SUSTAINABLE MATERIALS, PROCESSES AND SYSTEMS FOR ENERGY TRANSITION

MUR DM 117/NEW CLEO - Development of protective coatings on structural steels for Lead Fast Reactor (LFR) applications

Funded By
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Context of the research activity
The corrosion of structural steels (316LN) by liquid lead is a challenge for designing LFRs. Protective coatings that resist lead corrosion are required. This study aims to qualify the most developed coating processes for nuclear codes (e.g. RCC-MRx). Aluminizing, welding overlay or thermal projection, and Zr or FeCrAl coating will be studied. Microstructural and mechanical characterization, as well as lead corrosion and irradiation experiments, will be conducted. The goal is to improve the design of LFRs.

Progetto finanziato nell'ambito del PNRR – DM 117/2023 - CUP: E14D23002050004

Objectives
Progetto finanziato nell'ambito del PNRR – DM 117/2023 - CUP: E14D23002050004
Scientific responsible: Giovanni Pastore, giovanni.pastore@newcleo.com
Main seat to carry out the research activity: Politecnico di Torino / NEW CLEO

Skills and competencies for the development of the activity
- Preferably, Master degree or equivalent in Materials Science, Metallurgy, or electrochemistry
- Knowledge and/or experience in testing mechanical properties of materials (tensile, creep, fatigue, toughness…)
- Knowledge in phases equilibrium thermodynamics
- Knowledge and/or experience in software relevant for materials science (python, matlab, thermocalc…)
- Knowledge in corrosion is an advantage