Curriculum vitae of Mariafederica Parisi

Personal data and contacts

Mariafederica Parisi
Born 08/24/1992 in Catania
Residence and domicile: Via Filippo Turati 6 40134 Bologna (BO)
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Current position

- Postdoctoral researcher at the Department of Civil, Chemical, Environmental and MaterialsEngineering - Alma Mater Studiorum - University of Bologna

Academic qualifications

Jun 2023 PhD in Materials Engineering - Alma Mater Studiorum-University of Bologna
Thesis title: *"Multiphase polymeric materials having auxetic and dilatant properties for safety applications"* Supervisor: Prof. Martino Colonna

Oct 2018 MSc. in Industrial Chemistry - Alma Mater Studiorum-University of Bologna.
Grade 110/110.
Thesis title: "*Study of the properties of epoxy resins cross-linked with amine hardeners from renewable sources.*" Supervisor: Prof. Loris Giorgini

Mar 2016 BSc. in Industrial Chemistry - University of Catania.
Grade 109/110.
Thesis title: "*Synthesis of modified TiO2-based catalysts for water-Photocatalytic splitting."* Speaker: Prof. Salvatore Scirè

Experience

Feb 2023 - today Postdoctoral researcher at the Department of Civil, Chemical, Environmental and MaterialsEngineering - Alma Mater Studiorum - University of Bologna
Research on "development of auxetic and dilatant materials for applications in the field of personal protection." Project leader: Prof. Martino Colonna

Feb 2022 - Jul 2022 Visiting student at Department of Engineering and Advanced Materials and Surface Engineering (AMSE), Manchester Metropolitan University. Manchester, UK. Six-month internship with experimental research activity. Project title: "Production and testing of hybrid systems based on auxetic closed cell foams and Non-Newtonian fluids." Supervisors: Dr. Thomas Allen, Dr. Oliver Duncan.

Sep 2019 – Sep 2023 Academic tutor at the Department of Civil, Chemical, Environmental and Materials Engineering - Alma Mater Studiorum - University of Bologna

Mar 2019 - Oct 2019 Research fellow at the Department of Civil, Chemical, Environmental and Materials Engineering - Alma Mater Studiorum - University of Bologna
Research on "Study on environmentally sustainable management of waste in the production of polymer matrix composite materials." Project leader: Prof. Martino Colonna

Awards Achieved

- Winner of the "Proof of Concept d'Ateneo" (PoC Unibo) 2023 promoted by MISE (Ministry of EconomicDevelopment) on project "O-Damp 2.0" inherent in the development of anti-rotational systems for motorcycle and bicycle helmets.
- Winner of the *call for spin-off projects 2021-2022* promoted by the University of Bologna. Research project entitled "*O-Damp*" based on the development of a safety device to cushion impacts on helmets.
- Scholarship within the "Marco Polo 2021" project for research activities abroad.

Research Topics

- Characterization of polymers and composite materials
- Development and study of *smart materials* for sport and protective applications
- Mechanical Testing and Digital Image Correlation analysis
- 3D printing & additive manufacturing technologies (SLA, FDM)
- Recycling and recovery strategies of plastics and sports equipment

Patents

- Italian Patent 102021000022523. "Polymer composition including leather fibers."
- European Patent 102021000027722 "Use of leather fibers as slip agents in polymer compositions andarticles made from them''
- WIPO Patent WO2023017552A1 " DEVICE FOR ABSORBING SHOCKS ON HELMETS AND CORRESPONDINGHELMET"

Publications

- Liberati G., Biagi F., Nanni A., Parisi M.F., Barbaresi L., Querci L., Ceccarelli S., Regazzi M., Bonoli A., Colonna M. Mechanical recycling of foam from end-of-life mattresses by AIR-LAY process for

the production of new mattresses with a fully circular approach. Submitted manuscript to Journal of Cleaner Production on Nov. 19th, 2023.

- Parisi, M., La Fauci, G., Pugno, N. M., & Colonna, M. (2023). Use of shear thickening fluids in sport protection applications. A review. Frontiers in Materials, 10, 1285995.
- Parisi M., Colombo D., La Fauci G., Ferri A., Dotti F., Bianca E., Crosetta L., Pugno N., Colonna M. Development and testing of auxetic shoulder straps for sport backpacks. Oral presentation. ADM 2023 INTERNATIONAL CONFERENCE. Florence, Sep 8-9, 2023.
- Parisi M., Colombo D., La Fauci G., Ferri A., Dotti F., Bianca E., Crosetta L., Pugno N., Colonna M. Development and testing of auxetic shoulder straps for sport backpacks. Oral presentation. ADM 2023 INTERNATIONAL CONFERENCE. Florence, Sep 8-9, 2023.
- La Fauci G., Parisi M., Nanni A., Crosetta L., Pugno N., Colonna M. Design of an advanced system for motorbike helmets able to dissipate rotational accelerations caused by tangential impacts Oral presentation. ADM 2023 INTERNATIONAL CONFERENCE. Florence, Sep 8-9, 2023.
- Parisi, M., Allen, T., Colonna, M., Pugno, N. M., & Duncan, O. (2023). Indentation and impact response of conventional, auxetic, and shear thickening gel infused auxetic closed cell foam. Smart Materials and Structures.
- La Fauci, G., Parisi, M., Nanni, A., Crosetta, L., Pugno, N. M., & Colonna, M. (2023). Design and proof-of-concept of an advanced protective system for the dissipation of tangential impact energy in helmets, based on non-Newtonian fluids. Smart Materials and Structures, 32(4), 044004.
- Daniel Colombo, Giulia Berti, Lorenzo Crosetta, Mariafederica Parisi, Filippo Biagi, Giuseppe La Fauci, Alessandro Nanni and Martino Colonna. Recycling processes for more sustainable winter sport equipment. Oral presentation. ICSS 2023, July 29-30, 2023 in Vienna, Austria.
- Daniel Colombo, Giulia Berti, Lorenzo Crosetta, Mariafederica Parisi, Filippo Biagi, Giuseppe La Fauci, Alessandro Nanni and Martino Colonna. A NOVEL METHOD FOR DYNAMIC TEST OF SKIS. Oral presentation. ICSS 2023, July 29-30, 2023 in Vienna, Austria.
- Colonna M.; Parisi M.; Pugno N.M. Auxetic structures for sport safety devices. 30 years of INSTM: past, present and future of the Consortium. Oral presentation. January 22-25, 2023, Bressanone (BZ).
- Nanni, A., Crosetta, L., La Fauci, G., Biagi, F., Parisi, M., Colombo, D., & Colonna, M. (2023). Study of the mechanical properties of thermoplastic polyurethane (TPU) recycled from end-of-life ski-boots and techno-economic analysis (TEA) of the mechanical recycling processes. Sustainable Chemistry and Pharmacy, 33, 101059.
- Colonna, M.; Crosetta, L.; Nanni, A.; Speranzoni, A.; La Fauci, G.; Parisi M. A novel recycling approach for more sustainable sport equipment. Proceedings 2022. ISEA 2022 Conference- The Engineering of Sport 14, Purdue University, 6-10 June 2022. DOI 10.5703/1288284317471.
- Parisi, M.; Nanni, A.; Colonna, M. Recycling of Chrome-Tanned Leather and Its Utilization as Polymeric Materials and in Polymer-Based Composites: A Review. Polymers 2021, 13, 429. https://doi.org/10.3390/polym13030429
- Nanni, A.; Parisi, M.; Colonna, M.; Messori, M. Thermo-Mechanical and Morphological Properties of Polymer Composites Reinforced by Natural Fibers Derived from Wet Blue Leather Wastes: A Comparative Study. Polymers 2021, 13, 1837. https://doi.org/10.3390/polym13111837
- Nanni, A.; Parisi, M.; Colonna, M. Wine By-Products as Raw Materials for the Production of Biopolymers and of Natural Reinforcing Fillers: A Critical Review. Polymers 2021, 13, 381. https://doi.org/10.3390/polym13030381
- Colonna, M.; Zingerle, B.; Parisi, M.; Gioia, C.; Speranzoni, A.; Pisaneschi, G.; Prosdocimo, S. A. Novel Approach for a Faster Prototyping of Winter Sport Equipment Using Digital Image

Correlation and 3D Printing. Proceedings 2020, 49, 125. https://doi.org/10.3390/proceedings2020049125.

Language skills

- Italian: Native
- English: C1

Certifications

- Academic IELTS, overall score 7

IT skills

- Good knowledge of the Microsoft operating system
- Good knowledge of Word, Excel, Power Point, OriginLab
- Use of the following software: ChemDraw, Fusion360, GOM Correlate Professional, Picoscope, Bluehill Universal

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The undersigned authorizes the processing of data personal pursuant to Legislative Decree 196/2003.