

Curriculum Vitae

Antonio Papangelo, Ph.D.

Date of Birth: 21/07/1989

Nationality: Italian

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Education

- Jan 2014 – Dec 2016* Polytechnic University of Bari, Department of Mechanics, Mathematics and Management, Bari, Italy
(3 years) **PhD in Mechanics and Management Engineering, SSD: ING-IND/14**
PhD Thesis: "Stick-Slip Transition and Dynamic Cyclic Response of Friction Damped Systems"
Tutor: Prof. Ing. M. Ciavarella, Prof. Ing. L. Afferrante
- Oct 2011 – Dec 2013* Polytechnic University of Bari, Italy
(2 years) **Master of Engineering, Mechanical Engineering, 110/110 cum laude**
Thesis: "Interpretations of static friction innovative experiments with applications to creep groan"
Tutor: Prof. Ing. G.P. Demelio, Prof. Ing. M. Ciavarella
- Oct 2008 – Oct 2011* Polytechnic University of Bari, Italy
(3 years) **Bachelor of Engineering, Mechanical Engineering, 110/110 cum laude**
Thesis: "Finite Element study of the elastic stability of thin wall rods"
Bari, Italy
Tutor: Prof. Ing. G.P. Demelio

Research Experience

- Aug 2019 – present* **Research Fellow (RTD – A)**
Polytechnic University of Bari, Department of Mechanics, Mathematics and Management, **Bari, Italy**
Research themes: contact mechanics, viscoelasticity, friction, adhesion, nonlinear dynamics, spatial localization of vibrations.
- Feb 2018 – present* **Visiting Researcher**
Hamburg University of Technology, Department of Mechanical Engineering, Dynamics Group (<https://cgi.tu-harburg.de/~dynwww>), **Hamburg, Germany**
Research themes: dynamic response of nonlinear mechanical structures, data driven methodologies for the study of nonlinear mechanical systems.
- Nov 2018 – Lug 2019* **Research Fellow (DFG project, PA 3303/1-1)**
(9 months) Hamburg University of Technology, Department of Mechanical Engineering, Dynamics Group (<https://cgi.tu-harburg.de/~dynwww>), **Hamburg, Germany**

Research themes: dynamic instability of nonlinear mechanical structures.

Jan 2018 – Oct 2018 **Post-Doc researcher**

(10 months)

Polytechnic University of Bari, Department of Mechanics, Mathematics and Management, **Bari, Italy**

Research themes: adhesion, contact mechanics, dynamical behaviour of friction-excited mechanical systems.

Oct 2016 – Jan 2018 **Research Fellow (DFG project HO 3852/11-1.)**

(1 year and 4 months)

Hamburg University of Technology, Department of Mechanical Engineering, Structural dynamics Group (<https://cgi.tu-harburg.de/~dynwww>), **Hamburg, Germany**

Research themes: dynamical behaviour of friction-excited mechanical systems.

Nov 2015 – Mar 2016 **Visiting PhD student**

(5 months)

Imperial College London, Department of Mechanical Engineering, **London, United Kingdom**

Research themes: vibration localization in mechanical systems.

Jun 2015 – Jul 2015 **Visiting PhD Student**

(1.5 months)

Sandia National Laboratories, Nonlinear Mechanics and Dynamics Summer Research Institute 2015, **Albuquerque, New Mexico, USA**

Research themes: optimal positioning of dampers in mechanical structures.

May 2013 – Aug 2013 **Trainer (Erasmus placement)**

(4 months)

Topic: transition from sticking to sliding, friction, contact mechanics
Hamburg University of Technology, Germany

Research themes: stick-slip transition.

Metrics (16/01/2022)

	N° documents indexed	Citations	H-index
Scopus	65	665	15
Google Scholar	79	931	18

Awards/Funding

Funding Responsibility

- **Title: “Towards future interfaces with tuneable adhesion by dynamic excitation” (SURFACE - 101039198) ERC-2021- Starting Grant**

Principal Investigator. SURFACE aims to study micro-structured adhesive surfaces whose adhesive properties are tuneable through the use of micro-vibrations. SURFACE funds (1.5 M€) aim at establishing a research group of 6 members at PhD and Post-Doc level for 5 years and a tribo-dynamics laboratory at the Department of Mechanics, Mathematics and Management

at the Polytechnic of Bari. SURFACE is the very first ERC research project hosted at Polytechnic of Bari.

Grant: 1.499.750 € (December 2021)

- **Title: “Dynamic instabilities in viscoelastic sliding contacts”**

Principal Investigator. Project granted by Polytechnic University of Bari, Grant: 1.986 € (October 2021)

- **Title: “exploiting nonlinearities for friction-induced vibrations mitigation (ENOVIM)”**

Principal Investigator. Project granted by Regione Puglia (Progetti di ricerca scientifica innovativi di elevato standard internazionale, art. 22 della legge regionale 30 novembre 2019, n. 52).

Grant: 38.149,21 € (June 2021)

- **Title: “Nonlinear Vibration Localization in Cyclic Structures”**

Joint responsibility together with Prof. N. Hoffmann of the project granted by the German Research Foundation (DFG) project HO 3852/19-1.

Grant: 252.675 € (October 2020)

- **Title: "Advanced modelling of soft adhesive contacts subjected to tangential loads"**

Principal Investigator. Project granted by Polytechnic University of Bari, Grant: 1.540 € (August 2020)

- **Title: "Vibration localization in nonlinear aeroelastic mechanical systems"**

Principal Investigator. Project granted by TuTech Innovation GmbH (DE). Grant: 4.880 € (January 2020)

- **Title: “Exploring and exploiting complex nonlinear dynamical states in friction-excited mechanical systems”.**

Principal Investigator. Project granted by the DFG (German Research Foundation) project PA 3303/1-1.

Grant: 180.200 € (April 2018)

*Participation in
Research Projects*

- **"Risposta dinamica di strutture a simmetria ciclica eccitate esternamente con applicazione ai motori aeronautici di tipo Turbofan",** funded by PON "Ricerca e Innovazione" 2014-2020 Azione I.2 "Mobilità dei Ricercatori" – bando AIM, Referente Prof. Gregorio Andria

- **“Simulation of transient processes in wear between sliding elastic bodies of different properties”**, funded by Polytechnic University of Bari, PI: Prof. M. Ciavarella (2019).

- **“Nonlinear Dynamical behaviour of friction excited systems”**, funded by the Italian Ministry of University and Research, within the grant for the

- Centre of Excellence in Computational Mechanics. PI: Prof. M. Ciavarella (2018).
- “**Interface dynamics in bolted joint connections**”, funded by German Research Foundation, Hamburg University of Technology, project HO 3852/11-1. PI: Prof. N. Hoffmann (2017).
- Awards*
- The paper “Genovese, A., Farroni, F., Papangelo, A., & Ciavarella, M. (2019). *Lubricants*, 7(10), 85” received the **2021 best paper award** from the *Lubricants* editorial team (July 2021)
 - The paper “Papangelo, A., Ciavarella, M., *Lubricants* 2020, 8(9), 90” was selected for the **cover story of *Lubricants***, Volume 8, Issue 9 (September 2020)
 - **Winner of the DMMM researcher award**, for the year 2020, provided within the “Department of Excellence” project, to the professors and researchers of the DMMM (Polytechnic University of Bari) who have distinguished themselves for the quality of their research, Award: 4.000 €. (August 2020)
 - **Best Presentation for Academic Impact** from the Institute of Physics (London) during the “Workshop on Recent Advances in Damping Modelling and Experiments” (November 2019)
 - **Seal of Excellence:** The research proposal entitled "Exploiting nonlinearities for friction-induced vibrations mitigation" received from the European Commission the "**seal of excellence**". The Seal of Excellence is a quality label awarded to project proposals submitted to Horizon 2020, which pass the three quality threshold (mark equal or greater than 85/100) for impact, excellence, quality and efficiency of implementation. (March 2018)
 - Award sponsored by **Autostrade per l'Italia spa** for my academic studies, within the programme “Autostrade per la conoscenza”. **Award amount: 8.000 €.** (July 2012)

Other Activities

07/11/2018 – 07/11/2024 Italian Habilitation as Associate Professor (Machine design, SSD ING-IND/14)

Engineering license In 2014 passed the government exam and licensed as Industrial Engineer

Mark: 340/360 (This was the highest mark in that session. About 100 applicants)

- Teaching*
- “Elements of mechanics of materials”, 6 CFU (60 h), A.A. 2021/2022 – II semester, within the Bachelor Degree in “Management Engineering” at Polytechnic of Bari;
 - "Dynamical behavior of nonlinear structures”, 2 CFU (20 h) A.A. 2021/2022, PhD course at Scuola di Dottorato del Politecnico di Bari
 - Invited lectures within the course of "Advanced Vibrations”, 1 CFU (10 h), A.A. 2019/2020, within the Master Degree in “Mechanical Engineering” at Hamburg University of Technology (Germany);

- Invited lectures within the course of "Advanced Vibrations", 1 CFU (10 h), A.A. 2020/2021, within the Master Degree in "Mechanical Engineering" at Hamburg University of Technology (Germany);
- "Mechanics of materials for aerospace", 6 CFU (60 h), A.A. 2019/2020 – I semester
A.A. 2020/2021 – I semester
A.A. 2021/2022 – I semester, within the Bachelor Degree in "Aerospace Systems Engineering" at Polytechnic of Bari;
- "Dynamical systems and chaos: applications", 2 CFU (20 h) A.A. 2018/2019, PhD course at Scuola di Dottorato del Politecnico di Bari
- Peer Tutoring at Polytechnic of Bari. (150 hours);
- Co-Advisor of 7 master thesis and 8 bachelor thesis in mechanical engineering;
- Teaching Assistant: Smart Materials (20 hours), Hands on Ansys (10 hours), Optimization Methods (20 hours), Mechanics of Materials (10 hours)

Supervision

- Co-supervision of 2 PhD students at the Hamburg University of Technology, Dynamics Group.

(i) Msc. Bjoern Niedergesäß is engaged in the development of a test bench for the experimental measurement of vibrations in nonlinear systems, with a focus on spatial and temporal localization. The first experimental results were published in "Niedergesäß et al., Journal of Sound and Vibration, 2021, 497: 115952". My activity has focused on supporting the design of the test bench and interpreting the experimental measurements.

(ii) The DR. Merten Stender, obtained the title of PhD in October 2020. My supervision activity focused on supporting the development of "data-driven" methodologies for the study of the dynamic response of nonlinear mechanical systems, both in self-excited and forced externally. The results obtained have been published in 5 scientific articles that see me as co-author.

- Supervisor of 2 three-year degree theses on issues relating to fracture mechanics;
- Supervisor of 2 three-year degree theses (in preparation) on issues relating to the mechanics of adhesive contact;
- Co-supervisor of 12 master's degree theses and 7 three-year degree theses on topics related to mechanical design, tribology, and nonlinear dynamics;

Journal Referee

Journal of Mechanics and Physics of Solids (**IF: 5.47**), Nonlinear Dynamics (**IF: 4.60**), International Journal of Mechanical Science (**IF: 4.13**), Journal of Sound and Vibrations (**IF: 3.12**), Mechanical Systems and Signal Processing (**IF: 5.01**), International Journal of Bifurcation and Chaos (**IF: 2.15**), Journal of Tribology ASME (**IF: 1.79**), Applied Sciences Vibrations (**IF: 1.32**), Applied Sciences Lubricants (**IF: 1.32**), Proceedings of the Institution of Mechanical Engineers, Part J-L-C (**IF: 1.32**), Facta Universitatis, Series: Mechanical Engineering, Shock and Vibrations

<i>Journal Editorial Board</i>	<ul style="list-style-type: none"> - Member of the Editorial Board of “Lubricants” (MDPI) (since 2020) - Guest Editor for the Special Issue "Interfacial Dissipative Phenomena in Tribomechanical Systems", published in Lubricants (MDPI), (since April 2020). - Member of the Editorial Board of “Frontiers in mechanical Engineering”, section “Tribology” (since 2019) - Member of the Editorial Board of “Frontiers in mechanical Engineering”, section “Vibration Systems” (since 2021) - Editor for the Research Topic "Fingerpad Contact Mechanics and Friction under Electroadhesion", in “Frontiers in Mechanical Engineering”, section “Tribology”;
<i>Languages</i>	English (B2), mother tongue: Italian
<i>Scientific Memberships</i>	Euromech, AIAS, AIMETA, GADeS
<i>Scientific/Organizing Committee</i>	<ul style="list-style-type: none"> - Organizer and coordinator of the Mini-Symposium “Nonlinear Response of Mechanical Systems Subjected to Contact Nonlinearities”, at the “42nd Ibero-Latin-American Congress on Computational Methods in Engineering” (XLII CILAMCE) and at the “3rd Pan American Congress on Computational Mechanics” (III PANACM), 9-12 November 2021, Rio de Janeiro (Brazil). - Member of the Scientific Committee and of the Organizing Committee for the workshop on “Irregular Engineering Oscillations and Signal Processing“, held from September 10 to 12, 2018 at Hamburg University of Technology.
<i>Chair in international conferences</i>	<ul style="list-style-type: none"> - Chair of the symposium "Fluid-Structure Interaction IV", within the "NODYCON 2021" conference, hosted by La Sapienza University, Rome. - Chair of the symposium "Nonlinear Dynamics in Engineering Systems", within the "9th European Nonlinear Dynamics Conference" (ENOC 2017), held from June 25 to 30, 2017 at Budapest University of Technology and Economics, Hungary. - Chair of the symposium " MS-027 - Computational methods for sound and vibration", within the "7th International Conference on Computational Methods" (ICCM2016), held from August 1 to 4, 2016 at University of California at Berkeley, California (USA).
<i>URL</i>	<p>https://cgi.tu-harburg.de/~dynwww/cgi-bin/home/</p> <p>https://scholar.google.it/citations?user=kUaZTJYAAAAJ&hl=it</p> <p>https://www.researchgate.net/profile/Antonio_Papangelo</p> <p>https://www.scopus.com/authid/detail.uri?authorId=56426970600</p>
<i>Other activities</i>	Engineering consultant for TuTech Innovation GmbH

Selected journal publications

1. Papangelo, A., Ciavarella, M. The effect of wear on ThermoElastic Instabilities (TEI) in bimaterial interfaces (2020) **Tribology International**, 142, art. no. 105977. **(IF: 4.27)**
2. Papangelo, A., Putignano, C., & Hoffmann, N. (2020). Self-excited vibrations due to viscoelastic interactions. **Mechanical Systems and Signal Processing**, 144, 106894. **(IF: 6.47)**
3. Sahli, R., Pallares, G., Papangelo, A., Ciavarella, M., Ducottet, C., Ponthus, N., Scheibert, J. Shear-Induced Anisotropy in Rough Elastomer Contact (2019) **Physical Review Letters**, 122 (21), art. no. 214301. **(IF=9,23)**
4. Papangelo, A., Scheibert, J., Sahli, R., Pallares, G., Ciavarella, M., Shear-induced contact area anisotropy explained by a fracture mechanics model, (2019) **Physical Review E**, 99 (5), art. no. 053005. **(IF: 2.28)**
5. Papangelo, A., Ciavarella, M. On mixed-mode fracture mechanics models for contact area reduction under shear load in soft materials (2019) **Journal of the Mechanics and Physics of Solids**, 124, pp. 159-171. **(IF=5)**
6. Papangelo, A., Hoffmann, N., Grolet, A., Stender, M., Ciavarella, M. Multiple spatially localized dynamical states in friction-excited oscillator chains (2018) **Journal of Sound and Vibration**, 417, pp. 56-64. **(IF=3,12)**
7. Vakis, A.I., Yastrebov, V.A., Scheibert, J., Nicola, L., Dini, D., Minfray, C., Almqvist, A., Paggi, M., Lee, S., Limbert, G., Molinari, J.F., Anciaux, G., Aghababaei, R., Echeverri Restrepo, S., Papangelo, A., Cammarata, A., Nicolini, P., Putignano, C., Carbone, G., Stupkiewicz, S., Lengiewicz, J., Costagliola, G., Bosia, F., Guarino, R., Pugno, N.M., Müser, M.H., Ciavarella, M. Modeling and simulation in tribology across scales: An overview (2018) **Tribology International**, 125, pp. 169-199. **(IF: 4.27)**
8. Papangelo, A., Hoffmann, N., Ciavarella, M. Load-separation curves for the contact of self-affine rough surfaces (2017) **Scientific Reports**, 7 (1), art. no. 6900. **(IF=4,12)**
9. Ciavarella, M., Papangelo, A. Discussion of "measuring and Understanding Contact Area at the Nanoscale: A Review" (Jacobs, T. D. B., and Ashlie Martini, A., 2017, ASME Appl. Mech. Rev., 69(6), p. 061101) (2017) **Applied Mechanics Reviews**, 69 (6), art. no. 065502. **(IF: 7.85)**
10. Papangelo, A., Ciavarella, M., Hoffmann, N. Subcritical bifurcation in a self-excited single-degree-of freedom system with velocity weakening-strengthening friction law: analytical results and comparison with experiments (2017) **Nonlinear Dynamics**, 90 (3), pp. 2037-2046. **(IF=3,46)**

Invited Presentation

1. Seminar "Modelling soft adhesive contact under shear loads" at the **IMT Scuola Alti studi Lucca**, 09/04/2021. Invited by Prof. M. Paggi.
2. 9th International Forum on Fundamentals of Sliding Friction and Vibration, 8-9 July 2019, **Applus+ IDIADA**, Spain
3. Seminar on adhesive friction and fracture mechanics models, **Università Federico II**, 8 February 2019, Napoli
4. Seminar at **Pprime Institute (a research unit affiliated to CNRS) Poitiers** on frictional contacts and nonlinear dynamics, July, 2018. Prof. M. Arghir
5. Seminar for the Department of Aerospace and Mechanical Engineering, at the **La Sapienza University (Rome)** on frictional contacts, February, 2018. Prof. F. Massi
6. Seminar for the Department of Aerospace and Mechanical Engineering, at the **University of Liège (Belgium)**, on frictional contacts, December 19, 2017. Prof. G. Kerschen

7. Seminar for the Department of Aerospace and Mechanical Engineering, at **Polytechnic of Turin (Italy)**, vibration localization in friction affected systems, December, 2017. Prof. S. Zucca
8. GADeS Summer School on Stability and Bifurcation of Dynamical Systems: Theoretical Aspects and Applications, July 3-7, 2017, **Savona, Italy**
9. Lorentz Center Workshop, Micro/Nanoscale Models for Tribology, Jan 30 – Feb 3, 2017, **Leiden, The Netherlands**

Oral Presentation at National and International Conferences and Workshops

1. **Workshop, Wear Particle Transport and Emission**, Feb 24-25, 2021, TU-Berlin
2. **NODYCON 2021**, February 16-19, 2021, Virtual Conference, Italy
3. 49° National Congress **AIAS 2020**, September 2-4, 2020, Virtual Conference, Italy
4. Workshop on Recent Advances in Damping Modelling and Experiments, 11 November 2019, Institute of Physics, London
5. XXIV Conference **AIMETA 2019**, September 15-19, 2019, Rome, Italy
6. 5th International Conference on Structural Adhesive Bonding (**AB2019**), 11-12 July 2019, Porto, Portugal
7. First International Nonlinear Dynamics Conference Program (**NODYCON 2019**), 17-20 February 2019, Roma
8. Colloquium on Irregular Engineering Oscillations and Signal Processing, September 10-12, 2018, Hamburg, Germany
9. 47° National Congress **AIAS 2018**, September 5-8, 2020, Villa San Giovanni, Italy
10. 4th International Conference on vibro-impact systems (**ICOVIS 2018**) and systems with contact and friction, 30 July – 3 August 2018, Kessel, Germania
11. 10th European Solid Mechanics Conference (**ESMC 2018**), 2-6 July 2018, Bologna, Italia
12. Contact Mechanics International Symposium (**CMIS 2018**), May 16-18, 2018, Oropa (BI), Italy
13. International Workshop on Adhesion and Friction: Simulation, Experiment, Applications, November 13-16, 2017, Berlin
14. Sixth World Tribology Congress (**WTC 2017**), September 17-22, 2017, Beijing, China
15. XXIII National Congress **AIMETA 2017**, September 4-7, 2017, Salerno, Italy
16. 9th European Nonlinear Dynamics Conference (**ENOC 2017**), June 25-30, 2017, Budapest, Hungary
17. 7th International Conference on Computational Methods (**ICCM 2016**), 1-4 August 2016, Berkeley, CA, USA
18. 8th Contact Mechanics International Symposium 2016 (**CMIS 2016**), 11-13 May, 2016, Warsaw, Poland
19. 45° National Congress **AIAS 2016**, September 7-10, 2016, Trieste, Italy
20. 42nd Leeds-Lyon Symposium on Tribology (**Leeds-Lyon 2015**), September 7-9, 2015, Lyon, France
21. Contact Mechanics And Coupled Problems In Surface Phenomena, **Euromech Colloquium 575 – 2015**, March 30 – April 2, 2015, IMT, Lucca, Italy

Full Publication List from Scopus

EXPORT DATE: 11 Jan 2021

- [1] Papangelo, A., & Ciavarella, M. A criterion for the effective work of adhesion in loading and unloading of adhesive soft solids from rough surfaces (2021) Tribology Letters, 69(1), pp. 1-10.

- [2] Niedergesäß, B., Papangelo, A., Grolet, A., Vizzaccaro, A., Fontanela, F., Salles, L., ... & Hoffmann, N. Experimental observations of nonlinear vibration localization in a cyclic chain of weakly coupled nonlinear oscillators (2021) *Journal of Sound and Vibration*, 115952.
- [3] Nitti, A., Stender, M., Hoffmann, N., & Papangelo, A. Spatially localized vibrations in a rotor subjected to flutter (2021) *Nonlinear Dynamics*, 103(1), 309-325.
- [4] Argatov, I., Papangelo, A. Axisymmetric JKR-type adhesive contact under equibiaxial stretching (2021) *Journal of Adhesion*, 97 (2), pp. 140-154.
- [5] Stender, M., Hoffmann, N., Papangelo, A. The basin stability of bi-stable friction-excited oscillators (2020) *Lubricants*, 8 (12), art. no. 105, pp. 1-12.
- [6] Papangelo, A., Lovino, R., Ciavarella, M. Electroadhesive sphere-flat contact problem: A comparison between DMT and full iterative finite element solutions (2020) *Tribology International*, 152, art. no. 106542, .
- [7] Papangelo, A., Cricri, G., Ciavarella, M. On the effect of the loading apparatus stiffness on the equilibrium and stability of soft adhesive contacts under shear loads (2020) *Journal of the Mechanics and Physics of Solids*, 144, art. no. 104099.
- [8] Tonazzi, D., Passafiume, M., Papangelo, A., Hoffmann, N., Massi, F. Numerical and experimental analysis of the bi-stable state for frictional continuous system (2020) *Nonlinear Dynamics*, 102 (3), pp. 1361-1374.
- [9] Papangelo, A., Putignano, C., Hoffmann, N. Self-excited vibrations due to viscoelastic interactions (2020) *Mechanical Systems and Signal Processing*, 144, art. no. 106894.
- [10] Papangelo, A., Ciavarella, M. A numerical study on roughness-induced adhesion enhancement in a sphere with an axisymmetric sinusoidal waviness using Lennard-Jones interaction law (2020) *Lubricants*, 8 (9), art. no. 90.
- [11] Ciavarella, M., Papangelo, A. On the Degree of Irreversibility of Friction in Sheared Soft Adhesive Contacts (2020) *Tribology Letters*, 68 (3), art. no. 81.
- [12] Aleshin, V.V., Papangelo, A. Friction-induced energy losses in mechanical contacts subject to random vibrations (2020) *International Journal of Solids and Structures*, 190, pp. 148-155.
- [13] Ciavarella, M., Papangelo, A., Barber, J.R. Effect of Wear on the Evolution of Contact Pressure at a Bimaterial Sliding Interface (2020) *Tribology Letters*, 68 (1), art. no. 27, .
- [14] Papangelo, A., Ciavarella, M. The effect of wear on ThermoElastic Instabilities (TEI) in bimaterial interfaces (2020) *Tribology International*, 142, art. no. 105977, .
- [15] Argatov, I., Papangelo, A., Ciavarella, M. Elliptical adhesive contact under biaxial stretching (2020) *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 476 (2233), art. no. 20190507, .
- [16] Shiroky, I.B., Papangelo, A., Hoffmann, N., Gendelman, O.V. Nucleation and propagation of excitation fronts in self-excited systems (2020) *Physica D: Nonlinear Phenomena*, 401, art. no. 132176, .
- [17] Genovese, A., Carputo, F., Ciavarella, M., Farroni, F., Papangelo, A., Sakhnevych, A. Analysis of multiscale theories for viscoelastic rubber friction (2020) *Lecture Notes in Mechanical Engineering*, pp. 1125-1135.
- [18] Genovese, A., Farroni, F., Papangelo, A., Ciavarella, M. A discussion on present theories of rubber friction, with particular reference to different possible choices of arbitrary roughness cutoff parameters (2019) *Lubricants*, 7 (10), art. no. 85, .

- [19] Didonna, M., Stender, M., Papangelo, A., Fontanela, F., Ciavarella, M., Hoffmann, N. Reconstruction of governing equations from vibration measurements for geometrically nonlinear systems (2019) *Lubricants*, 7 (8), art. no. 64, .
- [20] Papangelo, A., Scheibert, J., Sahli, R., Pallares, G., Ciavarella, M. Shear-induced contact area anisotropy explained by a fracture mechanics model (2019) *Physical Review E*, 99 (5), art. no. 053005, .
- [21] Sahli, R., Pallares, G., Papangelo, A., Ciavarella, M., Ducottet, C., Ponthus, N., Scheibert, J. Shear-Induced Anisotropy in Rough Elastomer Contact (2019) *Physical Review Letters*, 122 (21), art. no. 214301, .
- [22] Ciavarella, M., Papangelo, A. Extensions and comparisons of BAM (Bearing Area Model) for stickiness of hard multiscale randomly rough surfaces (2019) *Tribology International*, 133, pp. 263-270.
- [23] Tricarico, M., Papangelo, A., Constantinescu, A., Ciavarella, M. On adhesive theories in multilayered interfaces, with particular regard to "surface force apparatus" geometry (2019) *Facta Universitatis, Series: Mechanical Engineering*, 17 (1), pp. 95-102.
- [24] Papangelo, A., Ciavarella, M. On mixed-mode fracture mechanics models for contact area reduction under shear load in soft materials (2019) *Journal of the Mechanics and Physics of Solids*, 124, pp. 159-171.
- [25] Papangelo, A., Guarino, R., Pugno, N., Ciavarella, M. On unified crack propagation laws (2019) *Engineering Fracture Mechanics*, 207, pp. 269-276.
- [26] Papangelo, A., Fontanela, F., Grolet, A., Ciavarella, M., Hoffmann, N. Multistability and localization in forced cyclic symmetric structures modelled by weakly-coupled Duffing oscillators (2019) *Journal of Sound and Vibration*, 440, pp. 202-211.
- [27] Ciavarella, M., Papangelo, A. Some simple results on the multiscale viscoelastic friction (2019) *Facta Universitatis, Series: Mechanical Engineering*, 17 (2), pp. 191-205.
- [28] Violano, G., Afferrante, L., Papangelo, A., Ciavarella, M. On stickiness of multiscale randomly rough surfaces (2019) *Journal of Adhesion*, .
- [29] Ciavarella, M., Joe, J., Papangelo, A., Barber, J.R. The role of adhesion in contact mechanics (2019) *Journal of the Royal Society Interface*, 16 (151), art. no. 20180738, .
- [30] Vakis, A.I., Yastrebov, V.A., Scheibert, J., Nicola, L., Dini, D., Minfray, C., Almqvist, A., Paggi, M., Lee, S., Limbert, G., Molinari, J.F., Anciaux, G., Aghababaei, R., Echeverri Restrepo, S., Papangelo, A., Cammarata, A., Nicolini, P., Putignano, C., Carbone, G., Stupkiewicz, S., Lengiewicz, J., Costagliola, G., Bosia, F., Guarino, R., Pugno, N.M., Müser, M.H., Ciavarella, M. Modeling and simulation in tribology across scales: An overview (2018) *Tribology International*, 125, pp. 169-199.
- [31] Ciavarella, M., D'antuono, P., Papangelo, A. On the connection between Palmgren-Miner rule and crack propagation laws (2018) *Fatigue and Fracture of Engineering Materials and Structures*, 41 (7), pp. 1469-1475.
- [32] Ciavarella, M., Papangelo, A. On notch and crack size effects in fatigue, Paris' law and implications for Wöhler curves (2018) *Frattura ed Integrità Strutturale*, 12 (44), pp. 49-63.
- [33] Papangelo, A., Hoffmann, N., Grolet, A., Stender, M., Ciavarella, M. Multiple spatially localized dynamical states in friction-excited oscillator chains (2018) *Journal of Sound and Vibration*, 417, pp. 56-64.
- [34] Ciavarella, M., Papangelo, A. On the distribution and scatter of fatigue lives obtained by integration of crack growth curves: Does initial crack size distribution matter? (2018) *Engineering Fracture Mechanics*, 191, pp. 111-124.

- [35] Papangelo, A., Ciavarella, M. Adhesion of surfaces with wavy roughness and a shallow depression (2018) *Mechanics of Materials*, 118, pp. 11-16.
- [36] Ciavarella, M., Papangelo, A. A modified form of Pastewka–Robbins criterion for adhesion (2018) *Journal of Adhesion*, 94 (2), pp. 155-165.
- [37] Papangelo, A. Bio-inspired solution for optimal adhesive performance (2018) *Procedia Structural Integrity*, 12, pp. 265-273.
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