This volume reports, in brief, the experience of the students enrolled in the XXXIII cycle of the PhD courses at the University of Cagliari. The contributions are grouped by course and are preceded by a presentation of the coordinators of each PhD program. In two pages each student gives the reader an idea of his/her personal experience and of the results of his/her research.
UniCa PhD Books

Editor-in-Chief: Paolo Ruggerone,
Università degli Studi di Cagliari

Scientific Committee:

Paola Fadda, Università degli Studi di Cagliari
Alessandro Giua, Università degli Studi di Cagliari
Vittorio Pelligra, Università degli Studi di Cagliari
Cecilia Tasca, Università degli Studi di Cagliari
UniCa PhD Book – XXXIII Cycle

Edited by
Paolo Ruggerone, Vittorio Pelligra

Cagliari
UNICApress
2020
INDEX

Introduction of the Chancellor and the vice-Chancellor of the University of Cagliari
Chancellor: Maria Del Zompo; vice-Chancellor: Francesco Mola

PhD program in Chemical Sciences and Technologies
Coordinator: Stefano Enzo
Vicecoordinator: Carla Cannas
PhD Students: Andrea Beccu, Laura Caggiu, Andrea Cocco, Giulia Rossella Delpiano, Monica Demurtas, Leon de Villers Engelbrecht, Elio Fiorito, Marco Fornasier, Ilaria Langasco, Francesca Meloni, Mariangela Oggianu, Sara Pischetta, Enrico Podda.

PhD program in Civil Engineering and Architecture
Coordinator: Ivan Blečić; Vicecoordinator: Roberto Deidda
PhD Students: Peng Bai, Mariangela Deligia, Giulia Desogus, Nicolò Fenu, Andrea Manca, Marco Moro, Dario Ruggiu, Chiara Salaris, Luca Salvadori, Roberto Sanna, Jennifer Viegas.

PhD program in Earth and Environmental Sciences and Technologies
Coordinator: Giorgio Ghiglieri
PhD Students: Erika Bazzato, Giacomo Calvia, Sergio Fantini, Marco Isipato, Andrea Lallai, Carla Mercante, Mirisina Mousavi Aghdam, Maria Mureddu, Francesco Pinna.

PhD program in Economics and Business
Coordinator: Vittorio Pelligra
PhD Students: Andrea Caria, Andrea Crienti, Laura Poletti, Maurizio Romano, Alberto Tidu, Marvia Zaitsava.
PhD program in Electronic and Computer Engineering  
Coordinator: Alessandro Giua  
PhD Students: Davide Aguiari, Rita Delussu, Diego Deplano, Marco Melis, Giulia Orrù, Simone Porcu, Michele Scalas, Stefano Sonedda, Dan You, Qi Zhang.

PhD program in History, Cultural Heritage and International Studies  
Coordinator: Cecilia Tasca  
Deputy Coordinators: Olivetta Schena, Christian Rossi  
PhD Students: Paola Cossu, Dario D’Orlando, Miquel Fuertes Broseta, Federico Mariano Giuntini, Miriam Napolitano, Rachele Piras, Mattia Sanna Montanelli, Valeria Zedda.

PhD program in Industrial Engineering  
Coordinator: Francesco Avmerich  
PhD Students: Federico Arippa, Fabio Fanari, Milad Gholami, Micaela Porta, Matteo Troncia.

PhD program in Innovation Sciences and Technologies  
Coordinator: Roberto Orrù  
PhD Students: Blessing Ezealigo, Virginia Pinna, Martina Piras, Hema Sekhar Reddy Rajula, Giorgia Testa, Gabriele Traversari.

PhD program in Legal Sciences  
Coordinator: Gianmario Demuro; Vicecoordinator: Silvia Corso  
PhD Students: Gian Mario Aresu, Felice Cabiddu, Rossella Carta, Emilia Fois, Francesco Parodo, Roksolana Vasiliuk.

PhD program in Life, Environmental and Drug Sciences  
Coordinator: Simona Distinto  
PhD Students: Mohamad Allaw, Eleonora Casula, Serenella Deplano, Sonia Floris, Enrico Keber, Andrea Pierucci, Giulia Pitzanti, Francesco Sanna, Stefania Solinas, Silvia Stagi.
PhD program in Mathematics and Computer Science
Coordinator: Michele Marchesi
Vicecoordinator: Roberto Tonelli
PhD Students: Francesco Cannas Aghedu, Silvia Frassu, Walid Iguider, Stefano Lande, Stefano Nuvoli, Giuseppe Antonio Pierro, Raza Saeed, Sergio Serusi.

PhD program in Molecular and Translational Medicine
Coordinator: Sebastiano Banni
PhD Students: Alessandro Atzei, Antonina Balsamo, Emanuela Casula, Simona Onali, Silvia Pisanu, Marina Serra.

PhD program in Neuroscience
Coordinator: Paola Fadda
PhD Students: Rosamaria Lecca, Irene Lorrai, Paolo Masia, Sara Maria Pani, Angela Maria Sanna, Valeria Serra, Marcello Giuseppe Tanca, Susan Velásquez González.

PhD program in Philosophy, Epistemology and Cultural History
Coordinator: Gabriella Baptist
PhD Students: Giada Corrias, Marco Demurtas, Marco D. Dozzi, Fabrizia Giulia Garavaglia, Giovanni Maria Mulargia, Marina Pisano.

PhD program in Physics
Coordinator: Paolo Ruggerone;
Vicecoordinator: Umberto D’Alesio
PhD Students: Samuel Belin, Antonio Cappai, Alex Chauvin, Chiara Fais, Roberta Farris, Michela Lai, Stefania Porcu.

Acknowledgements
Field Architecture
Farms as landscape tool in Sardinia

Roberto Sanna

Architect. Ph.D. student in Civil Engineering and Architecture at DICAAR, University of Cagliari. His research deals with the design issues related to the transformations of rural landscapes and architectures in the low-density areas. Author of the project CURATORIAS, by which investigates the current state of the landscapes of Sardinia and their historical dynamics. Didactic assistant in the design courses and thesis laboratories of the school of architecture at the University of Cagliari where he develops his research joining local and international teams, conferences and workshops.

The research experience has been developing since 2015 by attending in academic research groups studying the transformations of rural landscapes. The need of an architectural approach to such issues have been in-depth at the University of Toulouse, France, during the Phd course by joining the historical analysis with the ‘future’ capacity of the project.

The thesis deals with the conflict between artificial and natural, geometrization and re-naturalization, infield and outfield. The aim of the research is to explore and understand the features of the low-density built environment in the island of Sardinia, that is the architecture of the farms. The heritage built outside the borders of the villages, starting from a condition of literally inexistence until the 19th century, has now become about 1/3 of the entire built heritage of the island. Such a large-mesh network of farms and rural devices widely controls the dif-
ferent and complex types of the island’s landscapes. Farmsteads colonize the territory at different depths, from urbanity borders to wilderness, guaranteeing a widespread and extensive management of rural landscape transformations. Many rural artifacts, made of productive buildings linked to farming and breeding, have therefore a recent origin that overlap with the historical and minimal control systems of the countryside: pastoral enclosures, single-cell artifacts, isolated rural churches. Such devices replicate those settlement features that have designed over time the low-density structure of the Sardinian settlement, which, like other similar Mediterranean contexts, is based on the wise and constructive use of the residual space resulting from rural activities.

From this point of view the thesis FIELD ARCHITECTURE – Farms as landscape tool in Sardinia tries to understand how contemporary forms of agricultural production influence the continuous rewriting and transformation of the anthropic landscape. Understanding the internal dynamics of the rural exploitations, the relationship between abiotic devices and biotic dynamics can become a key interpretation for the “low density” architecture project that become so much necessary today for its strategic role regarding the climate regulation and the ethical production of rural goods.