PERSONAL INFORMATION

Guido Violano

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Sex Male | Nationality Italian

CURRENT POSITION AND ROLE

- Assistant Professor of Mechanical Design and Machine Construction at Polytechnic University of Bari
- Member of the Academic Senate of Polytechnic University of Bari

WORK EXPERIENCE

June 2024 - Present
Assistant Professor (Tenure Track Research Fellow - RTT) of Mechanical Design and Machine Construction
Employer: Polytechnic University of Bari, DMMM, Bari (Italy)

June 2023 - June 2024
Research Fellow (Rtd-A)
Employer: Polytechnic University of Bari, DMMM, Bari (Italy)

January 2023 - June 2023
Postdoctoral Research Fellow
Employer: University of Saarland, Saarbruecken (Germany). Two-years research fellowship. - Principal Investigator: Prof. Martin Mueser.

January 2022 - January 2023
Postdoctoral Research Fellow
Employer: Polytechnic University of Bari, DMMM, Bari (Italy). One-year research fellowship whitin the project "Artificial Intelligence and Tribological Optimization", under the program “Department of Excellence” funded by Italian Ministry of Education, University and Research. - Principal Investigator: Prof. Luciano Afferrante.

January 2020 - January 2022
Postdoctoral Research Fellow
Employer: Polytechnic University of Bari, DMMM, Bari (Italy). Two-years research fellowship within the project "Design of materials and surface roughness for the optimization of bonding and debonding mechanisms of structural adhesives", in collaboration with MAGNA PT S.p.A. - Principal Investigator: Prof. Luciano Afferrante.

November 2016 - October 2019
PhD Graduate Student
Employer: Polytechnic University of Bari, DMMM, Bari (Italy). PhD in Mechanical Engineering - Thesis: "Adhesion of randomly rough surfaces" - Supervisor: Prof. Luciano Afferrante.

January 2019 - April 2019
Visiting Associate Research Scholar
Employer: École supérieure de physique et de chimie industrielles de la ville de Paris (ESPCI), Paris, (France) - Supervisor: Dr. Antoine Chateauminois.

September 2015 - May 2016
Research Internship
Employer: Polytechnic University of Bari, DICAR, Laboratory "prove materiali M. Salvati", Bari (Italy) - Supervisor: Prof. Aguinaldo Fraddosio.

EDUCATION AND TRAINING

December 2023

Italian Qualification for Associate Professorship in Mechanical Design and Machine Construction - Abilitazione Scientifica Nazionale (ASN) s.s.d. ING-IND/14

Ministero dell'Università e della Ricerca (MUR).

January 2020

Ph.D. Degree in Mechanical Engineering

Polytechnic University of Bari, DMMM, Bari (Italy)} \ecvitem{}{Ph.D. Thesis Title: "Adhesion of randomly rough surfaces". Supervisor: Prof. Luciano Afferrante.

March 2017

National Qualification as Engineer

Italian Association Engineers - Classe LM23, Bari (Italia)

July 2016

Summa cum laude MSc Degree in Civil Structural Engineering

Polytechnic University of Bari, Dicatech, Bari (Italy)} \ecvitem{}{MSc Thesis Title: "Fatigue damage induced anisotropy in metals: ultrasonic analysis". Supervisor: Prof. Aguinaldo Fraddosio. Mark:110L/110.

April 2014

Bachelor Degree in Civil Engineering

{Polytechnic University of Bari, Dicatech, Bari (Italy)} \ecvitem{}{Bachelor Thesis Title: "The structural design of masonry buildings". Supervisor: Prof. Mauro Mezzina. Mark: 110/110.

July 2010

High School Diploma

Liceo Scientifico "ISISS Federico II", Apricena, Foggia, (Italy). Mark: 100/100.

ADDITIONAL INFORMATION

Scientific Publications

- **Violano, G.**, Demelio, G. P., & Afferrante, L. (2025). Sliding viscoelastic contacts: Reciprocating adhesive contact mechanics and hysteretic loss. *Tribology Letters*, *73*(1), 21.awards, memberships, references. Remove headings not relevant in the left column.
- Afferrante, L., **Violano, G.**, & Demelio, G. P. (2025). Sliding viscoelastic contacts: The role of adhesion, boundary conditions, and finite geometry. *Tribology Letters*, *73*(1), 5.
- **Violano, G.**, Dibitonto, S., & Afferrante, L. (2024). Role of viscoelasticity in the adhesion of mushroom-shaped pillars. *Bioinspiration & Biomimetics*, *19*(6), 066006.
- **Violano, G.**, Dibitonto, S., & Afferrante, L. (2024). Adhesive contact mechanics of bio-inspired pillars: exploring hysteresis and detachment modes. *International Journal of Adhesion and Adhesives*, *134*, 103768.
- **Violano, G.**, & Afferrante, L. (2024). Unraveling Adhesion Mechanisms: Exploring the Impact of Thickness on Viscoelastic Layers and Wavy Profiles. *Tribology Letters*, *72*(1), 14.
- Afferrante, L., **Violano, G.**, & Dini, D. (2023). How does roughness kill adhesion?. *Journal of the Mechanics and Physics of Solids*, *181*, 105465.
- **Violano, G.**, & Afferrante, L. (2023). On the contact between elasto-plastic media with self-affine fractal roughness. *International Journal of Mechanical Sciences*, *255*, 108461.
- Afferrante, L., **Violano, G.**, & Carbone, G. (2023). Exploring the dynamics of viscoelastic adhesion in rough line contacts. *Scientific Reports*, *13*(1), 15060.
- **Violano, G.**, De Carolis, S., Palmieri, M. E., Carbone, G., Tricarico, L., Demelio, G. P., & Afferrante, L. (2023, February). Crack propagation in viscoelastic finite-sized solids: theory and experiments. In *IOP Conference Series: Materials Science and Engineering* (Vol. 1275, No. 1, p. 012043). IOP Publishing.
- **Violano, G.**, Dini, D., Di Bari, A., & Afferrante, L. (2023, February). Effect of roughness small scales on the adhesion of randomly rough surfaces with high fractal dimension. In *IOP Conference Series: Materials Science and Engineering* (Vol. 1275, No. 1, p. 012024). IOP Publishing.

Scientific Publications

- **Violano, G.**, & Afferrante, L. (2022). Size effects in adhesive contacts of viscoelastic media. *European Journal of Mechanics-A/Solids*, *96*, 104665.
- Afferrante, L., Carbone, G., Putignano, C., **Violano, G.**, & Demelio, G. (2022). Thermoelastic effects in the contact mechanics of 1D+ 1D rough profiles. *International Journal of Solids and Structures*, *253*, 111635.
- Afferrante, L., & **Violano, G.** (2022). The adhesion of viscoelastic bodies with slightly wave surfaces. *Tribology International*, *174*, 107726.
- **Violano, G.**, & Afferrante, L. (2022). On the long and short-range adhesive interactions in viscoelastic contacts. *Tribology Letters*, *70*(3), 68.
- **Violano, G.**, Orlando, G., Demelio, G. P., & Afferrante, L. (2022). Adhesion of viscoelastic media: an assessment of a recent JKR-like solution. In *IOP Conference Series: Materials Science and Engineering* (Vol. 1214, No. 1, p. 012038). IOP Publishing.
- Afferrante, L., & **Violano, G.** (2022). On the effective surface energy in viscoelastic Hertzian contacts. *Journal of the Mechanics and Physics of Solids*, *158*, 104669.
- **Violano, G.**, Chateauminois, A., & Afferrante, L. (2021). Rate-dependent adhesion of viscoelastic contacts, Part I: Contact area and contact line velocity within model randomly rough surfaces. *Mechanics of Materials*, *160*, 103926.
- **Violano, G.**, Chateauminois, A., & Afferrante, L. (2021). Rate-dependent adhesion of viscoelastic contacts. Part II: Numerical model and hysteresis dissipation. *Mechanics of Materials*, *158*, 103884.
- **Violano, G.**, Papangelo, A., & Ciavarella, M. (2021). Stickiness of randomly rough surfaces with high fractal dimension: is there a fractal limit?. *Tribology international*, *159*, 106971.
- **Violano, G.**, Afferrante, L., Papangelo, A., & Ciavarella, M. (2021). On stickiness of multiscale randomly rough surfaces. *The journal of adhesion*, *97*(6), 509-527.
- **Violano, G.**, Chateauminois, A., & Afferrante, L. (2021). A JKR-like solution for viscoelastic adhesive contacts. *Frontiers in Mechanical Engineering*, *7*, 664486.
- **Violano, G.**, Chateauminois, A., & Afferrante, L. (2021, February). Adhesive contact of randomly rough surfaces: experimental and numerical investigations. In *IOP Conference Series: Materials Science and Engineering* (Vol. 1038, No. 1, p. 012049). IOP Publishing.
- **Violano, G.**, & Afferrante, L. (2021). Roughness-induced adhesive hysteresis in self-affine fractal surfaces. *Lubricants*, *9*(1), 7.
- **Violano, G.**, & Afferrante, L. (2019). Modeling the adhesive contact of rough soft media with an advanced asperity model. *Tribology Letters*, *67*, 1-7.
- **Violano, G.**, & Afferrante, L. (2019). Contact of rough surfaces: Modeling adhesion in advanced multiasperity models. *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*, *233*(10), 1585-1593.
- **Violano, G.**, & Afferrante, L. (2019, September). JKR, DMT and More: Gauging Adhesion of Randomly Rough Surfaces. In *Conference of the Italian Association of Theoretical and Applied Mechanics* (pp. 233-242). Cham: Springer International Publishing.
- **Violano, G.**, Demelio, G., & Afferrante, L. (2019). A note on the effect of surface topography on adhesion of hard elastic rough bodies with low surface energy. *Journal of the Mechanical Behavior of Materials*, *28*(1), 8-12.
- **Violano, G.**, & Afferrante, L. (2019). On DMT methods to calculate adhesion in rough contacts. *Tribology International*, *130*, 36-42.
- **Violano, G.**, & Afferrante, L. (2019). Adhesion of compliant spheres: an experimental investigation. *Procedia Structural Integrity*, *24*, 251-258.
- **Violano, G.**, Demelio, G. P., & Afferrante, L. (2018). On the DMT adhesion theory: from the first studies to the modern applications in rough contacts. *Procedia Structural Integrity*, *12*, 58-70.

Conferences & Workshops

- The Role of Roughness and Viscoelasticity in Adhesive Contacts. "AIMETA 2024", 2-6 Settembre 2024, Università di Napoli Federico II, (Italy).
- An Assessment of Recent Viscoelastic Crack Propagation Theories. "AIMETA 2024", 2-6 Settembre 2024, Università di Napoli Federico II, (Italy).
- Contact Mechanics of bio-inspired adhesive pillars: influence of geometry and viscoealsticity. "AIAS 2024", 4-7 Settembre 2024, Università di Napoli Federico II, (Italy).
- Finite thickness effect on the adhesion between a rigid wavy surface and a viscoelastic substrate. "AIAS 2023", 6-9 Settembre 2023, Università di Genova, (Italy).

- Fatigue analysis of welded flanges for slewing rings in mobile elevating work platforms. "AIAS 2023", 6-9 Settembre 2023, Università di Genova, (Italy).
- Un modello multi-asperità per il contatto tra materiali elasto-plastici con rugosità superficiale. "AIAS 2023", 6-9 Settembre 2023, Università di Genova, (Italiy).
- Size and rate effects on the adhesion between viscoelastic spheres. "ESMC 2022", 4-8 July 2022, Galway, Ireland.
- Effect of roughness small scales on the adhesion of randomly rough surfaces with high fractal dimension. "AIAS 2022", 7-9 September 2022, Università di Padova, (Italy).
- Crack propagation in viscoelastic materials: experiments and theory. "AIAS 2022", 7-9 September 2022, Università di Padova,(Italy).
- Adhesion of viscoelastic media: an assessment of arecent JKR-like solution. "AIAS 2021", 1-3 September 2021, Virtual Conference, (Italy).
- Adhesive contact of randomly rough surfaces: experimental and numerical investigations. "AIAS 2020", 2-4 September 2020, Università degli studi di Perugia, (Italy)
- JKR, DMT and more: gauging adhesion of randomly rough surfaces. "AIMETA 2019", 15-19 September 2019, Sapienza Università di Roma, (Italy)
- A mixed BEM-asperity model to predict pull-off force of fractal surfaces. "ESMC 2018", 2-6 July 2018, Alma MAter Studiorum Università di Bologna, (Italy)
- On the DMT adhesion theory: from the first studies to the modern applications in rough contacts. "AIAS 2018", 5-8 September 2018, Università della Calabria, (Italy)
- Adesione tra superfici rugose: un efficiente e accurato modello ad asperità per il calcolo della forza di distacco. "AIAS 2017", 6-9 September 2017, Università di Pisa, (Italy)

Responsability and Partecipation in research projects

- January 2025 - August 2025: PNRR MOST POC - CHemicAl recycliNg for the deCarbonisation of sEat cushionS (CHANCES).
  Role: Scientific Leader of the Local Unit at Polytechnic University of Bari.
  Funding: 199000,00 €
- January 2025 - August 2025: PNRR MOST POC - Texturized Electrodes for Advanced Reversible Hydrogen Energy Systems (TEARS).
  Role: Scientific Leader of the Local Unit at Polytechnic University of Bari.
  Funding: 199000,00 €
- PRIN2022 grant nr. 2022SJ8HTC - ELectroactive gripper For mIcro-object maNipulation (ELFIN).
  Role: Member of the research Unit.
- PRIN2022 PNRR grant nr. P2022MAZHX - TRibological modellIng for sustainaBle design Of induStrial friCtiOnal inteRfacEs (TRIBOSCORE).
  Role: Member of the research Unit.
- *2023* – Fatigue damage analysis of lightweight steel trailer frames under random loads, funded by OMC Axles & Trailer s.r.l. (5.000,00 €)
  Role: Member of the research Unit.
- 09/01/2022 – 09/01/2023: "Artificial Intelligence and Tribological Optimization".
  Role: Member of the research Unit.

- 08/01/2020 – 08/01/2022: "Design of materials and surface roughness for the optimization of bonding and debonding mechanisms of structural adhesives".
  Role: Member of the research Unit.

- "Non-linear ultrasonic techniques for quantitative characterization of residual stresses in 3D printed materials".
  Role: Member of the research Unit.

- 2019 – 2020: "Prototype of Piezo-valve with very low energy consumption for aerospace and industrial applications", su fondi di ricerca del Politecnico di Bari.
  Role: Member of the research Unit.

Honors & Recognitions

- 2023 - AIAS 2023 Award for the best article in the section “Modeling” - "Crack propagation in viscoelastic finite-sized solids: theory and experiments, Violano et al." (doi: 10.1088/1757-899X/1275/1/012043)

- 2019 - "Top cited papers" award from De Gruyter for the article “Violano, G., Demelio, G., & Afferrante, L. (2019). A note on the effect of surface topography on adhesion of hard elastic rough bodies with low surface energy. Journal of the Mechanical Behavior of Materials, 28(1), 8-12”.

Firmato digitalmente da: Guido Violano
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