

Curriculum Vitae of Stephanos Theodossiades

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- **E-mail:** S.Theodossiades@lboro.ac.uk (work), s.theodossiades@homecall.co.uk (home)
- **Date of Birth:** April 20, 1971
- **Nationality:** Greek
- **Marital Status:** Single

EDUCATION

- 2002 - 2005: **Executive MBA**, Loughborough University Business School. **Grade 2:1.**
- 1995 - 00: **Ph.D.** in Mechanical Engineering "*Non Linear Vibrations and Dynamics of Mechanical Systems with Gears*", Aristotle University of Thessaloniki, Greece.
- 1989 - 95: **Dipl.-Ing.** in Mechanical Engineering, Aristotle University of Thessaloniki, Greece. **Grade 1st.**

FIELDS OF STUDY/EXPERTISE

Engineering dynamics and vibrations with the following particular applications:

- Noise and Vibration monitoring of mechanical systems with gears
- Modeling of Noise, Vibration and Harshness (NVH) phenomena in Automotive Powertrain systems including:
 - Multi-body dynamics analysis with flexible components
 - Numerical/analytical methods on large and small scale applications with local nonlinearities
- Structural and dynamic analysis of medical devices and virtual prototype development
- Tribo-dynamics of mechanical systems with lubricated conjunctions

PROFESSIONAL/ACADEMIC EXPERIENCE

- August 2007 - Present: **Senior Lecturer (Tenured Associate Professor) in Engineering Dynamics**, Wolfson School of Mechanical & Manufacturing Engineering, Loughborough University, UK.
- August 2003 - July 2007: **Lecturer (Tenured Assistant Professor) in Engineering Dynamics**, Wolfson School of Mechanical & Manufacturing Engineering, Loughborough University, UK.
- July 2002 - July 2003: **Research Fellow** (employment continued in the OPTRAREF project, as below), Wolfson School of Mechanical & Manufacturing Engineering, Loughborough University, UK.

- February 2002 - June 2002: **Research Associate** in the OPTRAREF project funded by Vehicle Foresight/EPSRC and supported by Ford Motor Company and MSC Software, Wolfson School of Mechanical & Manufacturing Engineering, Loughborough University, UK.
- May 2000 – January 2002: **Data System Administrator** (Greek Air Force, compulsory military service).
- July 1996 - May 2000: **Self Employed Building Systems Engineer/Contractor**, Thessaloniki, Greece.
- Dec. 1995 - May 2000: **Research Student**, Department of Mechanical Engineering, Aristotle University of Thessaloniki, Greece.

RESEARCH GRANTS

- 2011: Perkins Valvetrain Dynamics - Perkins Engine Company Ltd, £25,800 (Principal Investigator).
- 2010: Tribology of rubber seals/contacts – AstraZeneca, £25,000 (Principal Investigator).
- 2009 – 2013: Refinement of Engine in-cycle losses of Parasitic and Errant Dynamic Nature (Encyclopaedic) – EPSRC (supported by Aston Martin Lagonda, Prodrive, Capricorn Automotive Ltd, BP Lubricants, Ricardo UK Ltd and ES Technology Ltd), £1,200,200.
- 2008 - 2010: Tribology of rubber seals/contacts – AstraZeneca, £151,500 (Principal Investigator).
- 2006 - 2008: KTP 001293 (Loughborough University – Romax Technology Limited), funded by DTI and Romax Technology Limited, £198,088 (Principal Investigator).
- 2006 - 2009: Automotive Transmission Rattle: Root Causes to Innovative Solutions – EPSRC, £202,584.
- 2006 – 2009: University Research Project (URP) on Automotive Transmission Rattle – Ford Motor Company, £66,000.
- 2005 - 2008: EPSRC Case Studentship Award (supported by 3M) £76,900 (Principal Investigator).
- 2005 – 2007: KTP 000755 (Loughborough University – JCB), funded by DTI and JCB, £102,900 (Principal Investigator since August 2005).
- 2004 - 2006: Driveline NVH Refinement (clonk/thump) – JAGUAR Cars Ltd, £78,600.
- 2004 - 2006: Powertrain NVH Refinement (clonk/rattle) – FORD Motor Company, £40,800.
- 2003 - 2004: Frictional Evaluation of Pressurised Metered Dose Inhalers – 3M, £27,100.

RESEARCH STUDENTS SUPERVISED

- **PhD**, 2011, Miguel De la Cruz, The influence of transient thermo-elastohydrodynamic conjunctions on automotive transmission rattle. First Supervisor.
- **PhD**, 2010, David Grimble, Elastohydrodynamic Lubrication of Pressurised Metered Dose Inhaler Valve O-Ring Elastomeric Seals. First Supervisor.
- **PhD**, 2007, Osman Tangasawi, Combined numerical and experimental investigation of transmission idle gear rattle. First Supervisor.

- **PhD**, 2007, Timothy Barnett, Knowledge management solutions and selection tool for engineering organisations. Joint Supervisor.
- **PhD**, 2007, Malika Perera, Multi-physics for integrated analysis of flexible body dynamics with tribological conjunction in IC engines. First Supervisor.
- **MSc**, 2006, Bahram Bahramfar, Contact mechanics of hypoid gears. First Supervisor.
- **MSc**, 2005, Timothy Saunders, The characterisation and root cause analysis of rear axle gear whine in commercial vehicles. Sole Supervisor.

TEACHING ACTIVITIES

- MMB101 Engineering Dynamics (Internal Examiner)
- MMD101 Drivetrain Engineering (Internal Examiner)
- MMC101 Vibration and Noise
- MMD503 Group Design Projects supervision (sponsored from industry).
- Undergraduate student projects supervision.
- MMP301 Computer Aided Engineering (seminars).
- MSc Programme projects (dissertations) supervision.

MANAGEMENT AND ADMINISTRATIVE ACTIVITIES

- Disabilities and Additional Needs Service (DANS) Coordinator (Wolfson School)
- Management duties for the MSC Numerical Centre of Excellence (Wolfson School of Mechanical and Manufacturing Engineering, Loughborough University) and powertrain laboratories.
- Supervising student placements in industry (DIS).
- Personal tutoring.

EVIDENCE OF ESTEEM, EXTERNAL VISIBILITY AND PROFESSIONAL ACTIVITIES

- **Reviews Editor:** Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics.
- **Associate Editor:** International Journal of Powertrain (Inderscience)
- **Guest Editor:** Special Issue on Powertrain Dynamics, Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, 2007, 221 (3).
- **Theodossiades, S.**, Gnanakumarr, M., Rahnejat, H. and Menday, M. Mode Identification in impact-induced high-frequency vehicular driveline vibrations using an elasto-multi-body approach. *Proceedings of the Institution of Mechanical Engineers Part K: Journal of Multi-body Dynamics*, 2004, 218, 81-94. **Proceedings of the IMechE, Part K: Journal of Multi-body Dynamics PE Publishing Award for the best paper published in the 2004 Volume.**
- British Gear Association & IMechE Transmission Engineering **Prize** 2006 (awarded to my final year project student Tom Lench)
- **Co-Chair:**

- ASME Symposium on Engine and Powertrain Dynamics, 20th Biennial Conference on Mechanical Vibration and Noise (VIB), 2005 ASME IDETC, Long Beach, USA and 21st Biennial Conference on Mechanical Vibration and Noise (VIB), 2007 ASME IDETC, Las Vegas, USA.
- ASME Symposium on Dynamics of Mechanical Systems with Contact and Friction, 22nd Biennial Conference on Mechanical Vibration and Noise (VIB), 2009 ASME IDETC, San Diego, USA.
- ASME Symposium on Applied Mechanics, Contact Mechanics and Tribology at Micro- and Nano- Scales, 4th International Conference on Micro- and Nanosystems (MNS), 2010 ASME IDETC, Montreal, Canada.
- Dynamics of Machines and Rotating Structures, The First Joint International Conference on Multibody System Dynamics (IMSD), 2010, Lappeenranta, Finland (Co-Sponsored by ASME, IFTOMM and IUTAM).
- **Sessions Chair** in International Conferences (Euromech/ASME)
- Teodorescu, S., **Theodossiades, S.** and Rahnejat, H. Multi-body Dynamics: An evolution from constrained inertial dynamics to a multi-physics interactive framework. *Proceedings of the ASI on Engineering-Design: Eco-design, Technologies and Green Energy*, Brasov 2004, **Invited Keynote Paper**.
- **Invited papers in International journals:** IMechE Proceedings Part K, 2007, Journal of Sound and Vibration, 2007, IMechE Proceedings Part C, 2008.
- **Invited seminars**
 - Ford Motor Company, 2009 (Dearborn, Michigan)
 - National Technical University of Athens, 2008
 - University of Liege, 2008
 - ENTPE - University of Lyon (TC4 SICON - Advanced Nonlinear Dynamics and Chaotic Dynamical Systems), 2009
 - Aristotle University of Thessaloniki (Erasmus Mundus programme in Aeromechanics - THRUST), 2011
- **External Examiner:** PhD External Examiner for the University of Bradford, IGDS MSc Programme (Open University, Loughborough University, University of Hertfordshire, University of Luton and University of Birmingham)
- **Referee** for the following journals:
 - Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences
 - Proceedings of the IMechE, Part C: Journal of Mechanical Engineering Science, Part D: Journal of Automobile Engineering, Part G: Journal of Aerospace Engineering, Part H: Journal of Engineering in Medicine, Part K: Journal of Multi-body Dynamics.
 - ASME Journal of Vibration and Acoustics
 - Journal of Sound and Vibration
 - Physica D
 - Applied Mathematical Modeling
- IMechE **Member** and **Chartered Engineer** status
- **Member** of the ASME
- **Member** of the Technical Chamber of Greece

LANGUAGES

- Greek (native)
- English
- French (Certificat de Langue Franchise, November 1986)

RESEARCH PUBLICATIONS' LIST

(i)- Authored Research Book Chapters:

- [1] S. Theodossiades, O. Tangasawi and H. Rahnejat. Multi-physics approach for analysis of transmission rattle (2010) in *Tribology and Dynamics of Engine and Powertrain: Fundamentals, Applications and Future Trends*, Woodhead Publishing Ltd, Cambridge, UK (Chapter 29), ISBN 978-1-84569-715-0.
- [2] M.S.M. Perera, S. Theodossiades and H. Rahnejat. Tribo-elasto-multi-body Dynamics of a Single Cylinder Engine Under Fired Condition (2010) in *Tribology and Dynamics of Engine and Powertrain: Fundamentals, Applications and Future Trends*, Woodhead Publishing Ltd, Cambridge, UK (Chapter 31), ISBN 978-1-84569-715-0.
- [3] M. Teodorescu, S. Theodossiades and H. Rahnejat. Micro-engines and micro-gears (2010) in *Tribology and Dynamics of Engine and Powertrain: Fundamentals, Applications and Future Trends*, Woodhead Publishing Ltd, Cambridge, UK (Chapter 32), ISBN 978-1-84569-715-0.
- [4] Teodorescu, S., Theodossiades, S. and Rahnejat, H. Multi-body Dynamics: An evolution from constrained inertial dynamics to a multi-physics interactive framework (2004) in *PRODUCT ENGINEERING: Eco-design, Technologies and Green Energy*, Springer, Netherlands, ISBN 1-4020-2932-2.

(ii)- Research Papers in International Journals:

- [5] Miguel De la Cruz, Stephanos Theodossiades, Paul King, Homer Rahnejat. Transmission drive rattle with thermo-elastohydrodynamic impacts: Numerical and experimental investigations. *International Journal of Powertrains* (in print queue - <http://www.inderscience.com/browse/index.php?journalID=122&action=coming>).
- [6] G Koronias, S Theodossiades, H Rahnejat, and T Saunders. Axle whine phenomenon in light trucks: a combined numerical and experimental investigation. *Proceedings of the Institution of Mechanical Engineers Part D: Journal of Automobile Engineering* (in print queue) DOI: 10.1177/0954407011401302.
- [7] M.S.M. Perera, S. Theodossiades and H. Rahnejat. Elasto-multi-body Dynamics Internal Combustion Engines with Tribological Conjunctions. *Proceedings of the Institution of Mechanical Engineers Part K: Journal of Multibody Dynamics*, 2010, 224(3), 261-277.

- [8] De la Cruz, M., Theodossiades, S. and Rahnejat, H. An investigation of manual transmission drive rattle. *Proceedings of the Institution of Mechanical Engineers Part K: Journal of Multibody Dynamics*, 2010, 224(2), 167-181.
- [9] Prokopovich, P., Theodossiades, S., Rahnejat, H. and Hodson, D. Friction in Ultra-thin conjunction of Valve Seals of Pressurised Metered Dose Inhalers. *Wear*, 2010, 268 (4-5), 845-852.
- [10] Theodossiades, S., Teodorescu, M. and Rahnejat H. From Multi-body to Many-body Dynamics. *Proc. IMechE, Part C: J. Mechanical Engineering Science*, 2009, 223(C12), 2835-2847. **Invited reviewed paper, commemorating 50th Year of JMES.**
- [11] Grimble, D.W., Theodossiades, S., Rahnejat, H. and Wilby, M. Tribology of rough ultra-thin film contacts in drug delivery devices. *Proceedings of the Institution of Mechanical Engineers, Part C, Journal of Mechanical Engineering Science*, 2008, 222(11), 2209-2216.
- [12] Teodorescu, M., Theodossiades, S. and Rahnejat, H. Impact dynamics of rough and surface protected MEMS gears. *Tribology International*, 2008, 42(2), 197-205.
- [13] Tangasawi, O., Theodossiades, S., Rahnejat, H. and Kelly, P. Non-linear vibro-impact phenomenon belying transmission idle rattle. *Proceedings of the Institution of Mechanical Engineers, Part C, Journal of Mechanical Engineering Science*, 2008, 222(10), 1909-1923.
- [14] Tangasawi, O., Theodossiades, S. and Rahnejat, H. Lightly loaded lubricated impacts: idle gear rattle. *Journal of Sound and Vibration*, 2007, 308(3-5), 418-430.
- [15] Theodossiades, S., Tangasawi, O. and Rahnejat, H. Gear teeth impacts in hydrodynamic conjunctions promoting idle gear rattle. *Journal of Sound and Vibration*, 2007, 303(3-5), 632-658.
- [16] Perera, M., Theodossiades, S. and Rahnejat, H. A multi-physics multi-scale approach in engine design analysis. *Proceedings of the Institution of Mechanical Engineers Part K: Journal of Multibody Dynamics, Special Issue on Powertrain Engineering*, 2007, 221(3), 335-348.
- [17] Theodossiades, S., Gnanakumarr, M., Rahnejat, H. and Kelly, P. On the effect of dual mass flywheel upon impact induced noise in vehicular powertrain systems. *Proceedings of the Institution of Mechanical Engineers Part D: Journal of Automobile Engineering*, 2006, 220 (6), 747-761.
- [18] Gnanakumarr, M., King, P. D., Theodossiades, S. and Rahnejat, H. Methods of palliation for high frequency elasto-acoustic response of truck drivetrain systems. *International Journal of Vehicle Design: Heavy Vehicle Systems*, 2006, 13 (4) 253-262.

- [19] Theodossiades, S., Gnanakumarr, M. and Rahnejat, H. Root cause identification and physics of impact induced driveline noise in vehicular powertrain systems. *Proceedings of the Institution of Mechanical Engineers Part D: Journal of Automobile Engineering*, 2005, 219, 1303-1319.
- [20] Gnanakumarr, M., Theodossiades, S., Rahnejat, H. and Menday, M. Impact Induced Vibration in Vehicular Driveline Systems: Theoretical and Experimental Investigations. *Proceedings of the Institution of Mechanical Engineers Part K: Journal of Multi-body Dynamics*, 2005, 219, 1-12.
- [21] Theodossiades, S., Gnanakumarr, M., Rahnejat, H. and Menday, M. Mode Identification in impact-induced high-frequency vehicular driveline vibrations using an elasto-multi-body approach. *Proceedings of the Institution of Mechanical Engineers Part K: Journal of Multi-body Dynamics*, 2004, 218, 81-94.
- [22] Theodossiades S. and Natsiavas, S. On Geared Rotordynamic Systems with Oil Journal Bearings. *Journal of Sound and Vibration*, 2001, 243, 721-745.
- [23] Theodossiades, S. and Natsiavas, S. Periodic and Chaotic Dynamics of Motor-Driven Gear-Pair Systems with Backlash. *Chaos, Solitons & Fractals*, 2001, 12, 2427-2440.
- [24] Theodossiades, S. and Natsiavas, S. Nonlinear Dynamics of Gear-Pair Systems with Periodic Stiffness and Backlash. *Journal of Sound and Vibration*, 2000, 229, 287-310.
- [25] Natsiavas, S., Theodossiades, S. and Goudas, I. Dynamic Analysis of Piecewise Linear Oscillators with Time Periodic Coefficients. *International Journal of Nonlinear Mechanics*, 2000, 35, 53-68.
- [26] Natsiavas, S. and Theodossiades, S. Vibration of Thin Circular Spinning Rings. *The Shock and Vibration Digest*, 1999, 31, 101-114.
- [27] Natsiavas, S. and Theodossiades, S. Regular and Chaotic Forced Vibration of Thin Rotating Rings. *International Journal of Nonlinear Mechanics*, 1998, 33, 843-855.

(iii)- Refereed Papers in International Conferences:

- [28] M. De la Cruz, S. Theodossiades and H. Rahnejat, Noise, Vibration and Harshness (NVH) in automotive applications: gear rattle and the role of tribodynamics, 2011 BalkanTrib, 2011, Thessaloniki, Greece.
- [29] I. Karagiannis, S. Theodossiades and H. Rahnejat, Tribodynamics of hypoid gear pairs. *2011 STLE Annual Meeting & Exhibition, 2011, Atlanta, Georgia, USA.*
- [30] C.E. Baker, R. Rahmani, S. Theodossiades, H. Rahnejat and B. Fitzsimons, Thermo-elastohydrodynamics of a rough piston compression ring-to-cylinder bore conjunction. *2011 STLE Annual Meeting & Exhibition, 2011, Atlanta, Georgia, USA.*

- [31]** B. Littlefair, S. Howell-Smith, S. Theodossiades, P.D. King and H. Rahnejat, Tribology of piston skirt conjunction. *3rd European Conference in Tribology (ECOTRIB 2011), 2011, Vienna, Austria.*
- [32]** C. E. Baker, R. Rahmani, Stephanos Theodossiades and H. Rahnejat, Analytical evaluation of fitted piston compression ring modal behaviour and frictional assessment. *SAE 2011 Noise and Vibration Conference and Exhibition, 2011, Grand Rapids, Michigan, USA.*
- [33]** I. Nerantzis, E. Athanasopoulos, A. Mihailidis and S. Theodossiades, Handling performance of a vehicle equipped with an actively controlled differential. *SAE 2011 Noise and Vibration Conference and Exhibition, 2011, Grand Rapids, Michigan, USA.*
- [34]** M. Perera, S. Theodossiades, H. Rahnejat and P. Kelly, Drive rattle elastodynamic response of manual automotive transmissions. *SAE 2011 Noise and Vibration Conference and Exhibition, 2011, Grand Rapids, Michigan, USA.*
- [35]** Stephanos Theodossiades, Homer Rahnejat and Darren Hodson, Tribological Studies in Pressurized Metered Dose Inhalers. *Respiratory Drug Delivery (RDD) 2011, Berlin, Germany.*
- [36]** D. W. Grimble, S. Theodossiades, H. Rahnejat and D. Hodson, Prediction of Tribological Phenomena in Drug Delivery Devices. *Drug Delivery to the Lungs 21 (DDL21), The Aerosol Society, 2010, Edinburgh, UK.*
- [37]** De la Cruz, M., Theodossiades, S. and Rahnejat, H. Analysis of non-linear impact dynamics in automotive transmissions – gear rattle. *The Seventh International Conference on Engineering Computational Technology, 2010, Valencia, Spain.*
- [38]** Ioannis Nerantzis, Dimitrios Perperidis, Stephanos Theodossiades, Athanassios Mihailidis. Analysis of a New System for Testing Gears under Variable Torque and Speed using Multibody Dynamics. *The 1st Joint International Conference on Multibody System Dynamics, 2010, Lappeenranta, Finland.*
- [39]** G. Koronias, S. Theodossiades, H. Rahnejat and T.Saunders. Vibrations of differential units in light trucks. *The 1st Joint International Conference on Multibody System Dynamics, 2010, Lappeenranta, Finland.*
- [40]** M.S.M. Perera, M. De la Cruz, S. Theodossiades, H. Rahnejat and P. Kelly. Elastodynamic response of automotive transmissions to impact induced vibrations. *The 1st Joint International Conference on Multibody System Dynamics, 2010, Lappeenranta, Finland.*

- [41] Teodorescu, M., Theodossiades, S. and Rahnejat, H. Prediction for MEMS micro-gears frictional impact degradation. *World Tribology Congress 2009, Kyoto, Japan*.
- [42] Prokopovich, P., Theodossiades, S., Rahnejat, H. and Hodson, H. Nano- and component level friction of rubber seals in dispensing devices. *2009 ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference – 3rd International Conference on Micro- and Nanosystems, San Diego, USA*.
- [43] Perera, M., Theodossiades, S. and Rahnejat, H., *EAEC 2009, 12th EAEC European Automotive Congress, Bratislava*, Effect of offsetting crankshaft on engine efficiency.
- [44] Teodorescu, M., Theodossiades, S. and Rahnejat, H. Nano-scale Impact dynamics of ultra-thin bonded layers, *2009 ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference – 3rd International Conference on Micro- and Nanosystems, San Diego, USA*.
- [45] De la Cruz, M., Theodossiades, S. and Rahnejat, H. The effect of thermo-hydrodynamics on manual automotive transmissions gear rattle. *2009 ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference – 22nd Biennial Conference on Mechanical Vibration and Noise, San Diego, USA*.
- [46] De la Cruz, M., Theodossiades, S., Rahnejat, H. and Kelly, P. Numerical and experimental analysis of manual transmissions - gear rattle. *SAE Proceedings, SAE 2009 World Congress, Detroit, USA*.
- [47] De la Cruz, M., Theodossiades, S., Rahnejat, H. and King, P. Transient lubricant conjunctional behaviour in transmission rattle. *ECOTRIB 2009, 2nd European Conference on Tribology, Pisa, Italy*.
- [48] Grimble, D.W., Theodossiades, S., Rahnejat, H. and Wilby, M. Tribology of Elastomeric Seals in Drug Delivery Devices. Proceedings of the *2008 Focus on Reciprocating Seals – Exploring the latest developments and their applications IMechE Event, London, UK*
- [49] Tangasawi, O., Theodossiades, S., Rahnejat, H. and Kelly, P., Simulating idle gear rattle conditions in manual automotive transmissions. Proceedings of the *2008 NAFEMS UK Conference, Cheltenham, UK*.
- [50] De la Cruz, M., Theodossiades, S., Rahnejat, H. and Kelly, P., Impact dynamic behaviour of meshing loaded teeth in transmission drive rattle. Proceedings of the *Sixth EUROMECH Nonlinear Dynamics Conference (ENOC-2008), St Petersburg, Russia*.
- [51] Theodossiades, S., Teodorescu, M. and Rahnejat, H., Impact dynamics of MEMS gear teeth. Proceedings of the *Sixth EUROMECH Nonlinear Dynamics Conference (ENOC-2008), St Petersburg, Russia*.

- [52] Teodorescu, M., Theodossiades, S. and Rahnejat, H., Nano-scale impact characteristics of rough surfaces in humid atmosphere with full or partial SAM protection. Proceedings of the *2nd ASME International Conference on Micro- and Nanosystems (MNS), IDETC 2008*, New York, USA.
- [53] Theodossiades, S., Rahnejat, H. and Kelly, P., *2007 ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference – 21st Biennial Conference on Mechanical Vibration and Noise, Las Vegas, USA*, On the effect of cardboard liners on impact-induced high frequency vehicular driveline vibrations.
- [54] Teodorescu, M., Theodossiades, S. and Rahnejat, H., Multi-physics approach to design analysis of powertrain sub-systems. Proceedings of the 12th IFToMM World Congress, 2007, Besancon, France.
- [55] Theodossiades, S., Tangasawi, O., Rahnejat, H. and Kelly, P., The effect of hydrodynamic conjunctions on gear teeth oscillations. 2nd International Conference on Nonlinear Normal Modes and Localization in Vibrating Systems (NNMS), June 2006, Samos, Greece.
- [56] Tangasawi, O., Theodossiades, S., Rahnejat, H. and Kelly, P., Gear Teeth Impacts in Hydrodynamic Conjunctions: Idle Rattle, IMechE Integrated Powertrain & Driveline Systems Conference, 2006, Ford Motor Company, Dunton, UK.
- [57] Perera, M., Theodossiades, S. and Rahnejat, H., *2005 ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference - 20th Biennial Conference on Mechanical Vibration and Noise, Long Beach, USA*, Determination of Engine Roughness Using Multi-Physics Numerical Predictions.
- [58] Tangasawi, O., Theodossiades, S., Rahnejat, H. and Kelly, P., *Proceedings of the 5th EUROMECH Nonlinear Dynamics Conference, Eindhoven, 2005*, Gear teeth impact dynamics in manual transmissions promoting idle rattle.
- [59] Teodorescu, S., Theodossiades, S. and Rahnejat, H. Multi-body Dynamics: An evolution from constrained inertial dynamics to a multi-physics interactive framework. *Proceedings of the ASI on Engineering-Design: Eco-design, Technologies and Green Energy, Springer, Brasov 2004. (Keynote paper)*.
- [60] Theodossiades, S., Gnanakumarr, M.M., Rahnejat, H. and Menday, M., "Combined Multi-body Dynamics, Structural Modal Analysis, and Boundary Element Method to Predict Multi-physics Interactions of Driveline Clonk", *Multi-body Dynamics: Monitoring and Simulation Techniques - III*, H. Rahnejat and S.J. Rothberg (eds), Professional Engineering Publishing Limited, Loughborough, UK, 2004, pp 373-387, ISBN 1-86058-463-2
- [61] Theodossiades, S., Gnanakumarr, M., Rahnejat, H. and Menday, M. *ASME International Mechanical Engineering Congress and R&D Expo*, Washington 2003. Elasto-Multibody Dynamic Simulation of Impact Induced High Frequency Vehicular Driveline Vibrations.

- [62]** Gnanakumarr, M., Theodossiades, S., Rahnejat, H. and Menday, M., *5th Euromech Solid Mechanics Conference*, Thessaloniki 2003 Impact Induced High Frequency Vibration of Vehicular Driveline Systems with Elasto-acoustic Waves Coincidence.
- [63]** Gnanakumarr, M., Theodossiades, S. and Rahnejat, H. The Tribo-Contact Dynamics Phenomenon in Torsional Impact of Loose Gears-Promoting Gear Rattle. *SAE Proceedings (SAE)-ATT Congress, Paris, 2002.*
- [64]** Natsiavas S. and Theodossiades, S. *ASME Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Pittsburgh, 2001 Geared Rotordynamic Systems on Hydrodynamic Bearings.
- [65]** Theodossiades, S. and Natsiavas, S. *Euromech Colloquium on Dynamics of Vibro-Impact Systems*, Loughborough, 1998 Dynamics of Gear-Pair Systems with Backlash.
- [66]** Natsiavas, S. and Theodossiades, S. *ASME Design Engineering Technical Conference*, Sacramento, 1997 Piecewise Linear Systems with Time Varying Coefficients.
- [67]** Natsiavas, S., Bouzakis, K. D. and Theodossiades, S. *4th International Conference of the Laboratory of Machine Elements and Machine Design of the Mechanical Engineering Department of the Aristotle University of Thessaloniki*, Thessaloniki, Greece, 1996 Dynamical and Vibrational Behaviour of Planetary Gear Mechanisms.

(iv)- Refereed Papers in National Conferences:

- [68]** Theodossiades, S., Natsiavas, S. and Goudas, I. *5th National Mechanics Conference*, Ioannina, Greece, 1998 Dynamics of Systems with Piecewise Linear Characteristics and Periodic Coefficients.

(v)- Refereed Extended Abstracts in International Conferences:

- [69]** Miguel De la Cruz, Stephanos Theodossiades and Homer Rahnejat, Transmission Rattle: An Air and structure-borne Phenomenon. *Proceedings of the Seventh European Nonlinear Oscillations Conference (ENOC-2011)*, 2011, Rome, Italy.
- [70]** Ioannis Karagiannis and Stephanos Theodossiades, Targeted energy transfer in hypoid gears of automotive differentials. *Proceedings of the Seventh European Nonlinear Oscillations Conference (ENOC-2011)*, Rome, 2011, Italy.

(vi)- Refereed Abstracts in International Conferences:

- [71]** I.Karagiannis, S.Theodossiades and H.Rahnejat, Dynamics of Hypoid Gears in Automotive Differential Units. *2nd International Conference on Vibro-Impact Systems*, 2010, Sanya, P.R. China.

- [72]** Koronias, G., Theodossiades, S., Rahnejat, H. and Saunders, T., Rear axle whine investigations in light trucks. 4th International Conference on Advanced Computational Methods in Engineering (ACOMEN), 2008, Liege, Belgium.
- [73]** De la Cruz, M., Theodossiades, S., Rahnejat, H. and Kelly, P., Drive rattle in manual automotive transmissions. 4th International Conference on Advanced Computational Methods in Engineering (ACOMEN), 2008, Liege, Belgium.
- [74]** Teodorescu, M., Theodossiades, S. and Rahnejat, H., Influence of SAM Degradation on MEMS-Gear Dynamics. Proceedings of the *5th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2008)*, Venice, Italy.
- [75]** Grimble, D., Theodossiades, S., Rahnejat, H. and Wilby, M., An Understanding of the Dynamic Interactions between Elastomeric Components and Formulation in Pressurized Metered Dose Inhalers, Investing in Medical Nanotechnologies II, 2007, The Royal College of Surgeons of England, London
- [76]** Tangasawi, O., Theodossiades, S., Rahnejat, H. and Kelly, P., Theoretical and Experimental analysis of Automotive Idle Gears Rattle. 6th European Solid Mechanics Conference ESMC, 2006, Budapest, Hungary.
- [77]** Theodossiades, S., Teodorescu, M. and Rahnejat, H. Multi-physics analysis for MEMS meshing micro-gear contacts. Engineering and Physics – Synergy for Success, 2006, London, UK.
- [78]** Tangasawi, O., Theodossiades, S. and Rahnejat, H., Lightly loaded lubricated impacts: idle gear rattle. 1st International Conference on Vibro-Impact Systems, July 2006, Loughborough, UK.
- [79]** Theodossiades, S., Goudas, I. and Natsiavas, S. *Eighth Conference on Nonlinear Vibrations, Stability and Dynamics of Structures*, Blakburg, Virginia, 2000 Dynamics of Motor-Driven Gear-Pair Systems.
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