SUSTAINABLE MATERIALS, PROCESSES AND SYSTEMS FOR ENERGY TRANSITION

MUR DM 117/NEWCLEO - Development and characterizations of structural steels welds for Lead Fast Reactor (LFR) applications

Funded By	NEWCLEO S.R.L. [P.iva/CF:12517780016] MINISTERO DELL'UNIVERSITA' E DELLA RICERCA [P.iva/CF:97429780584] Politecnico di TORINO [P.iva/CF:00518460019]
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Context of the research activity	Welding of structural steels is essential and often a critical issue in nuclear industry. In LFR, the challenge is to qualify welds: - Of common structural steels (316L(N)) in liquid lead - Of advanced structural steels (AFA steels) in liquid lead The main purpose of this study is to continue the welding developments made in the framework of European programs (such as GEMMA) and fill the gaps to bring them to qualification in nuclear codes for lead environment (RCC-MRx…). In particular, this includes: - Thermomechanical tests in air and lead (creep, fatigue…) - Processes studies (SAW, GTAW and new promising welding techniques like Laser and Electron Beam welding) - Filler material studies and qualification 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: Andrea Barbensi, andrea.barbensi@newcleo.com
Skills and competencies	• Preferably Master degree or equivalent in Materials Science, Metallurgy, Mechanics or equivalent • Knowledge and/or experience in main laboratory characterization techniques • Knowledge and/or experience in testing mechanical properties of materials

for the development of the activity	• Knowledge and/or experience in testing mechanical properties of materials (tensile, creep, fatigue, toughness…) • Knowledge in welding processes and microstructure • Knowledge and/or experience in software relevant for materials science (python, matlab…) • Knowledge in corrosion is an advantage