Curriculum Vitae

Dr. Paolo Tiso
Senior Scientist

Institute for Mechanical Systems
Department of Mechanical and Process Engineering
ETH Zürich, LEE M.205
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BIO

Born in Varese, Italy, on 16.06.1976
Nationality: Italian
Home address: Kleindorfstrasse 50, 8707 Uetikon am See, Switzerland
Married, one daughter (7-years old), one son (5-year-old)

EDUCATION

Ph.D.	Faculty of Aerospace Engineering Delft University of Technology, the Netherlands Dissertation: "*Finite element based reduction methods for static and dynamic analysis of thin-walled structures*" – Advisor: Dr. Ir. Eelco Jansen – Promotor: Prof. Zafer Gurdal	Dec 2006
Laurea	Dipartimento di Ingegneria Aerospaziale Politecnico di Milano, Italy	Oct 2001
M.Sc.	Department of Civil and Environmental Engineering Worcester Polytechnic Institute, MA USA	Aug 2001

EMPLOYMENT HISTORY

Senior Scientist	Chair in Nonlinear Dynamics ETH Zürich, Switzerland	Jan 2015 – present
Assistant Professor	Faculty Mechanical, Maritime and Materials Eng. Delft University of Technology, The Netherlands	Feb 2010 – Dec 2014 (tenured Oct 2014)
Post Doctorate	Faculty Mechanical, Maritime and Materials Eng. Delft University of Technology, The Netherlands	Jan 2009 – Jan 2010
Finite Element Analysis Specialist	Transmission Systems Design & Development AgustaWestland, Italy (now Leonardo Helicopters)	Jan 2007 – Dec 2008
PhD Candidate	Faculty of Aerospace Engineering Delft University of Technology, The Netherlands	Jan 2003 – Dec 2006
Junior Project Engineer	Commercial Airplane Division Alenia Aermacchi, Italy	Jun 2002-Dec 2002

Support and Structural Engineer	Abaqus Italy (now Simulia)	Nov 2001-May 2002
Teaching Assistant	Dept. of Civil and Environmental Engineering Worcester Polytechnic Institute, MA USA	Aug 2000 – Aug 2001

SINGLE PRINCIPAL INVESTIGATOR GRANTS

- Swiss National Science Foundation - Scientific Exchanges grant - *Fast and efficient hyper-reduced parametric models for non-linear structural dynamics* – Amount: *7944 CHF* -April 2023- June 2023. This grant funds the sabbatical visit of prof. Daniel Rixen (Technische Universität Munchen)

- United States Air Force – AFOSR – Grant No. FA8655-22-1-7040 *Aero- **Full**y **Co**upled **Re**duced Order Models for Aero-Thermo-Elastic Analysis of Hypersonic Airframes: FullCoRe -* Amount: 418,491 $ (1 PhD student)- Nov 2022- Nov 2025

- Mobility of the Future Application, "*SENTINEL - In-**SE**rvice diagnostics of the cate**N**ary/pan**T**ograph and wheelset axle systems through **INtEL**ligent algorithms*" – Role: Principal Investigator of 1 PhD project – Amount: 383000 CHF Sep 2022 – Sep 2024

- Swiss National Science Foundation – ***Meso**-scale modeling of **Fri**ction in reduced non-linear interface **D**ynamics: MesoFriDy -* Role: Principal Investigator – Amount: 257464 CHF (1 PhD student, 4 years) - Jan 2019-Dec 2022

- United States Air Force – AFOSR – Grant No. FA9550-18-1-0508 ***A**ero-**TH**ermo-**E**lastic **N**onlinear reduced order modeling for hypersonic **A**irframes: ATHENA -*Role: Principal Investigator – Amount: 246,428 $ (1 PostDoc, 2 years) - Sept 2018-Sept 2020

- United States Air Force – AFOSR – Grant No. 1191404 – ***R**educed **O**rder **M**odeling for Hypersonic **A**eroelasticity: ROMA -* Role: Principal Investigator – Amount: 276,640 $ (1 PhD student, 3 years) - Jan 2016-Dec 2018

CO-INVESTIGATOR GRANTS

- Swiss National Science Foundation – ***C**omputing **H**uman head **E**lastic **W**aves for **B**one **AnCH**ored hearing **A**ids – finite element modeling based on micro-macro validation measurements: CHEWBACHA-* Role: Project Partner (co-supervision of one PhD student with dr. Bart van Damme, EMPA)– Amount: 1028586 CHF - April 2023-March 2026

- OCE Technologies, April 2014 Title: ***DY**namic of **MI**cro**NO**zzles **L**arge **A**rrays (DYMINOLA)*. Main applicant: Prof. Daniel Rixen, Amount: 400000 Euros (1PhD). After the leave of prof. Rixen from TUDelft, the project needed complete redefinition. I largely contributed to the redefinition of the project in collaboration with OCE Technologies representatives.

FURTHER COLLABORATIONS

- Team member of Research Project ***NUME**rically efficient **C**omputational **A**lgorithms for **EMBEDDED** multi-physical systems in vector spaces and manifolds**: NUMECA4EMBEDDED,*** financed by Croatian Scientific Foundation (IP-2016-06-6696)

- Past Member of the interfaculty consortium **DUWind** (2014)

- Philips Innovation Services, Mechatronics, Eindhoven, the Netherlands, research on model order reduction techniques for cable slab dynamics in mechatronic systems - in collaboration with dr.ir. Gert van Schothorst.

PHD STUDENTS/POST-DOCTORAL FELLOWS SUPERVISED

- Alexander Saccani, from November 2022
- Morteza Karamooz, PostDoc at ETH September 2019 - September 2021, now Assistant professor at Tarbiad Modares University
- Ehsan Naghizadeh, from September 2022
- Ahmed Morsy, from February 2021
- Mariella Kast, (2020)
- Urban Fasel, ETH Zürich, graduated July 2020 (co-supervision with Prof. Paolo Ermanni), Now Lecturer at Imperial College
- Jacopo Marconi, ETH Zürich/Politecnico di Milano , graduated October 2021 (co-supervision with prof. Francesco Braghin), now Research Assistant at Politecnico di Milano
- Shobhit Jain, ETH Zürich, defended on 27 March 2019, now Assistant Professor at TU Delft
- Long Wu, Delft University of Technology, graduated 2 July 2018, now Postdoctoral researcher at Delft University of Technology, faculty 3ME.
- Rob Dedden, Delft University of Technology, 2014 (left the supervision when moved to ETH)
- Hugo Peters, Delft University of Technology, graduated 22 March 2016 (co-supervision with prof. A. van Keulen), now System Analyst at VMI Group (The Netherlands)

MSC STUDENTS SUPERVISED

- Francesca Ferrara, ETH Zürich, "Reduced Order Models for aeroelastic systems exhibiting limit cycles", expected graduation July 2023
- Davide Bizzarri, ETH Zürich, "Reduced order modeling for airborne wind energy systems", expected graduation early 2020 (co-supervised with Urban Fasel), 2020
- Patrick Baumann, ETH Zürich, "Substructuring for nonlinear MEMS dynamics", expected graduation early 2020 (co-supervised with Giacomo Marconi)
- Jain van der Broek, ETH Zürich (exchange with TUDelft), "Substructuring methods for frequency dividers", November 2019 (co-supervised with Giacomo Marconi)
- David Sachs, ETH Zürich, "Adaptive reduced order modeling for thermoelastic dynamic analysis", graduated 2017
- Sten Ponsioen, Delft University of technology, "A NURBS based Galerkin projection method for the numerical computation of nonlinear normal modes using invariant manifolds", graduated 2015
- Cees Sombroek, Delft University of Technology (exchange with University of Liege, Belgium), "Bridging the Gap Between Nonlinear Normal Modes and Modal Derivatives", graduated 2015
- Nick Teunisse, Delft University of Technology, "Maximization of the geometric non-linearities of a thin-walled structure in resonance", graduated 2015
- Shobhit Jain, "Model Order Reduction for Non-Linear Structural Dynamics", Delft University of Technology, graduated 2015
- Jelte van Til, Delft University of Technology (exchange with Un. of Santa Catarina, Brasil), "Reduced order modeling of kites", graduated 2015
- Anoop Singh, Delft University of Technology, " Substructuring techniques for magneto-structural problems", graduated 2015
- Ahwin Sridhar, Delft University of Technology, "Nonlinear model reduction of cable slab dynamics ", graduated 2014
- Jan Hein De Jong, Delft University of Technology, "Rigid body simulation with gaming engines " (in collaboration with ESA-ESTEC), graduated 2014
- Fariborz Ghavaniam, Delft University of Technology, "Discrete Empirical Interpolation Method for damaging materials ", graduated 2014
- Marcel Nugteren, Delft University of Technology, "Dynamic Analysis of a Resonance Based Micro Air Vehicle Structure ", graduated 2014
- Hajo Pereboom, Delft University of Technology, "Sensitivity analysis in passive vibration control ", graduated 2014
- Fritz Wenneker, Delft University of Technology, "Component Mode Synthesis for geometrically nonlinear structures ", graduated 2013

- Pauline de Valk, Delft University of Technology, "Accuracy of calculation procedures for offshore wind turbines support structures", graduated 2013
- Nick Geschiere, Delft University of Technology, "Dynamic modeling of a flexible kite for power generation ", graduated 2013
- Rob Dedden, Delft University of Technology, "Model order reduction using the Discrete Empirical interpolation method ", graduated 2012
- Golara Riahi, Delft University of Technology, "Model Order reduction for a Nonlinear Finite Element Model of a Joined Wing structure "graduated 2012
- Allert Bosch, Delft University of Technology, "Finite element analysis of a kite for power generation", graduated 2012

BSC STUDENTS SUPERVISED

- Andre Tieche, ETH Zürich 2020 (co-supervised with dr. Morteza Karamooz)
- Manuel Stähelin, ETH Zürich, 2018
- Alessandro di Giorgio, ETH Zürich (co-supervised with Shobhit Jain), 2017
- Lukas Ulrich, ETH Zürich, 2016

TEACHING

BSc/MSc level courses:

Engineering Mechanics	4 ECTS – BSc Course, 1st year for Electrical and Environmental engineering students– ETH Zürich – approx. 270 students. Full course responsibility (in German)	2021-present
Dynamics	6 ECTS - BSc course, 2nd year for Mechanical and Civil Engineering students- ETH Zürich - approx. 550 students, responsible for exercises, exam, managing TAs team and partial lecturing	2015 – 2021
Advanced Dynamics	4 ECTS – BSc/MSc course - ETH Zürich - approx. 70 students full course responsibility	2015 – present
Engineering Dynamics	4 ECTS - MSc course - TUDelft - approx. 110 students full course responsibility	2010 – 2014
Numerical Methods for Dynamics	4 ECTS - MSc course - TUDelft - approx. 30 students 50% shared teaching with another instructor	2013 – 2014
Nonlinear Vibrations	3 ECTS - MSc course - TUDelft - approx. 30 students 50% shared teaching with another instructor	2012 – 2014
Mechanical Analysis for Engineers	3 ECTS - MSc course - TUDelft - approx. 30 students 20% shared teaching with another instructor	2010

PHD/Postdoc level courses:

- Short course Experimental Dynamic Substructuring, (8 February 2020, held in conjunction with XXXVIII IMAC Conference, Houston, TX USA)
- International Center for Mechanical Sciences (CISM), Udine, Italy
  ⇒ **Substructuring in Engineering Dynamics: Emerging Numerical and Experimental Techniques** (23-27 July 2018)
    Invited lecturer on finite element implementation for nonlinear dynamics, substructuring techniques, reduction methods for geometric nonlinearity
- Engineering Mechanics Graduate School, Eindhoven, the Netherlands
  ⇒ **Reliability and Stability in Statics and dynamics** (2011,2015,2017,2019)
  ⇒ **Advanced Dynamics** (2012,2014)

INVITED TALKS

- *Fundamentals of Nonlinear Oscillations: a Tutorial,* IMAC XLI, Austin TX- USA — Feb 2023

- *Nonlinear Structural Dynamic and Reduced Order Models: a Tutorial,* PoliMi - Italy — Nov 2022

- *A reduced Order Model for Joints,* 8th Conference on Nonlinear Vibrations, Localization and Energy Transfer, Ascona, Switzerland — Jul 2021

- *Towards Model-Driven Reduced Order Models,* Automatic Control Laboratory, ETH Zürich, Switzerland — Mar 2020

- *Model Order Reduction for Nonlinear Dynamics,* Rice University, Houston, TX - USA — Jul 2019

- *Model Order Reduction for Nonlinear Mechanical systems – a Model Driven Approach*, University of Groningen, the Netherlands — Apr 2019

- *Reduced order modeling for nonlinear thin-walled structures*, Workshop "Novel Developments in Failure Analysis of Composite Materials and Structures" Leibniz Universität Hannover. — July 2018

- *A Multiscale Parametric Reduced Order Model for Thermo-Structural Dynamics*, 1st International Aerospace Symposium on Acoustic Fatigue, University of Strathclyde, Glasgow. — Sept 2017

- *Reduced Order Models for Hypersonic Aeroelasticity*, 2017 Annual Review, AFOSR - High Speed Aerodynamics Portfolio, NASA Langley, July 24-27, 2017. — July 2017

- *Reduced Order Modeling for Geometrically Nonlinear Systems*, seminar at PoliMi, Italy — Mar 2017

- *Nonlinear Modeling and Simulation* - Tutorial at the IMAC-XXXV Conference & Exposition on Structural Dynamics, Garden Grove, CA USA. — Feb 2017

- *On Reduced Order Models for Nonlinear Structural Dynamics* - Jubiläumsveranstaltung 50 Jahre Lehrstuhl Angewandte Mechanik, TU München. — Sept 2016

- *On Reducing the offline cost of Reduced Order Models for Nonlinear Structural Dynamics* Sixth International Conference on Nonlinear Vibrations, Localization and Energy Transfer, Liege. — Jul 2016

- *Towards Simulation-free Reduced Order Models for Nonlinear Structural Dynamics*, seminar at Technische Universität München. — Jun 2016

- *Model Order Reduction for Nonlinear Structural Dynamics and Flexible Multibody System,* seminar Leopold-Franzens-Universität Innsbruck. — Mar 2016

- *Nonlinear Modeling and Simulation* - Tutorial at the IMAC-XXXIII Conference & Exposition on Structural Dynamics, Orlando, FL USA. — Feb 2015

- *Model Order Reduction for Geometric Nonlinear Structures*, seminar at ETH Zürich. — Apr 2014

- *Model Order Reduction for Nonlinear Structural Dynamics*, seminar at Technische Universität München. — Apr 2013

- *Discrete Empirical Interpolation for Nonlinear Structural Dynamics Model Order Reduction*, seminar at Technische Universität München. — Oct 2012

- *Reduction methods for nonlinear structural and MEMS problems*, seminar at University of Liege. — Oct 2010

PHD COMMITTEES

- Dongxiao Hong, *Symmetry on the NNMs/backbone curves of nonlinear systems* University of Bristol — Jun 2022

- Paul Thedens, *An integrated aero-structural model for ram-air kite simulations: with application to airborne wind energy,* Delft University of Technology — Apr 2022

- Fariborz Ghavamian, *Accelerating Finite Element Analysis Using Machine Learning*, Delft University of Technology — Sept 2021

- Mehrdad Pourkiaee, *Models and Experiments for Nonlinear Dynamics of Mistuned Bladed Disks with Friction Contacts*, Politecnico di Torino   Dec 2020

- Urban Fasel, *Reduced-order aeroservoelastic modelling for analysis and optimization of morphing wings,* ETH Zürich   Jul 2020

- Shobhit Jain, *Some Themes in Nonlinear Model Reduction with Applications to Structural Dynamics,* ETH Zürich   Mar 2019

- Long Wu, *Model Order Reduction and Substructuring Methods for Nonlinear Structural Dynamics,* Delft University of Technology (co-promotor)   Jul 2018

- Johannes Rutzmoser, *Model Order Reduction for Nonlinear Structural Dynamics – Simulation-free Approaches,* Technische Universität Munchen, (invited)   Mar 2018

- Giuseppe Battiato, *Vibration prediction and measurement of multistage bladed disks with non-linear behavior due to friction contacts*, Politecnico di Torino   Sept 2017

SERVICE TO PROFESSION

- Member of the '*Examencommissie*' (Examination Board) of the Faculty 3ME, TUDelft, Apr 2014 – December 2014.
- Secretary of the search committee for the Engineering Dynamics chair (2 rounds) 2012-2013.
- Faculty advisor Swissloop 2017 (50 students)
- Co-organizer the Second Workshop in Nonlinearities in Reduced Order Modeling, 14-15 September 2018, ETH Zürich, Switzerland
- Co-chair of the First Aerospace symposium of Acoustic Fatigue, 11-13 September 2017, University of Strathclyde, Glasgow, UK
- Co-organizer with SANDIA National Laboratories of the Workshop in Nonlinearities in Reduced Order Modeling, 23 September 2016, ETH Zürich, Switzerland
- Co-organizer and advisor SANDIA Summer Institute on Nonlinear Dynamics and Mechanics, 2016, 2017, 2018
- Organizer of workshops in Nonlinear Dynamics for the Engineering Mechanics Symposium (http://www.em.tue.nl), 2011,2014
- Organized and chaired sessions, IMAC: Nonlinear Modeling & Identification, 2014,2015; Nonlinear Model Reduction,2015, 2017,2018,2019,2020,2021,2022
- Co-organizer Academia Industry Modeling Week, Computational Science Zürich, Fall Semester 2019.
- Co-supervisor for the Tribomechadynamics Research Camp, Rice University, Houston, TX USA, 24 June-30 July 2019
- Co-organizer mini-symposium Nonlinear Dynamics of Structural Systems at the World Congress in Computational Mechanics, July 19-24 2020, Paris, France.
- Secretary of Nonlinear Systems Technical Division for IMAC conference, 2021-present

EDITORIAL ACTIVITY

- Guest Editor, Nonlinear dynamics of engineering systems, *Scientific Reports of Nature* (2022- present)
- Member of the Editorial board, *Scientific Reports of Nature – Mechanical Engineering* (2022 – present)
- Review Editor, Frontiers – Mechanics of Materials (2021 – present)
- Guest Editor, *Vibration*, MDPI (Special Issue "Model Order Reduction of Nonlinear Systems"), (2020-present)
- Member of Editorial Board, *Journal of Sound and Vibration* (Oct 2018- present)
- Guest Editor, *Journal of Sound and Vibration* (special issue on Acoustic Fatigue, 2017-2018)

REFEREE ACTIVITY

- Reviewer for: *Mechanical Systems and Signal Processing, Journal of Aircraft, Journal of Fluid and Structures, Shock and Vibration, Meccanica, Journal of Sound and Vibration, Computer Methods for Applied Mechanics and Engineering, ASME Journal of Applied Mechanics, SIAM Journal on Scientific Computing, Nonlinear Dynamics, International journal for Numerical Methods in Engineering, Structural and Multidisciplinary Optimization*

- Project proposal reviewer: *Research Foundation Flanders (FWO), Welsh Government's Sêr Cymru II Program*

AWARDS

- Co-author of winning paper for the Student Paper Competition of the Structural Health Monitoring and Control Committee, EMI 2018 conference, May 29-June 1st 2018, MIT Campus, USA: K. Tatsis, L. Wu, *P. Tiso*, E. Chatzi, *Output-Only state estimation of geometrically non-linear systems using reduced-order models*

PUBLICATIONS

A complete list of publications can be found [here](#).
Note: in *Italics* the student(s) directly supervised. Authors order follows the actual relative contribution to the work, unless agreed otherwise.

Published Peer Reviewed Journals

J1. *Saccani, Alexander*, J. Marconi, and P. Tiso "Sensitivity analysis of nonlinear frequency response of defected structures." **Nonlinear Dynamics** 1-25. (2022) [PDF]

J2. *A. Morsy, M. Kast*, and P. Tiso "A frequency-domain reduced order model for joints by hyper-reduction and model-driven sampling." **Mechanical Systems and Signal Processing** 185 (2023) [PDF]

J3. *G. Abeloos; F. Müller; E. Ferhatoglu*; M. Scheel; C. Collette; G. Kerschen; M. R.W. Brake; P. Tiso; L. Renson; M. Krack, A Consistency Analysis of Phase-Locked-Loop Testing and Control-Based Continuation for a Geometrically Nonlinear Frictional System, *Mechanical* **Analysis and Signal Processing,** 170 (2022) [PDF]

J4. *J. Marconi*, P. Tiso, *D. E. Quadrelli , F. Braghin, A higher-order parametric nonlinear reduced-order model for imperfect structures using Neumann expansion,* **Nonlinear Dynamics,** 104 (2021) [PDF]

J5. *M. Karamooz Mahdiabadi*, P. Tiso, *A. Bartl, D.J. Rixen , A non-intrusive model-order reduction of geometrically nonlinear structural dynamics using modal derivatives ,* **Mechanical Analysis and Signal Processing,** 147 (2021) 107126 [PDF]

J6. *U. Fasel*, P. Tiso, *D. Keidel, P. Ermanni, Concurrent design and flight mission optimization of morphing airborne wind energy wings,* **AIAA Journal**, 59 (2021) [PDF]

J7. N. Narayanaa Balaji, S. Lian, M. Scheel, M.Brake, P. Tiso, J.-P. Noël, M. Krack*, Numerical assessment of polynomial nonlinear state-space and nonlinear-mode models for near-resonant vibrations,* **Vibrations** (MDPI), special issue on Data-Driven Modelling of Nonlinear Dynamic Systems (2020) [PDF]

J8. *J. Marconi*, P. Tiso, *F. Braghin, A Nonlinear Reduced Order Model with Parametrized Shape Defects,* **Computer Methods for Applied Mechanics and Engineering**, 360 (2020), 112785. [PDF]

J9. *S. Jain*, P. Tiso, *Model order reduction for temperature-dependent nonlinear mechanical systems: A multiple scales approach,* **Journal of Sound and Vibration,** 465 (2020), 115022. [PDF]

J10. M. Karamooz Mahdiabadi, A. Bartl, D. Xu, P. Tiso, D.J. Rixen, *An augmented free-interface-based modal substructuring for nonlinear structural dynamics including interface reduction,* **Journal of Sound and Vibration,** 462 (2019) 114915. [PDF]

J11. *U. Fasel*, P. Tiso, *D. Keidel, G. Molinari, and P. Ermanni, Reduced Order Dynamic Model of a Morphing Airborne Wind Energy Aircraft Wing,* **AIAA Journal**, 57(8) (2019). [PDF]

J12. *S. Jain*, P. Tiso, *Hyper-reduction over nonlinear manifolds for large nonlinear mechanical systems*, ASME Journal of Computational and Nonlinear Dynamics, 14(8) (2019), 081008. [PDF]

J13. *D. Krattiger; L. Wu; M. Zacharczuk; M. Buck*; R. Kuether, Ms.S. Allen; P. Tiso; M.R. Brake, Int*erface Reduction for Hurty/Craig-Bampton Substructured Models: Review and Improvements*, **Mechanical Analysis and Signal Processing**, 114 (2019) 579-603. [PDF]

J14. *L. Wu*, P. Tiso, *K. Tatsis*, E. Chatzi, A. van Keulen, *A modal derivatives enhanced Rubin substructuring method for geometrically nonlinear multibody systems,* Multibody System Dynamics, published online (2018) 1-29. [PDF]

J15. *S. Jain*, P. Tiso, G. Haller, *Exact nonlinear model reduction for a von Kármán beam: Slow-fast decomposition and spectral submanifolds*, **Journal of Sound and Vibration**, 423 (2018) 195-211. [PDF]

J16. *S. Jain*, P. Tiso, *Simulation-free hyper-reduction for geometrically nonlinear structural dynamics: A quadratic manifold lifting approach*, **ASME Journal of Computational and Nonlinear Dynamics**, 13(7) (2018) 071003. [PDF]

J17. *L. Wu*, P. Tiso, A. van Keulen, *Interface Reduction with Multilevel Craig-Bampton Substructuring for Component Mode Synthesis*, **AIAA Journal**, 56 (2018) 2030-2044. [PDF]

J18. *C.S.M. Sombroek*, P. Tiso, L. Renson, G. Kerschen, *Numerical Computation of Nonlinear Normal Modes in a Modal Derivatives Subspace*, **Computers & Structures**, 195 (2018) 34-46. [PDF]

J19. *J.B. Rutzmoser*, D.J. Rixen, *S. Jain*, P. Tiso, *Generalization of Quadratic Manifolds for Reduced Order Modeling of Nonlinear Structural Dynamics*, **Computers & Structures**, 192 (2017) 196-209. [PDF]

J20. *N. Teunisse*, L. Demasi, P. Tiso, R. Cavallaro, *Reduced basis methods for structurally nonlinear Joined Wings*, **Aerospace Science and Technology**, 68 (2017) 486-495. [PDF]

J21. *S. Jain*, P. Tiso, J.B. Rutzmoser, D.J. Rixen, *A quadratic manifold for model order reduction of nonlinear structural dynamics*, **Computers & Structur**es, 188 (2017) 80-94. [PDF]

J22. *F. Ghavamian*, P. Tiso, A. Simone, *POD-DEIM model order reduction for strain softening viscoplasticity*, **Computer Methods for Applied Mechanics and Engineering**, 317 (2017) 458-479. [PDF]

J23. P. Tiso, J.P Nöel, *A New, Challenging Benchmark for Nonlinear Structural Identification*, **Mechanical Analysis and Signal Processing**, 84 (2017) 185-193. [PDF]

J24. *L. Wu*, P. Tiso, *Nonlinear Model Order Reduction for Flexible Multibody Dynamics: a Modal Derivatives Approach*, **Multibody System Dynamics**, 36 (2016) 405-425. [PDF]

J25. *H. J. Peters*, P. Tiso, Johannes F.L. Goosen, F. van Keulen, *Modal-Based Approach for Optimal Active Modifications of Resonance Modes*, **Journal of Sound and Vibration**, 334(2015) 151-163. [PDF]

J26. *H. J. Peters*, P. Tiso, Johannes F.L. Goosen, F. van Keulen, *Effective Response Modifications of Non-Proportionally Damped Resonating Structures*, **Applied Mechanics and Materials**, 704 (2014) 143-147. [PDF]

J27. *A. Bosch*, R. Schmehl, P. Tiso, D. Rixen, *Dynamic nonlinear aeroelastic model of a kite for power generation*, **Journal of Guidance, Control, and Dynamics**, 37 (2013) 1426-1436 [PDF]

J28. P. Tiso, E.L. Jansen, M.M. Abdalla, *Reduction method for finite element non- linear dynamics of shells*, **AIAA Journal**, 49 (2011) 2295-230. [PDF]

J29. T. Rahman, E.L. Jansen and P. Tiso, *A finite element based perturbation method for nonlinear free vibration analysis of composite cylindrical shells*, **International Journal of Stability and Dynamics**, 11 (2011) 717-734. [PDF]

J30. R. Vos, R. De Breuker, R. Barrett, P. Tiso, *Morphing Wing Flight Control Via Post-Buckled Precompressed Piezoelectric Actuators,* **Journal of Aircraft**, 44 (2007) 1060-1068. [PDF]

J31. R. Vos, R. Barrett, R. De Breuker, and P. Tiso, *Post-Buckled Precompressed (PBP) elements: a new class of control actuators for morphing wing UAVs*, **Journal of Smart Materials and Structures**, 16(2007) 919. [PDF]

J32. R. Barrett, R. McMurtry, R. Vos, P. Tiso and R. D. Breuker, *Post-buckled pre-compressed piezoelectric flight control actuator design, development and demonstration,* **Journal of Smart Materials and Structures**, 15 (2006) 1323. [PDF]

J33. P. Tiso, C.Plaxico, M. Ray, *Improved Truck Model for Roadside Safety Simulations: Part II-Suspension Modeling,* Transportation Research Record: **Journal of the Transportation Research Board**, 1797 (2002) 63-71. [PDF]

Books

B1. M. Allen, D. Rixen, M. van der Seijs, P. Tiso, T. Abrahamsson, R. Mayes, *Substructuring in Engineering Dynamics-Emerging Numerical and Experimental Techniques,* Springer (2019) [PDF]

Book Chapters

BC1. P. Tiso, M. Karamooz, G. Marconi, *Modal Methods for Reduced Order Modeling,* Handbook on Model Order Reduction, De Gruyter GmbH, Germany (in press)

BC2. A. Bosch, R. Schmehl, P. Tiso, D. Rixen, *Dynamic Nonlinear Aeroelastic Modeling of Traction Kites,* Airborne Wind Energy, Springer 2013

Patents

P1. United States Patent 7-898-153, "Actuator", Ronald Martin Barrett, Paolo Tiso (2005)

Reports

R1. C.A. Plaxico, M.H. Ray, J.A. Weir, F. Orengo, and P. Tiso, Worcester Polytechnic Institute, Worcester, MA, H. McGee, F. Council, and K. Eccles, Bellomo- McGee, Inc., Vienna, VA, *Recommended Guidelines for Curb and Curb-Barrier Installations,* report 357, National Cooperative Highway Research Program.

Selected oral contributions to international conferences (2013-2019)

OC1. D. Sachs, S. Jain, P. Tiso, *A multiscale, parameteric reduced order model for thermo-structural dynamics,* 1st International Aerospace Symposium on Acoustic Fatigue, 11-12 September 2017, University of Strathclyde, Glasgow.

OC2. S. Jain and P. Tiso, *Simulation-Free Hyper-Reduced Models for Geometrically Nonlinear Structural Dynamics,* IFASD 2017 International Forum on Aeroelasticity and Structural Dynamics, 25-28 June 2017 Como, Italy.

OC3. P. Tiso, *Nonlinear Modeling and Simulation: a Tutorial,* XXXV International Modal Analysis Conference, 30 January- 2 February 2017, Garden Grove, CA USA.

OC4. C. Sombroek, P.Tiso, L. Renson, G. Kerschen, *Numerical Computation of Nonlinear Normal Modes with Modal Derivatives Based Reduced Order Models,* European Congress on Computational Methods in Applied Sciences and Engineering, 5 - 10 June 2016 Crete Island, Greece.

OC5. S. Jain and P. Tiso, *on Reducing the Offline Cost of Reduced Order Models for Nonlinear Structural Dynamics ,* Sixth International Conference on, Nonlinear Vibrations, Localization and Energy Transfer, 4-8 July 2016, Liege, Belgium.

OC6. A. Sridhar, P. Tiso, T. Hardeman, *Configuration-dependent Reduced Order Model for Cable Slab Nonlinear Dynamics,* XXXIII International Modal Analysis Conference, February 2-5, 2015 Orlando, FL USA.

OC7. <u>P. Tiso</u>, *Nonlinear Modeling and Simulation: a Tutorial,* XXXIII International Modal Analysis Conference, February 2-5, 2015 Orlando, FL USA.

OC8. <u>P. Tiso</u>, J. Rutzmoser, D. Rixen, *Nonlinear Manifolds for Model Order Reduction,* World Congress in Computational Mechanics, July 20-25, 2014, Barcelona, Spain.

OC9. F. Wenneker, <u>P. Tiso</u> , *A substructuring method for geometrically nonlinear structures*, February 3-6, 2014, Orlando FL USA.

OC10. F. Wenneker, <u>P. Tiso</u>, *Nonlinear Component Mode Synthesis Using Modal Derivatives* Recent Advances in Structural Dynamics, 1-3 July 2013 Pisa, Italy.

OC11. <u>P. Tiso</u>, D. Rixen, *Discrete Empirical Interpolation Method for Finite Element Structural Dynamics,* XXXI International Modal Analysis Conference, 11-14 February 2013, Garden Grove, CA USA.

Selected Conference Proceedings

CP1. K. Tatsis, L. Wu, <u>*P. Tiso*</u>, E. Chatzi, *Output-Only state estimation of geometrically non-linear systems using reduced-order models,* EMI 2018 conference, May 29-June 1st 2018, MIT Campus, USA

CP2. K. Tatsis, L. Wu, <u>P. Tiso</u>, E. Chatzi, State estimation of geometrically non-linear systems using reduced-order models, International Association for Life-Cycle Civil Engineering, 28-31 October 2018, Ghent, Belgium.

CP3. S. Jain, <u>P. Tiso</u>, Adaptive Reduced-order Modeling of Thermo-Mechanical Systems, Conference and Exposition on Structural Dynamics, 12-15 February, Orlando, FL, USA.

CP4. S. Jain, G. Haller, <u>P. Tiso</u>, Exact model reduction for a von Kármán beam, 9th European Nonlinear Dynamics Conference, 25-30 June 2017, Budapest, Hungary.

CP5. R.J. Dedden , L. Iapichino, <u>P. Tiso</u>, J.F.L Goosen, F. van Keulen, *Efficient residual stress identification approach for MEMS using modal information*, ISMA 2016.

CP6. L. Wu, <u>P. Tiso</u>, *Component Mode Synthesis for Geometrically Nonlinear Structural Dynamics*, ISMA 2016.

CP7. J.B. Rutzmoser, D.J. Rixen, <u>P. Tiso</u>, *Model Order Reduction Using an Adaptive Basis for Geometrically Nonlinear Structural Dynamics*, ISMA 2014, Leuven, Belgium, 15-17 September 2014.

CP8. Long Wu, <u>P. Tiso</u>, *Accuracy of the floating frame with nonlinear elastic expression: a comparative study*, ISMA 2014, Leuven, Belgium, 15-17 September 2014.

CP9. A. Sridhar, <u>P. Tiso</u>, T. Hardeman, *A nonlinear model order reduction method for cable slab dynamics*, ISMA 2014, Leuven, Belgium, 15-17 September 2014.

CP10. T. Hardeman, A. Sridhar, S. Boere, <u>P. Tiso</u>,' *Advanced Modelling and Simulation of Non-Linear Cable Slab Dynamics In High Precision Systems*, DSPE conference, Sint Michielsgestel, The Netherlands, 2-3 September, 2014.

CP11. L. Wu, <u>P. Tiso</u>, *Modal Derivatives Based Reduction Method for Finite Deflections In Floating Frame*, 11th World Congress on Computational Mechanics, Barcelona, 20-25 July 2014.

CP12. H. J. Peters, <u>P. Tiso</u>, Johannes F.L. Goosen, F. van Keulen, *Modifying Resonance Modes Of Dissipative Structures Using Magnitude And Phase Information*, 11th World Congress on Computational Mechanics, Barcelona, 20-25 July 2014.

CP13. J.H. de Jong, K. Wormnes, <u>P. Tiso</u>, *Simulating Rigid-Bodies, Strings and Nets for Engineering Applications Using Gaming Industry Physics Simulators*, International Symposium on Artificial Intelligence, Robotics and Automation in Space (i-SAIRAS), Montreal 17-19 June 2014.

CP14.   F. Wenneker, <u>P. Tiso</u>, *A Substructuring Method For Geometrically Nonlinear Structural Dynamics*, IMAC-XXXII: Conference & Exposition on Structural Dynamics, Orlando, Florida USA, February 1– 4, 2014.

CP15.   N. Teunisse, L. Demasi, R. Cavallaro, <u>P. Tiso</u>, *A Computational Method for Structurally Nonlinear Joined Wings Based on Modal Derivatives*, National Harbor, Maryland, USA, 13 - 17 January 2014.

CP16.   F. Wenneker, <u>P. Tiso</u>, *Nonlinear Component Mode Synthesis Using Modal Derivatives*, 11th International Conference on Recent Advances in Structural Dynamics 1-3 July 2013.

CP17.   H. J. Peters, <u>P. Tiso</u>, Johannes F.L. Goosen, F. van Keulen, *Control of Harmonically Driven Resonating Compliant Structures using Local Structural Modification*, ECCOMAS Thematic Conference on Multibody Dynamics, Zagreb, Croatia, 1-4 July, 2013.

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CP23.   <u>P. Tiso</u>, *Optimal second order reduction basis selection for nonlinear transient analysis*, IMAC-XXIX: Conference & Exposition on Structural Dynamics, Jacksonville, Florida USA, January 30 – February 3, 2011.

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CP26.   <u>P. Tiso</u>, E.L. Jansen, M.M. Abdalla, *A Koiter postbuckling analysis of general shell structures using the finite element method*, ICAS 2006, 3-8 September, Hamburg, Germany.

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CP29.   R. Barrett, R. Vos, <u>P. Tiso</u>, and R. De Breuker, *Post-Buckled Precompressed (PBP) Actuators: Enhancing VTOL Autonomous High Speed MAVs*, 46th AIAA Structures, Structural Dynamics and Materials Conference , Austin, Texas, Apr. 18-21, 2005.

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Extended Abstract Conference Proceedings

EA1. S. Jain, P. Tiso, *A multiple scales approach for model reduction of temperature-dependent nonlinear mechanical systems, NODYCON, Sapienza University of Rome, February 17-20, 2019*

EA2. G. Guerra, M. Fronk, M. Southwick, R. Kuether, A. Brink, P. Tiso, D. Quinn, *Predictive Modeling of Bolted Assemblies with Surface Irregularities,* IMAC XXXVII, 28-31 January 2019, Orlando, USA.

EA3. L. Renson, P. Tiso, *Nonlinear Model Reduction of Nonlinear Structures Exhibiting Snapping Dynamics,* IMAC XXXVII, 28-31 January 2019, Orlando, USA.

EA4. A. Brink, D Quinn, M. Brake, P. Tiso, *A New Benchmark for Random Vibration of Nonlinear Systems,* IMAC XXXVII, 28-31 January 2019, Orlando, USA.

EA5. S. Jain, P. Tiso, *Model reduction for temperature-dependent nonlinear mechanical systems: A multiple scales approach,* IMAC XXXVII, 28-31 January 2019, Orlando, USA.

EA6. F. Ghavamian, P. Tiso, A. Simone, *Efficient Model Order Reduction of Problems with Material Nonlinearities Using a Localized Discrete Empirical Interpolation Method*, Probabilistic Mechanics & Reliability Conference 2016, May 22-25, 2016, Vanderbilt University.

EA7. C. Sombroek, P. Tiso, L. Renson, G. Kerschen, *Numerical Computation of Nonlinear Normal Modes with Modal Derivatives Based Reduced Order Models*, European Congress on Computational Methods in Applied Sciences and Engineering, 5-10 June 2016, Crete Island.

EA8. S. Jain, P. Tiso, *Reducing offline cost for ECSW hyper-reduced models for finite element discretized nonlinear structural dynamics*, European Congress on Computational Methods in Applied Sciences and Engineering, 5-10 June 2016, Crete Island.

EA9. L. Wu, P. Tiso, F. van Keulen, *Quadratic manifolds for reduced order modelling of highly flexible multibody systems*, ECCOMAS Thematic Conference on Multibody Dynamics June 29 - July 2, 2015, Barcelona, Spain.

EA10. P. Tiso, R.J. Dedden, and Daniel J. Rixen, *A Modified Discrete Empirical Interpolation Method for Finite Element Structural Dynamics Analysis*, Second International Workshop on Model Reduction for Parametrized Systems (MoRePaS II), Schloss Reisensburg, Günzburg, Germany, October 2-5, 2012.

EA11. P. Tiso, J. Rutzmoser and D.J. Rixen, *Nonlinear Manifold for Model Order Reduction of Geometrically Nonlinear Structural Dynamics*, 11th World Congress on Computational Mechanics, Barcelona, 20-25 July 2014.