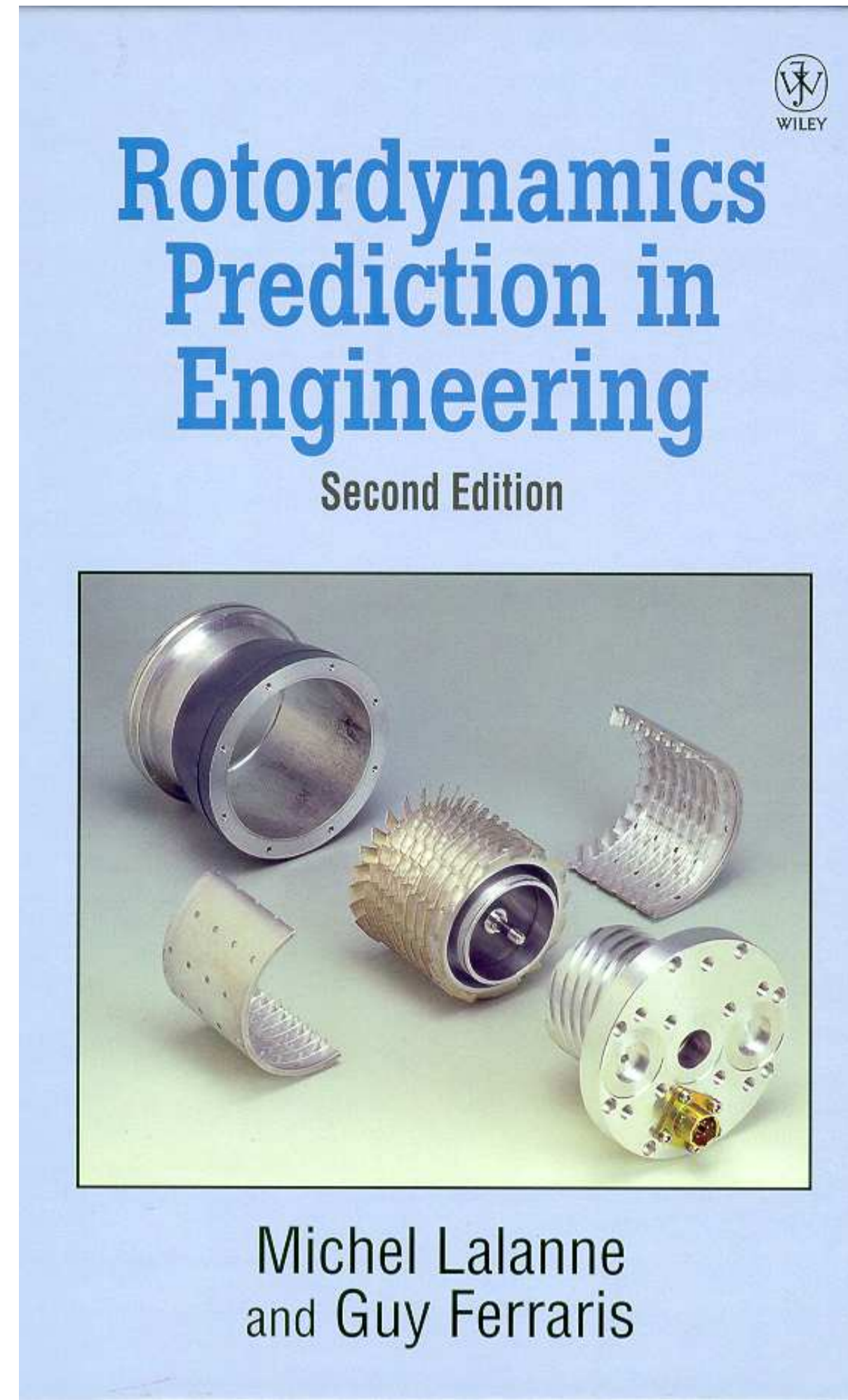
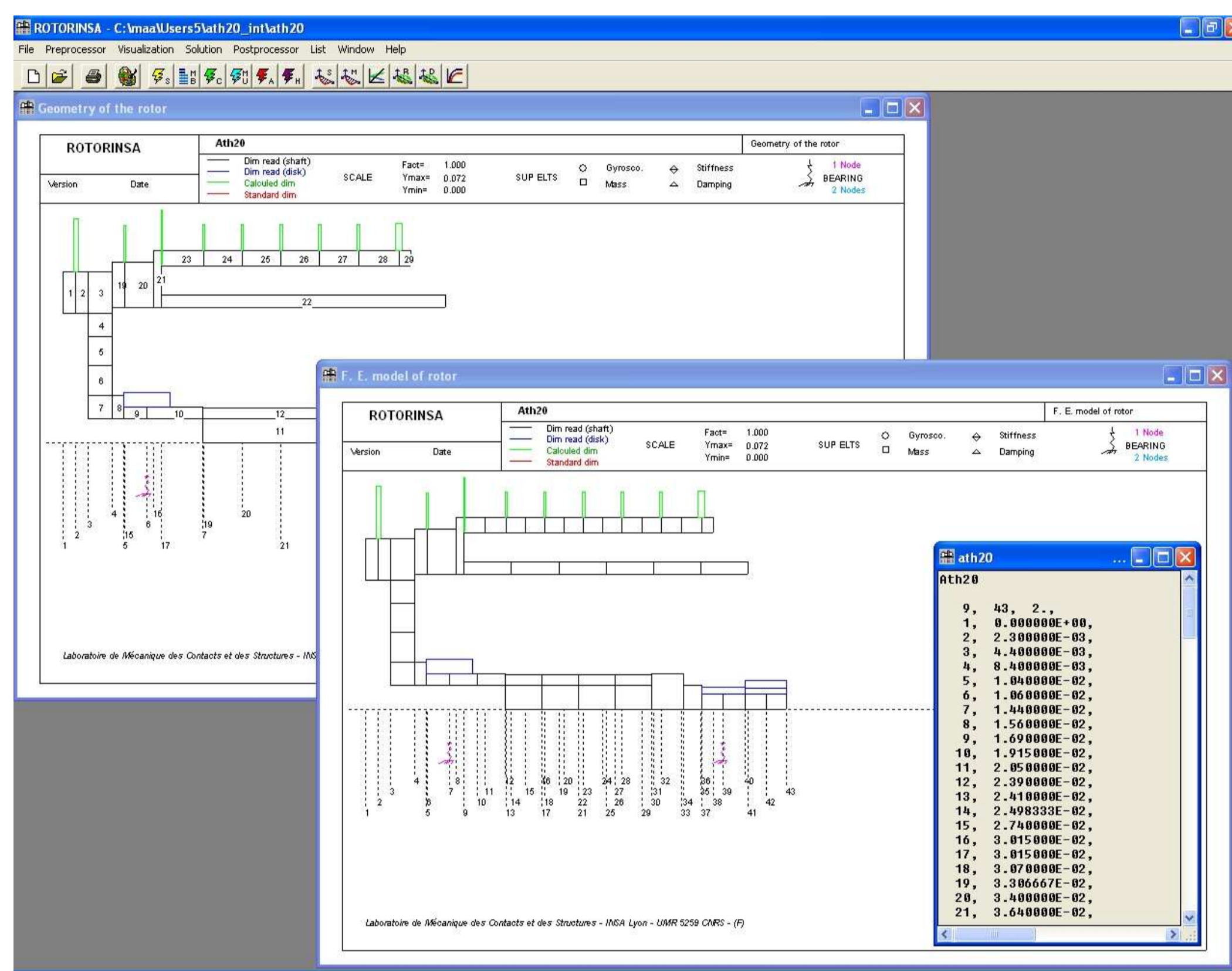


Finite element software for the prediction of the dynamic behavior of rotors in bending



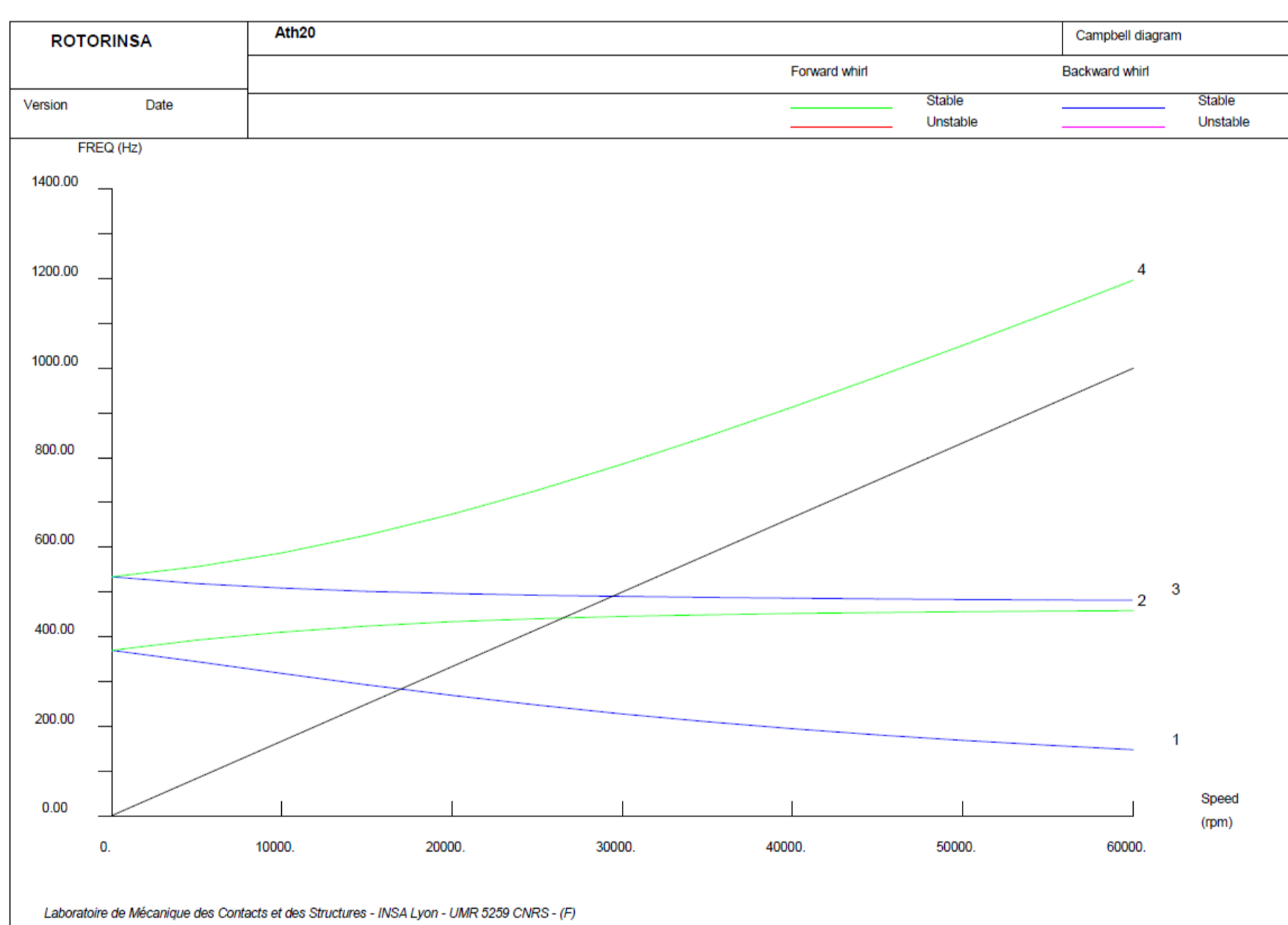
**Preprocessor**



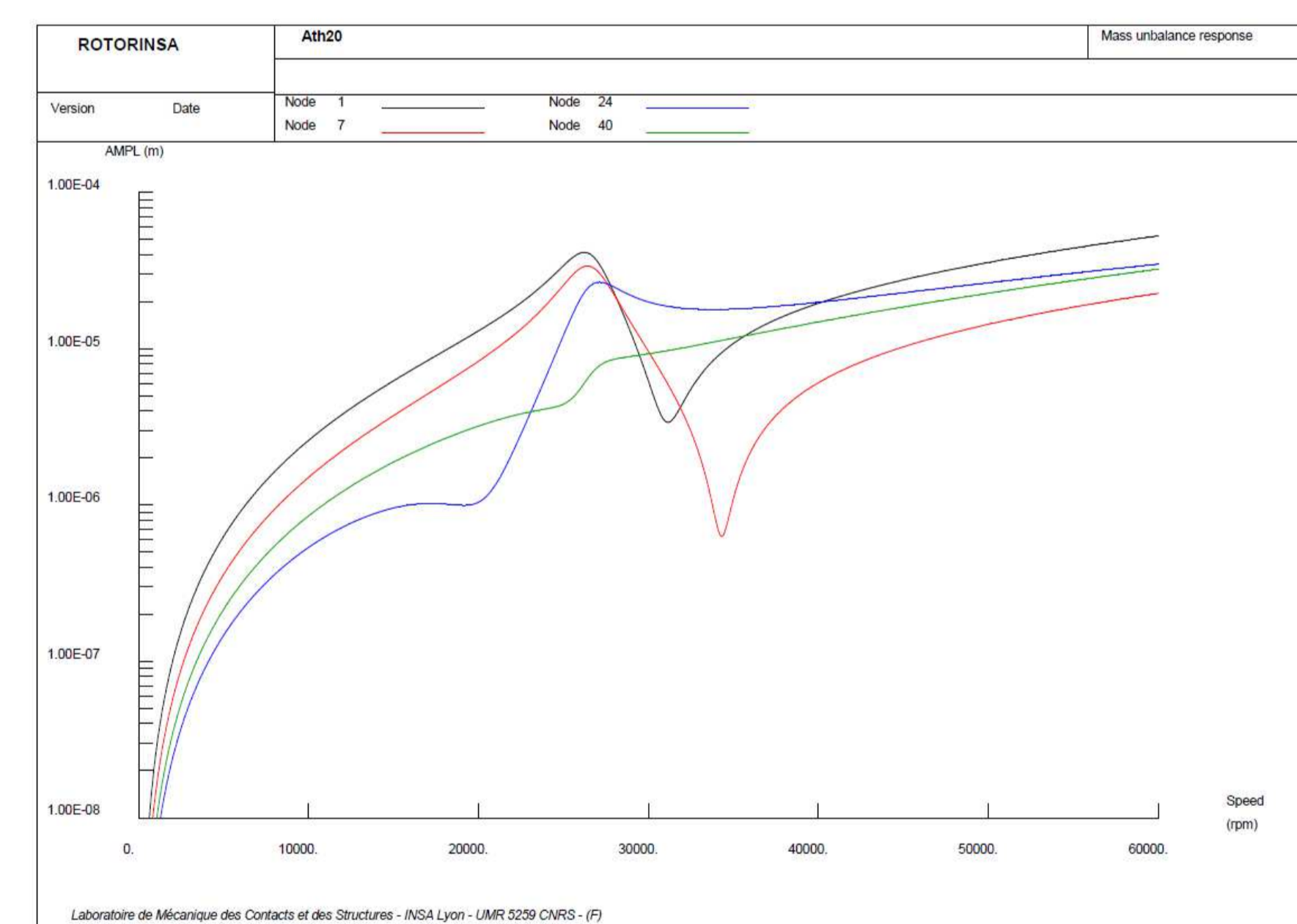
**Capabilities**

- 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.

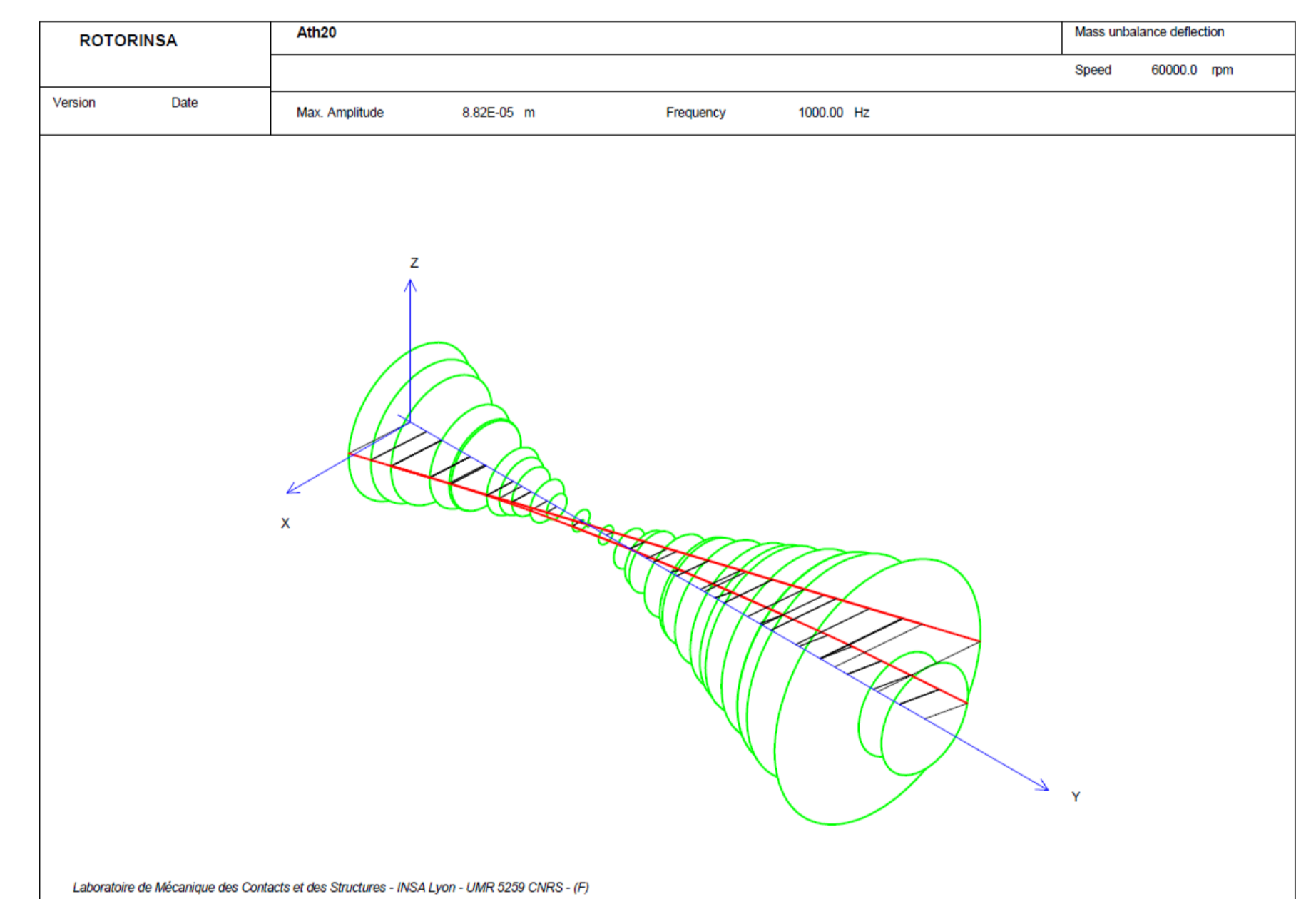
**Campbell diagram**



**Response amplitudes**



**Deflection**



**Expertise**

The expertise of the Laboratory on rotordynamics has been greatly gained from contacts with companies and state organizations since 1980's.

Airbus Eurocopters,  
Air Technologies,  
ALSTOM,  
AREVA - Jeumont industry,  
CEA,  
CNES,  
Danfoss,  
DCNS,  
EDF & Code\_Aster,  
FLENDER Graffenstaden,

GE Power Conversion - Converteam,  
GE Oil & Gas – Thermodyn,  
Honeywell Turbo Technologies,  
IFP,  
Leroy-Somer,  
LIEBHERR - Aerospace,  
Metravib,  
Microturbo,  
Nuevo Pignone,  
Petrobras,

SAGEM,  
Shenyang Turbo - Machinery,  
SNECMA,  
Technofan,  
Technivib,  
Tecumseh Europe,  
Total,  
Turbomeca,  
Vibratec,  
Westinghouse Electric Co...

**Other rotordynamics softwares**

- Torsion
- Multirotor

**Course**

INSA Lyon, INPG Grenoble,  
University of Campinas, Petrobras Rio de Janeiro,  
Tufts University Boston,  
Training: INSACAST, CEA Pierrelatte, CISM Udine,  
Airbus Eurocopters, Renault Sport F1...

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