

MATERIALS SCIENCE AND TECHNOLOGY

ENI - Additive manufacturing and integration for the development of reactors

Funded By	ENIPROGETTI S.P.A. [P.iva/CF:00184530277]
Supervisor	FINO PAOLO - paolo.fino@polito.it
Contact	LOMBARDI MARIANGELA - mariangela.lombardi@polito.it
Context of the research activity	Additive Manufacturing technologies allow the production of metallic complex-shape components with improved characteristics and working life. In view of the application of additive manufacturing technologies for the reactor production, it is necessary to study materials and process conditions, developing the component design as a function of its efficiency. The process and post-process conditions will be defined for reaching high density and specific functional and mechanical behaviors.
Objectives	<p>The main research objectives of this PhD thesis includes:</p> <ul style="list-style-type: none"> o Characterization of metallic powders for additive manufacturing. o Process optimization for additive manufacturing of metal alloys or multimaterials. o Study of material microstructures, physical, functional and mechanical properties, defining their influence on mechanical and functional performances of final components. o Study and optimization of post-processing steps, defining their influence on mechanical and functional performances of the final components.
Skills and competencies for the development of the activity	<p>Candidates should have a solid engineering background and strong motivation to learn through advanced research.</p> <p>Expertise in static analysis, materials science, advanced processes and technologies, mechanical behavior and characterization of metallic materials is a plus.</p> <p>Problem solving ability and practical attitude for the design of additive manufacturing parts is also appreciated</p>