

# Valerio Stacchini

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[Linkedin](#) | [Google Scholar](#)

Nanomaterials Engineer and PhD in Optoelectronics & Organic Electronics. Looking for a hands-on role as materials expert for payload development and advanced satellite subsystems. Driven to push thin-film and interface engineering beyond the lab into next-generation satellite hardware and the coming era of quantum sensing for space technologies.

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## CORE TECHNICAL EXPERTISE

**Thin-Film Fabrication:** Hands-on experience with vacuum deposition, solution processing, and controlled crystallization of semiconductor layers.

**Vacuum Technologies:** Operation of high and ultra-high vacuum (UHV) systems for thermal evaporation of metal electrodes and solar cell contacts.

**Laser Systems & Optoelectronic Characterization:** From laser fundamentals to advanced materials analysis (PL, trPL, SPV).

**Semiconductor Physics & Interfaces:** Deep understanding of charge transport and interfacial energetics in organic and inorganic semiconductors.

**Molecular Self-Assembly:** Development of self-assembled monolayers (SAMs) on transparent electrodes (e.g., ITO) for interfacial engineering and surface modification.

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## EXPERIENCE

### Helmholtz Zentrum Berlin – PhD Optoelectronics and perovskite solar cells

*Project: Molecular Self-assembly in Next-Gen Perovskite Solar Cells*

Berlin, Germany

Sept 2022 – Sept 2025

- EU patent application on a novel molecule for interface improvement in perovskite solar cells. Also resulted in a 15% more efficient and non-toxic perovskite solar cells and a first-author paper in Advanced Energy Materials.
- Raised 5M€ in lab instrumentation funding in a collective team effort, including managing in first person €154K of purchases.
- Hands-on expertise in optoelectronic device fabrication and nanosecond laser characterization with a tunable Nd:YAG source.
- Extensive experience on the synthesis and characterization of semiconductor and conductor organic electronic materials.
- Coordinated 75 people in a three-day institute-wide PhD event, including workshops, talks, and team-building sessions.
- Trained and mentored three junior researchers, ensuring onboarding within two weeks (usual time 4 weeks).

### King Abdullah University of Science and Technology (KAUST) – Visiting Researcher

*Project: Perovskite Single Crystal Solar Cells*

Thuwal, Saudi Arabia

Nov 2023 – Feb 2024

- Learned a novel technique for growing single crystal perovskite and successfully transferred it to Berlin laboratories at HZB.

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## EDUCATION

### Politecnico di Milano – MSc and BSc

*MSc - Nanotechnology and Nanomaterials Engineering*

Milan, Italy

Sept 2019 – July 2022

*BSc - Nanotechnology and Nanomaterials Engineering*

Sept 2016 – July 2019

- Relevant coursework: semiconductor physics, nuclear physics, atomic physics, laser physics, physics of nanostructures, physical chemistry.

### Helmholtz Zentrum Berlin & Politecnico di Milano - Master Thesis

*Project: Halogen bond-donor amino acid in perovskite solar cells*

Berlin, Germany

Sept 2021 – July 2022

- Tested a new molecular treatment for perovskite solar cells interface treatment and developed a deposition protocol for it.

### IIT – Italian Institute of Technology & Politecnico di Milano – Bachelor Thesis

*Project: Ceramic nano-coating for nuclear applications*

Milan, Italy

Feb 2016 – Jun 2016

- Tested protective nano-coatings on zirconium rods for limiting hydrogen evolution under high temperature (like in the Fukushima accident).

### Universidade Nova de Lisboa - Faculdade de Ciências e Tecnologia – Erasmus

*Erasmus Program*

Lisbon, Portugal

Jan 2020 – Jul 2020

## SKILLS & INTERESTS

- Languages:** Fluent in Italian and English; very good Spanish; beginner in Portuguese and German.
- Extra Technical Tools:** circuit soldering, Python for basic data analysis ,Arduino/ESP32 prototyping, can fix almost any coffee machine.
- Volunteering:** Built houses for earthquake-affected communities in Cañete, Peru; delivered food to families in need during the COVID-19 lockdown in Rome, Italy.
- Interests:** Sailing is my passion, and the sea is where I feel most at home. I have logged thousands of nautical miles and have participated in a major Mediterranean offshore regatta.