

XIII ET Symposium Cagliari, 8-12 May 2023

# AT\_LAB - Architecture and Territory Research Laboratory



UNIVERSITÀ DEGLI STUDI DI CAGLIARI

**DICAAR**

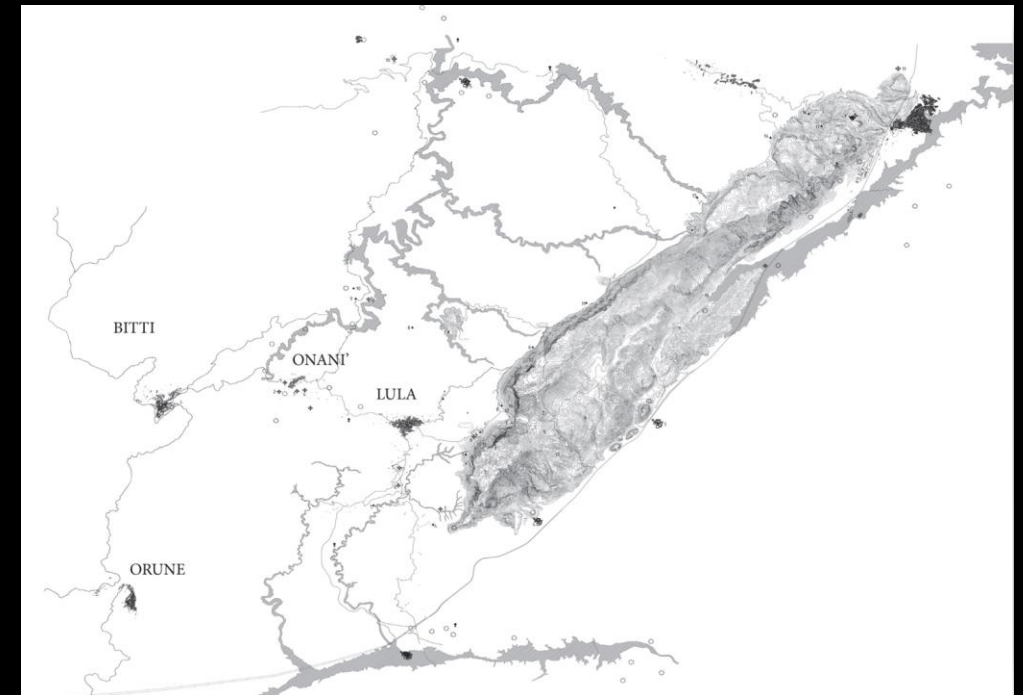
Dipartimento di Ingegneria Civile,  
Ambientale e Architettura

**Università degli Studi di Cagliari, DICAAR**

Carlo Atzeni, Stefano Cadoni, Massimo Faiferri, Stefano Mais, Silvia Mocci, Marco Moro, Fabrizio Pusceddu

The design proposal for the Einstein Telescope is composed of two distinct systems, even though they are extremely related: the underground infrastructure and the surface infrastructure.

The first is the technological and scientific heart of research into gravitational waves, the second is a great opportunity to rethink the territory.

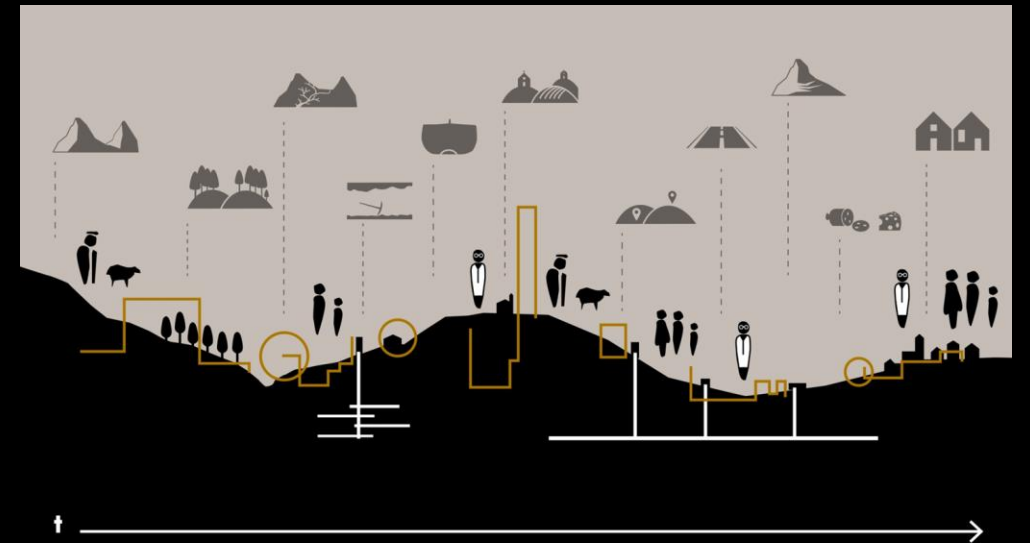


It is the design of a physical and conceptual network, an apparatus capable of making the invisible visible through a landscape system, capable of connecting each vertex of the great ET triangle.

Places in which to concentrate spaces for scientific dissemination and have contact with research activities developed underground.



This project, even if only to be prepared in terms of pre-feasibility or preliminary design document, requires, due to its complexity and innovation, an in-depth study of the direct and indirect spatial, functional, environmental, technical and technological requirements that the subsequent development phases will have to guarantee and that the AT\_Lab - Architecture and Territory Research Laboratory, will have the preliminary task of identifying.



The AT-Lab will operate under the scientific responsibility of Massimo Faiferri, architect, and professor of architectural and urban design at Dicaar (Department of Environmental Civil Engineering and Architecture of the University of Cagliari) already involved in important research and design activities related to the study and implementation of large research infrastructures and the effects that these infrastructures produce as an opportunity for regeneration of the territories in which they are hosted.

Team:

Carlo Atzeni, Stefano Cadoni, Massimo Faiferri, Stefano Mais, Silvia Mocci, Marco Moro, Fabrizio Pusceddu



1. EUSPARC - INFN Laboratori Nazionali di Frascati



2. ES - Landscape of knowledge



3. Gravitational Waves Architecture - Venice - 18th International Architecture Exhibition



1. EUSPARC - INFN Laboratori Nazionali di Frascati  
P. Campana, S. Incebronio, S. Cantarello, R. Ricci, U. Rolando, S. Vescovi  
M. Faiferri, S. Bartocci, L. Cabras, C. Carrasco, R. Manca, D. Palese, F. Pusceddu, E. Turco

2. ES - Landscape of knowledge  
M. Faiferri, S. Bartocci, F. Aros, L. Cabras, R. Manca, F. Pusceddu, F. Rango

3. Gravitational Waves Architecture - Venice - 18th International Architecture Exhibition  
E. Coccia, M. Faiferri, G. Mazzanti, M. Punturo - con L. Cabras, F. Pusceddu

4. Science Centre - INFN Laboratori Nazionali di Frascati  
P. Campana, S. Incebronio, P. Angioletti, S. Berelli, S. Cantarello, D. Domenici, R. Ricci, U. Rolando  
M. Faiferri, S. Bartocci, F. Pusceddu, R. Manca, F. Mistrretta

The design proposal for the Britain telescope is composed of two distinct systems, even though they are extremely related: the underground infrastructure and the surface infrastructure. The first is the technological and scientific heart of research into gravitational waves, the second is a great opportunity to rethink the territory. It is the design of a physical and conceptual network, an apparatus capable of making the invisible visible through a landscape system, places in which to concentrate spaces for scientific dissemination and have contact with research activities developed underground.

These processes are now the pivot of the most important European research funding programmes, which recognise the complementarity between the creation of large, highly specialised research infrastructures and their openness to the outside world due to the contamination of knowledge as one of the key elements for the growth of a human capital capable of meeting the challenges of the future for an inclusive, innovative and secure society. Centres of excellence that cannot disregard the physical, social, environmental and economic relations with the territory in which they are located. In fact, it is clear that today the great research poles of international level are not closed places exclusively of the service of research, but open and permeable spaces of knowledge.

Starting from these premises, the contribution we intend to submit identifies the role of the research group of DICAAR of the University of Cagliari within the broader EITC project, on the basis of the experiences developed by the working group around the project of scientific infrastructures and science centres, through the many years of collaboration with INFN (National Laboratories of Frascati) and the organization of international workshops and schools on the subject.

## LARGE SCIENTIFIC INFRASTRUCTURES

Research and design experiences

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4. Science Centre - INFN Laboratori Nazionali di Frascati



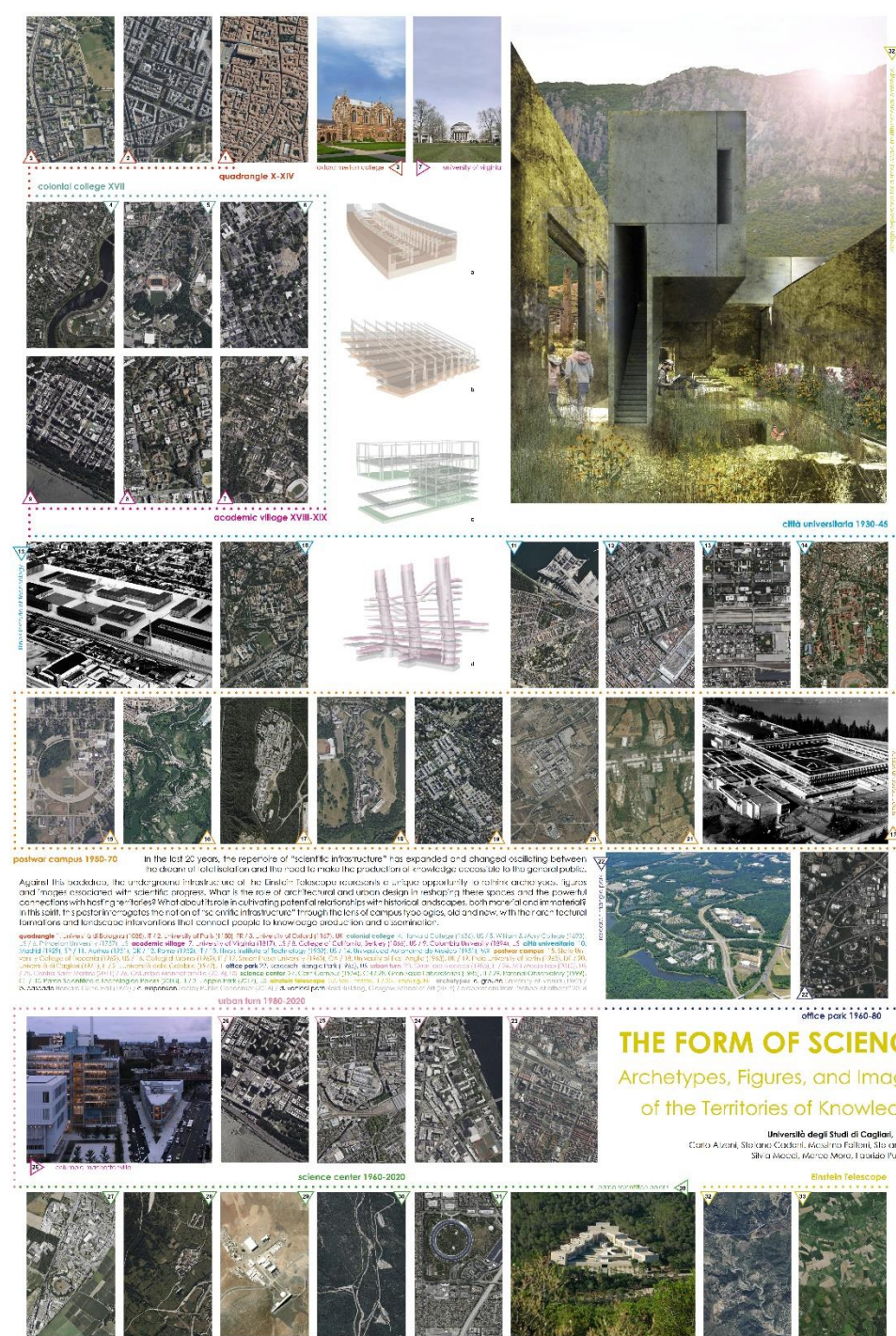
The laboratory, within the wider ET proposal, will be engaged in the development of the following phases:



## Phase B

Support and verification of the design of all surface works with particular reference to architectural, landscaping and urban aspects.

- Elaboration of modular, multi-level and incremental strategies - also at low cost - for the transformation of urban spaces connected to the scientific infrastructure, in order to relaunch uses and activities, also envisaging alternative forms of management and innovative design or recovery tools.
- Elaboration of scenarios that consider Lula as a new reception and residential centre for ET researchers/operators in terms of a diffuse technological village as an opportunity for redevelopment of the town centre.





## Phase B

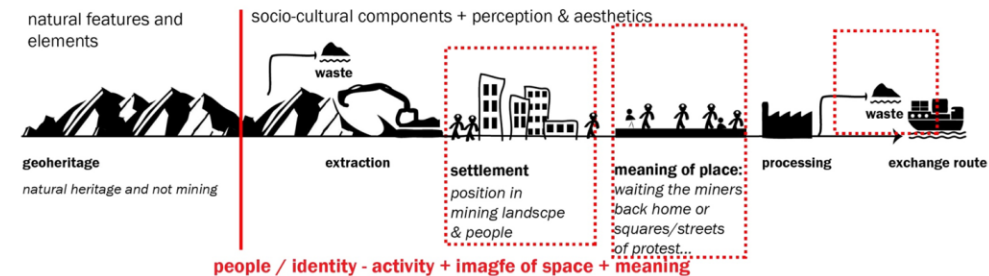
Support and verification of the design of all surface works with particular reference to architectural, landscaping and urban aspects.

- Elaboration of hypotheses for the recovery of mine artefacts as well as a new soil and surface architecture project that can be replicated in other disused production sites.
- Study of the environmental/landscape/territorial recomposition processes through the elaboration of models and three-dimensional representations (3d renderings - photomontages).



space

Geo-mining Landscape

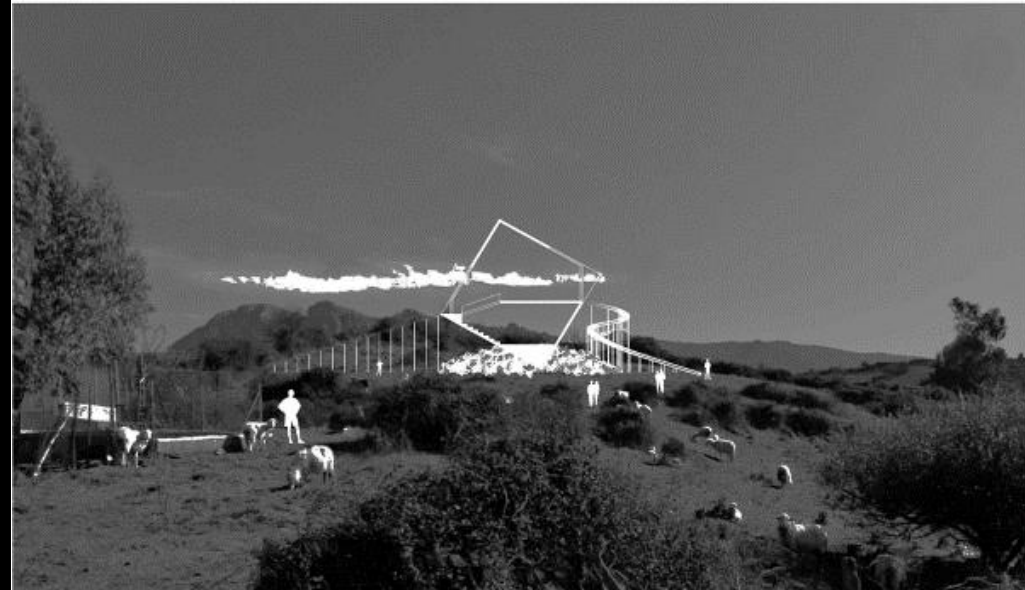


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## Phase C

### Actions of involvement and relation with the context

- Promotion of forms of knowledge and innovation through living labs/community hubs/visitor centre which, starting from research in the field of gravitational waves, will integrate and enhance the services already present.
- Elaboration of an abacus of interventions and strategies that allow the various stakeholders to plan intermediation activities capable of triggering coordinated and synergic processes between communities and places.



## Phase C

### Actions of involvement and relation with the context

- Dissemination and promotion of design progress to communities through preparation of dissemination materials, organisation of international project workshops, publications, conferences.
- Verification of project choices through the construction and testing of innovative prototypes to support scientific activities.



2019 ILS Innovative Learning Spaces landscapes of knowledge

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<http://www.ecourbanlab.it/>