

RESEARCH THEME

XLII Cycle – a.y. 2026/2027

Title of the doctoral research	Biofabricated Surfaces for Regenerative Design: Exploring Material Experience in Living Systems
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Abstract

In recent years, biodesign has introduced new perspectives on the relationship between design and people, positioning biofabricated material systems, those coming from living organisms such as mycelium, bacterial cellulose, and algae not merely as alternative materials, but as interactive and transformative agents. Research in this field has primarily focused on technical performance and production processes while the role of surface qualities and sensorial attributes in shaping material experience—and in defining the identity of these still unfamiliar materials—remains underexplored.

This research aims to investigate biofabricated surfaces as a field of inquiry for regenerative design, framing biofabricated materials as evolving systems. Using a multi-method approach, combining multiple case study and experimental research, this study aims to identify how biological parameters and growth conditions influence texture, morphology, variability, and the temporal behavior of surfaces.

Through an interdisciplinary approach, the project will develop a biofabricated materials library to analyze surfaces in terms of material experience, exploring how transformation, impermanence, and processuality affect perception, interaction and acceptance. The research project contributes to a vision of design in which matter is not only shaped, but co-evolves with the project, enabling new aesthetics and regenerative practices.

Keywords

Biodesign; Material Experience; Surface Qualities;