



# **Proceedings of SIRM 2021**

## **The 14<sup>th</sup> International Conference on Dynamics of Rotating Machines**



**Editors**  
**Grzegorz Żywica**  
**Tomasz Szolc**

**February 17-19, 2021**  
**Gdańsk, Poland**



**Proceedings of SIRM 2021**  
**The 14<sup>th</sup> International Conference on**  
**Dynamics of Rotating Machines**

**Gdańsk, Poland, February 17-19, 2021**

**Organised by**  
**Institute of Fluid Flow Machinery (IMP PAN) &**  
**Institute of Fundamental Technological Research (IPPT PAN)**  
**Polish Academy of Sciences**

**Edited by**  
**Grzegorz Żywica & Tomasz Szolc**



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# Preface

The conference “Dynamics of Rotating Machines – SIRM 2021” was the fourteenth edition of this international event. The SIRM conference has been an excellent opportunity to promote vital discussions between machine manufacturers, machine operators and scientists interested in rotor dynamics and other related fields.

This year's edition of the SIRM conference was organised in Gdańsk (Poland) by two institutes of the Polish Academy of Sciences: the Institute of Fluid Flow Machinery from Gdańsk (IMP PAN) and the Institute of Fundamental Technological Research from Warsaw (IPPT PAN). Due to the global COVID-19 pandemic, this year's conference was held online. Although a virtual conference does not offer participants an opportunity to meet personally, the organising committee tried its best to make it look as similar as possible to previous SIRM conferences. Therefore, similarly as in the case of past conferences, the sessions were split into three days, and after each presentation all participants could ask questions to the authors. All discussions were held live via video and audio streaming. Despite the very difficult pandemic situation, the SIRM 2021 conference was not only an opportunity to meet and participate in discussions with a large group of specialists, but also the only possible way to maintain long-term professional and personal relationships between participants. What we find particularly positive in these difficult times, is the fact that the scientific and industrial community of people interested in rotor dynamics is sticking together and everyone is motivated to do something together.

In the current edition of the SIRM conference, among more than a dozen session topics, "Rotor dynamics" was the most popular topic. This proves that the main theme of the conference has not become outdated and that our meetings are still very much needed. 40 presentations in total were presented during 9 thematic sessions and the conference was attended by around 70 participants from countries such as Germany, Poland, Austria, Czech Republic, Switzerland, Finland, Denmark, Greece, Russia, Slovakia and South Korea.

The proceedings of the 14th International Conference on Dynamics of Rotating Machines (SIRM-2021) has the same structure as the conference programme. The papers appear in the chapters in the order in which they were presented in subsequent thematic sessions of the conference. Authors of the selected presentations were invited to publish extended versions of their papers in two international journals, namely the Bulletin of the Polish Academy of Sciences: Technical Sciences and the Journal of Engineering for Gas Turbines and Power – Transactions of the ASME.

As members of the organising committee of the SIRM 2021 conference and editors of the conference proceedings, we would like to sincerely thank everyone involved in its organisation. Our thanks go to the other members of the organising committee, in particular to Professor Jan Kiciński and Professor Tadeusz Burczyński, as well as to the conference secretary Bartosz Czoska. We would also like to thank all the members of the scientific committee for their valuable comments on the organisation of the conference, the time spent preparing the reviews and chairing the thematic sessions. We also thank all the authors of the papers and the conference speakers. This conference could not take place without your participation!

Our special thanks go to all the sponsors, namely ENVIBRA, DEWESoft and EC TEST Systems. Their support was noted and very much appreciated by both organisers and participants of the conference.

Gdańsk, February 2021  
The Editors





# *Table of Contents*

## **Rotor dynamics 1**

- Balancing of flexible rotors by means of calculated influence coefficients** 1  
Rainer Nordmann, Eric Knopf, Thomas Krueger, Bastian Abrate
- Quasi-analytical solutions for the whirling motion of multi-stepped rotors with arbitrarily distributed mass unbalance running in anisotropic linear bearings** 14  
Michael Klanner, Marcel S. Prem, Katrin Ellermann
- State of the art rotordynamic analyses of pumps** 24  
Frédéric Gaulard, Joachim Schmied, Andreas Fuchs

## **Bearings and Seals**

- Consideration of fluid inertia and cavitation for transient simulations of squeeze film damped rotor systems** 34  
Thomas Drapatow, Oliver Alber, Elmar Woschke
- Study of the load capacity and vibration stability of rotors supported by hydrodynamic bearings lubricated by magnetically sensitive oil** 44  
Jaroslav Zapoměl, Petr Ferfecki
- Simulative investigation of rubber damper elements for planetary touchdown bearings** 53  
Benedikt Schüßler, Timo Hopf, Stephan Rinderknecht
- Alternative materials for tilting pad thrust bearings operating in start stop regime** 62  
Michał Wasileczuk, Michał Wodtke
- Analysis of dynamical behaviour of rotors under axial load supported by full floating disk thrust bearing** 72  
Steffen Nitzschke, Christian Ziese, Elmar Woschke

## **Balancing and Stability**

- Balancing of a linear elastic rotor-bearing system with arbitrarily distributed unbalance using the numerical assemble technique** 82  
Georg Quinz, Marcel S. Prem, Michael Klanner, Katrin Ellermann

<b>Investigating the influence of rolling friction on the stable operation of automatic balancing units</b>	92
<u>Lars Spannan</u> , Elmar Woschke	
<b>Excited vibration cases in critical machinery</b>	100
<u>Piotr Miałkowski</u> , Nicolas Péton	
<b>Bifurcations and instability mechanisms in rotor systems generated by nonlinear bearings of complex design and elastic pedestals</b>	110
<u>Lysandros Anastasopoulos</u> , Athanasios Chasalevris	
 <b>Rotor Dynamics 2</b>	
<b>Rotor dynamics - still open questions</b>	122
<u>Jan Kiciński</u>	
<b>Run-up simulation of a floating ring supported turbocharger rotor with thrust bearing considering mass-conserving cavitation</b>	134
<u>Christian Ziese</u> , Cornelius Irmscher, Steffen Nitzschke, Elmar Woschke	
<b>Run-up simulation of an automotive turbocharger rotor using an extensive thermo-hydrodynamic bearing model</b>	145
<u>Cornelius Irmscher</u> , Christian Ziese, Martin Kreschel, Elmar Woschke	
<b>SBFEM for the Reynolds equation in rotordynamic simulations</b>	156
<u>Simon Pfeil</u> , Hauke Gravenkamp, Fabian Duvigneau, Elmar Woschke	
<b>High speed drop down in a planetary touch-down bearing of an outer rotor flywheel system</b>	166
<u>Benedikt Schüßler</u> , Timo Hopf, Daniel Franz, Maximilian Schneider, Stephan Rinderknecht	
 <b>Rotor Dynamics 3 &amp; Vibration Control</b>	
<b>Active vibration control of a gyroscopic rotor using experimental modal analysis</b>	175
<u>Jens Jungblut</u> , Christian Fischer, Stephan Rinderknecht	
<b>Stability and sensitivity analysis of lateral vibrations of the rotating machines with overhung rotors</b>	185
<u>Tomasz Szolc</u> , Robert Konowrocki	
<b>Dynamic characteristics of a high-speed supercritical rotor with a significant overhang</b>	195
Grzegorz Żywica, <u>Paweł Zych</u> , Małgorzata Bogulicz	

**Investigation of steady-state harmonic axial and torsional vibrations of linear rotors under arbitrarily distributed loading using the Numerical Assembly Technique** 205  
Bernhard Blümel, Michael Klanner, Katrin Ellermann

**Model-based residual unbalance identification for rotating machines** 215  
Satish Bastakoti, Tuhin Choudhury, Risto Viitala, Emil Kurvinen, Jussi Sopanen

## Case Studies

**Turbogenerator train high level 0.9X vibration problem – from test plan to resolution** 225  
Piotr Miąkowski

**Integral Gear Compressor diagnostics assisted by rotor-bearing model** 235  
Piotr Miąkowski

**Virtual framework for the torque load application system of a 10 MW test bench for nacelles of wind turbines** 244  
Muhammad Omer Siddiqui, Paul Feja, Mohsen Neshati

**SSS clutch issue** 252  
Sergey Drygin, Nicolas Péton, Sunghwan Kim

**Failure analysis of impeller made of martensitic precipitated hardening stainless steel in moist hydrogen sulfide environment** 266  
Jakub Łagodziński, Zbigniew Kozanecki, Eliza Tkacz

## Foil Bearings

**A novel approach to designing gas foil bearings - concept, numerical simulations and prototype construction** 276  
Adam Martowicz, Jakub Roemer, Paweł Zdziebko, Sławomir Kantor

**Structural modelling of a foil-gas bearing with use of the harmonic balance method to calculate its limit cycles** 286  
René Groezinger, Michael Mayer, Sietze van Buuren, Bernhard Schweizer

**Experimental study of various low-friction coatings for use in a high temperature foil bearing** 302  
Paweł Bagiński, Grzegorz Żywica

**Dynamics of a rotor supported by active foil bearings – a numerical study** 312  
Łukasz Breńkacz, Małgorzata Bogulicz

<b>Foil bearings tests in the Start-Stop cycle for various operational conditions</b>	323
<u>Bartosz Moczulak, Wojciech Miąskowski</u>	

## **Identification and Diagnostics**

<b>Model parameter estimation of ball bearings using generalized Polynomial Chaos Expansion</b>	331
---	-----

Marcel S. Prem, Michael Klanner, Katrin Ellermann

<b>Analysis of control methods for the jet engine rotor with magnetic bearings</b>	341
--	-----

Paulina Kurnyta-Mazurek, Tomasz Szolc, Maciej Henzel, Krzysztof Falkowski

<b>Detection of wear damage by measuring the strains in ball-constant-velocity joints under operation conditions</b>	351
--	-----

Andreas Zörnig, Christian Daniel, Hendrik Schmidt, Elmar Woschke

## **Turbomachines & Electrical Machines**

<b>Determining the influence of casing vibrational behaviour on rotordynamics</b>	360
---	-----

Mona Amer, Martin Paehr, Lars Panning-von Scheidt, Joerg Seume, Joachim Schmied

<b>Reduced modal model of bladed turbine wheel for study of suppression of dangerous self-excited vibration by dry-friction contacts</b>	371
--	-----

Luděk Pešek, Pavel Šnábl, Chandra Shekhar Prasad

<b>A reduced order numerical method for subsonic stall flutter analysis of steam turbine blade cascade</b>	381
--	-----

Chandra Shekhar Prasad, Pavel Snabl, Luděk Pešek

<b>Digital twin of induction motors for torsional analysis of powertrains</b>	391
---	-----

Timo P. Holopainen

Author Index	401
--------------	-----