

PERSONAL INFORMATION **Lucia Lambertini**

WORK EXPERIENCE

- 22/05/16– Present **Researcher**
Dipartimento di Ingegneria Astronautica, Elettrica ed Energetica (DIAEE)
Università La Sapienza, Rome, Italy
- Materials for space radiation shielding (Hydrogels and epoxy resin with polyethylene filler)
 - Viscoelastic behaviour of laminates and micro-composites
- 23/12/15–24/07/14 **Junior Research Fellowship BS-J 43/2023**
held by professor Susanna Laurenzi
Università La Sapienza, Rome, Italy
- 1 junior research scholarship, titled “Sviluppo di processo di fabbricazione di materiali e strutture per space radiation shielding”
- 23/01/16–23/11/15 **Junior Research Fellowship BS-J 32/2022**
held by professor Susanna Laurenzi
Università La Sapienza, Rome, Italy
- 1 junior research scholarship, titled “Modellazione numerica e studio sperimentale di strutture leggere con fibre naturali”
- 22/05/16–22/12/15 **Junior Research Fellowship BS-J 12/2022**
held by professor Susanna Laurenzi
Università La Sapienza, Rome, Italy
- 1 junior research scholarship, titled “Analisi dinamo-meccanica per materiali impiegati nelle strutture boom”
- 2021–2023 **Guest Lecturer in "Tecnologie dei materiali aerospaziali"**
held by professor Susanna Laurenzi
Università La Sapienza, Rome, Italy
- The course investigates the space environments and their interaction with materials, the manufacturing processes of different composites from thermoplastics and thermosets to laminates, several thermal and mechanical techniques of characterization

EDUCATION AND TRAINING

- 2022-Now **Phd candidate in AERONAUTICS AND SPACE ENGINEERING**
Dipartimento di Ingegneria Astronautica, Elettrica ed Energetica (DIAEE)
Università La Sapienza, Rome, Italy
Tutor: Professor Susanna Laurenzi
- 2023 **Qualification to the profession of Industrial Engineer, section A**
Università La Sapienza, Rome, Italy
- 2018–2022 **Master’s Degree in Space and Astronautical Engineering, 110 / 110 cum laude**
Dipartimento di Ingegneria Astronautica, Elettrica ed Energetica (DIAEE)
Università La Sapienza, Rome, Italy

- **Profile:** Satellites
- **Topics:** Multibody space structures, Tecnologie dei materiali aerospaziali, Spacecraft design, Elaborazione delle immagini radar, Elettronica dei sistemi spaziali, Analisi termica e termoelastica delle strutture aerospaziali
- **Experimental thesis:** *Dynamic mechanical analysis of aerospace epoxy resin doped with ultra high molecular weight polyethylene particles*, with the supervising of professor Susanna Laurenzi

2020–2021 Working scholarship (Merit-based of announcement DIAEE n.3)

Dipartimento di Ingegneria Astronautica, Elettrica ed Energetica (DIAEE)
Università La Sapienza, Rome, Italy

- Composites manufacturing (Laminates, Deployable "Boom" structures)
- Use of extrusion system for thermoplastics, Ultimaker 3.0 3D printer, Shimadzu equipment for static bending tests and DMA1 produced by Mettler Toledo for dynamic mechanical analysis

2019–2020 Working scholarship (Merit-based of announcement DIAEE n.1881)

Dipartimento di Ingegneria Astronautica, Elettrica ed Energetica (DIAEE)
Università La Sapienza, Rome, Italy

- Insertion in SasLab, a laboratory environment to learn how to work in a team and acquire familiarity with tools for characterizing materials
- Low-impact Izod tests of polymers (thermosets and thermoplastics)

2019–2020 Certificate of successful seminar participation at the MSC Institute of Technology, "Metodi e strumenti di calcolo per l'analisi multibody e multidisciplinare (MSC Adams)"

02/2020–03/2020 First International Winter Space School

Skoltech, Moscow, Russia

- 20 senior university students selected from over a hundred applicants and hailing from Russia, the United States, Ireland, Italy, Switzerland, Nepal, Great Britain and other countries designing a CubeSat in Skoltech Campus and its Space Center, Robotics Lab, PLM Lab, FabLab, and SmallSat Lab and conducting a scientific experiment in the stratosphere
- The goal was to create a payload for 6U CubeSat in a team project launched with a stratospheric probe at altitude of 20 km. The probe acquired 360 ° video and measured the external temperature and pressure

2014–2018 Bachelor's Degree in Aerospace Engineering, 100 / 110

Dipartimento di Ingegneria Astronautica, Elettrica ed Energetica (DIAEE)
Università La Sapienza, Rome, Italy

- **Topics:** Basic training of technical-scientific knowledge in aeronautics and space
- **Thesis:** *Atterrare su Marte: sfidare e possibili soluzioni*, with the supervising of professor Diego Lentini

2016–2017 Space propulsion laboratory

Università La Sapienza, Rome, Italy

- Design and production of mini-rocket with solid propellant engine, prediction of ascent trajectory on Matlab programming language and design of parachute system for descent phase
- The goal was to keep the payload (a chicken egg) intact both in the ascent and descent phases

2019–2014 Scientific high school, 100 / 100

Liceo Scientifico Statale Taletè (P.N.I. MAT. E FIS. BN.TN), Rome, Italy

2013–2014 Attendance certificate of "Progetto di Laurea Scientifica, Laboratorio di Matematica"
Università La Sapienza, Rome, Italy

2006–2007 Certificate of "Alfabetizzazione informatica su sistemi windows, word ed excel"

PERSONAL SKILLS

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B1	B2	B1	B1	B2
Cambridge certificate, B1					

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](#)

Communication and personal skills – **Team work:** I have worked in various types of teams from research teams in SasLab (La Sapienza) to international background (First International Space Winter School)
– **Manufacturing and testing techniques:** 3D filament extrusion and printing of polymer, Composites production (laminates using Hand Lay-Up process, micro-composites and thermoplastics), static and impact Izod tests, Dynamic thermal and mechanical analysis and characterization
– Eager to learn and ready to new challenges
– Adaptability

Organisational / managerial skills Management and supply of laboratory materials and instruments

Digital competences

SELF-ASSESSMENT				
Information Processing	Communication	Content creation	Safety	Problem solving
Basic user	Independent user	Proficient user	Independent user	Basic user

[Digital competences - Self-assessment grid](#)

Computer skills – Microsoft Office and Latex
– Matlab
– Python
– Abaqus Unified FEA
– Basic of MSC Adams
– SketchUp and Solid Edge
– HZETRN2020 (NASA)
– OLTARIS (NASA)

Driving licence B

CONFERENCE PAPERS

Flavia Palmeri, Lucia Lambertini, and Susanna Laurenzi, "Experimental investigation and numerical modelling of the viscoelastic behaviour of based-spread tow fabric composite material for boom application", 17th European Conference on Spacecraft Structures Materials and Environmental Testing (ECSSMET), Toulouse (France), (03/28/2023-03/30/2023).

Lucia Lambertini, M. Gabriella Santonicola and Susanna Laurenzi, "Dynamic Mechanical Analysis of Poly(Vinyl Alcohol)-Based Hydrogels with Boric Acid as Cross-linker", 11th Times of Polymers (TOP) and Composites (TOP) Conference, Ischia (Italy), (06/11/2023-06/15/2023).

Flavia Palmeri, Lucia Lambertini, and Susanna Laurenzi, "Numerical relaxation analysis of carbon fiber reinforced polymers", 11th Times of Polymers (TOP) and Composites (TOP) Conference, Ischia (Italy), (06/11/2023-06/15/2023).

Lucia Lambertini, Giuseppe Coccarelli, Elisa Toto, M. Gabriella Santonicola, Susanna Laurenzi, "Cross-linked poly(vinyl alcohol)/boric acid gels for radiation shielding applications", 74th International Astronautical Congress (IAC), a Baku (Azerbaijan), (10/02/2023-10/06/2023).

PUBLICATIONS

Palmeri, F., Lambertini, L., & Laurenzi, S. (2024), Numerical relaxation analysis of carbon fiber reinforced polymers, *Macromolecular Symposia*, in print.

Lambertini, L., Santonicola, M. G., & Laurenzi, S. (2024), Dynamic Mechanical Analysis of Poly(Vinyl Alcohol)-Based Gels with Boric Acid as Crosslinker, *Macromolecular Symposia*, in print.

Lambertini, L., Coccarelli, G., Toto, E., Santonicola, M. G., & Laurenzi, S. (2024). Poly (vinyl alcohol) gels cross-linked by boric acid for radiation protection of astronauts. *Acta Astronautica*.

Toto, E., Lambertini, L., Laurenzi, S., Santonicola, M. G. (2024). Recent Advances and Challenges in Polymer-Based Materials for Space Radiation Shielding. *Polymers*, 16(3), 382.

DATI PERSONALI

Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali"

Roma, 26/07/2024