

<https://stm.uniroma3.it/job/postdoc-pvd-ald-coating-processes/>

POSTDOCTORAL POSITION – expert in PVD and ALD processes

Description

We are seeking a Postdoctoral Researcher with expertise in Physical/Chemical Vapor Deposition (PVD/CVD) and Atomic Layer Deposition (ALD), to join the SunRise FIS2023 Project. The research focuses on investigating the effects of multi-layered hybrid coatings on 3D-printed nano- and micro-architectures, aiming to enhance their mechanical reliability.

Responsibilities

The role involves the design, optimization, and characterization of thin film deposition processes, with a particular focus on Alumina (Al_2O_3) and Zinc Oxide (ZnO) coatings. The successful candidate will conduct advanced research on interface engineering, deposition mechanisms, and structural and mechanical properties of coatings.

Education

Doctoral Degree in Mechanical Engineering, Materials Science, Aerospace Engineering, or related fields.

Qualifications

Essential:

- Proven experience in operating and maintaining PVD and ALD deposition systems for thin-film applications.
- Proficiency in working with ALD precursors such as TMA for Alumina and DEZ for Zinc Oxide.
- Hands-on knowledge of precursor handling, flow rate optimization, and temperature calibration.
- Strong familiarity with substrate preparation techniques to ensure coating adhesion and uniformity.
- Experience with in-situ monitoring tools like QCM sensors, mass flow controllers, and plasma diagnostics.
- Demonstrated ability to use thin film characterization techniques, including XRD, SEM, ellipsometry, and AFM.

Desiderable:

- Knowledge of plasma-enhanced ALD/PVD systems and hybrid coating strategies.
- Experience with reactive deposition processes and oxide formation kinetics.

Hiring organization

Università degli Studi Roma Tre –
Department of Civil, Computer
Science and Aeronautical
Technologies Engineering

Employment Type

Full-time

Beginning of employment

December 2025

Duration of employment

36 months

Job Location

Via Vito Volterra, 62, 00146, Rome,
Latium, Italy

Date posted

28 Febbraio 2025

Valid through

31.10.2025

- Programming skills in **Python**, **MATLAB**, or similar languages for data analysis and automation.
- Previous research in multilayer or graded coatings for enhanced mechanical performance.
- Proven ability to work within multi-disciplinary teams and lead collaborative projects.