

DOCTORATE FINAL DISSERTATION

XXXVII cycle (PON REACT EU)

International Doctorate in Architecture and Urban Planning (IDAUP)

Coordinator IDAUP: Prof. Theo ZAFFAGNINI
Vice-Coordinator: Prof. Besnik ALIAJ
DA Vice-Coordinator IDAUP: Prof. Veronica BALBONI
DA Ph.D Program Supervisor: Prof. Elena DORATO
POLIS Ph.D Program Supervisor: Prof. Malvina ISTREFAJ

Antonello AQUILANO

Waste Treatment: Mining of Critical Raw Materials from Landfills of Ornamental Granitoid Scraps.

Supervisor: **Prof. Luca EMANUELI** Co-Supervisor: **Prof. Carmela VACCARO**

Enrica BOLDRIN

Renewables and Energy Efficiency in Residential and Industrial Districts: an Integrated Approach for the Generalized Energy and Exergy Optimization of Complex Urban Systems and their Networks and Infrastructures, through a Holistic and LCA-Based Methodology Applied to Open Systems.

Supervisor: **Prof. Roberto DI GIULIO** Co-Supervisor: **Prof. Giacomo BIZZARRI**

Laura FERRARI

Renewable Energy Sources and Energy Efficiency in Residential and Industrial Districts: An Integrated Approach for the Energetic and Exergetic Improvement of Complex Urban Systems and their Infrastructures, through an Olistic Approach and LCA.

Supervisor: **Prof. Roberto DI GIULIO** Co-Supervisor: **Prof. Giacomo BIZZARRI**

Gabriele FREDDUZZI

Tools for Sustainable Design Strategies: Optimization of Integrated BIM-Blockchain Technologies and Protocols for Applying Green Public Procurement (GPP) Requirements to the Intervention on the Existing Built Environment.

Supervisor: **Prof. Marcello BALZANI** Co-Supervisor: **Arch. Massimo STEFANI**

Luca MORGANTI

Lifecycle Environmental and Circular Assessment in Building Product Manufacturing. Systemic Approach for Data Optimization of Custom Prefabricated Façade Modules.

Supervisor: **Prof. Theo ZAFFAGNINI** Co-Supervisor: **Dr. Alessandro PRACUCCI**

Andrea NALE

Multi-scale Structural Optimization with Embedded Architected Materials for Large-Scale Additive Manufacturing.

Supervisor: **Prof. Giuseppe MINCOLELLI** Co-Supervisor: **Prof. Andrea CHIOZZI**

Dario RIZZI

Tools for Sustainable Design Strategies: Optimization of Integrated BIM-Blockchain Technologies and Protocols for the Application of Minimum Environmental Criteria.

Supervisor: **Prof. Marcello BALZANI** Co-Supervisor: **Dr. Fabiana RACO**

External Expert: **Dr. Marco MEDICI**