

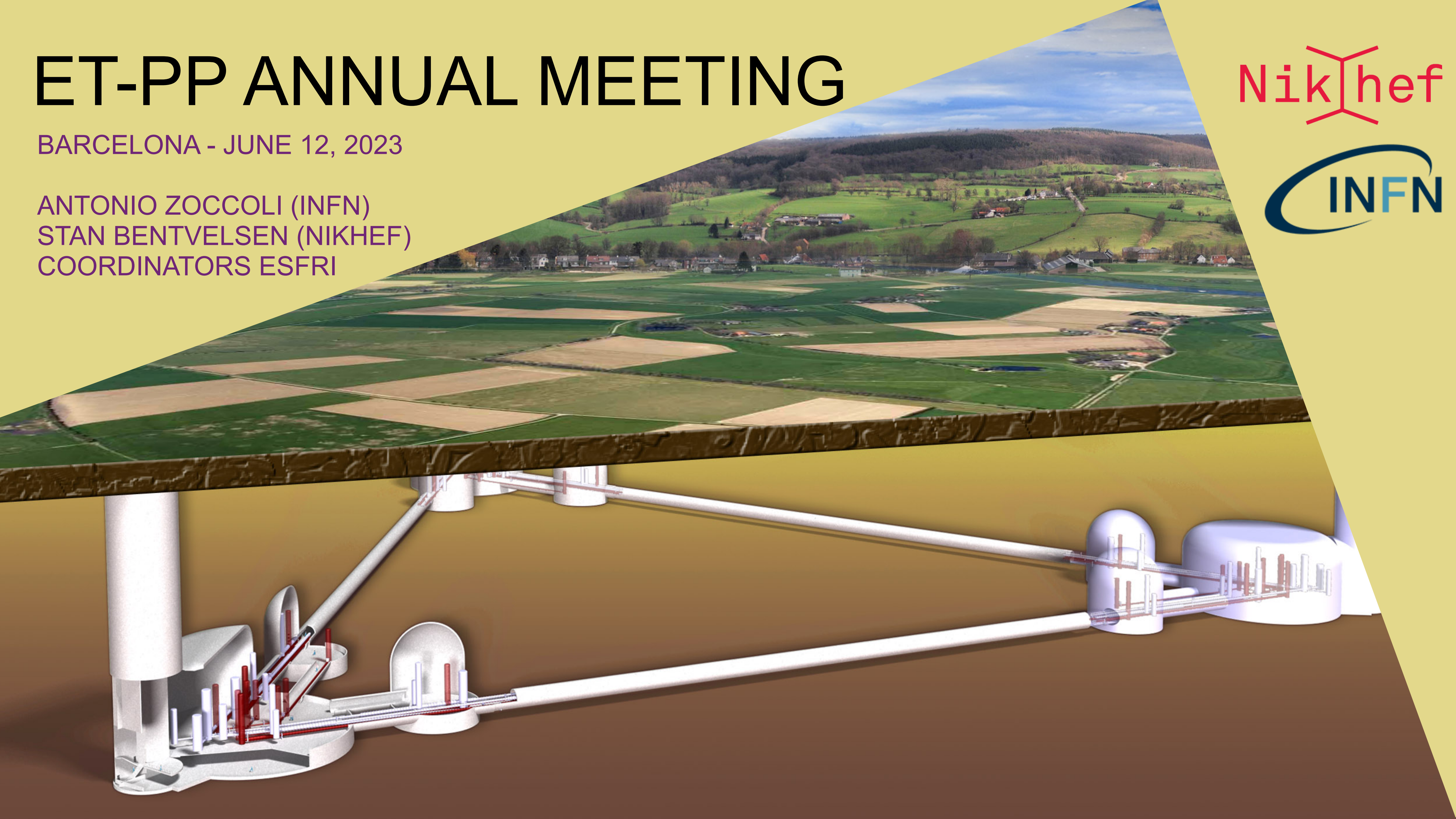
ET-PP ANNUAL MEETING

BARCELONA - JUNE 12, 2023

ANTONIO ZOCCOLI (INFN)
STAN BENTVELSEN (NIKHEF)
COORDINATORS ESFRI

Nikhef

INFN



EINSTEIN TELESCOPE - ESFRI (2021)

ESFRI proposal

- Submitted by: *Italy, Belgium, Netherlands, Poland and Spain*
- Project and collaboration also include agencies and institutions belonging to *Austria, France, Germany, Hungary, Switzerland and UK*

Coordination

- Consortium (currently) coordinated by INFN and Nikhef

Funds

- Preparatory funds available in some countries (IT, NL, SP, ...)
- EU INFRA-DEV coordinated by *Mario Martinez*

Site candidates

- Studies ongoing in Sardinia in Italy, EMR border region (NL-B-G)

EUROPEAN GOVERNANCE SET-UP

ET-Council - EU members

Governmental Representatives (BGR)
Scientific Representatives (BSR)

ESFRI coordination
(Italy and Netherlands,
Zoccoli & Bentvelsen)

Governmental representatives
active,
ET-Council does not yet exist

“Directs the directorate”

ET-Organisation - legal entity

ET Directorate (Ferroni & Freise)
ET_PP (Martinez)

Organisation
Site Characterization
Technical design
Finance...

Directorate in place
Legal entity does
not yet exist

ET-collaboration - scientists

ET Collaboration Board - Executive board
Specific Boards

>1400 scientists,
13 countries:
Instrumentation
Data Analysis
R&D ...

A dual structure:

1) project organisation (towards legal entity) and 2) scientific collaboration

ETO (ET Organisation)

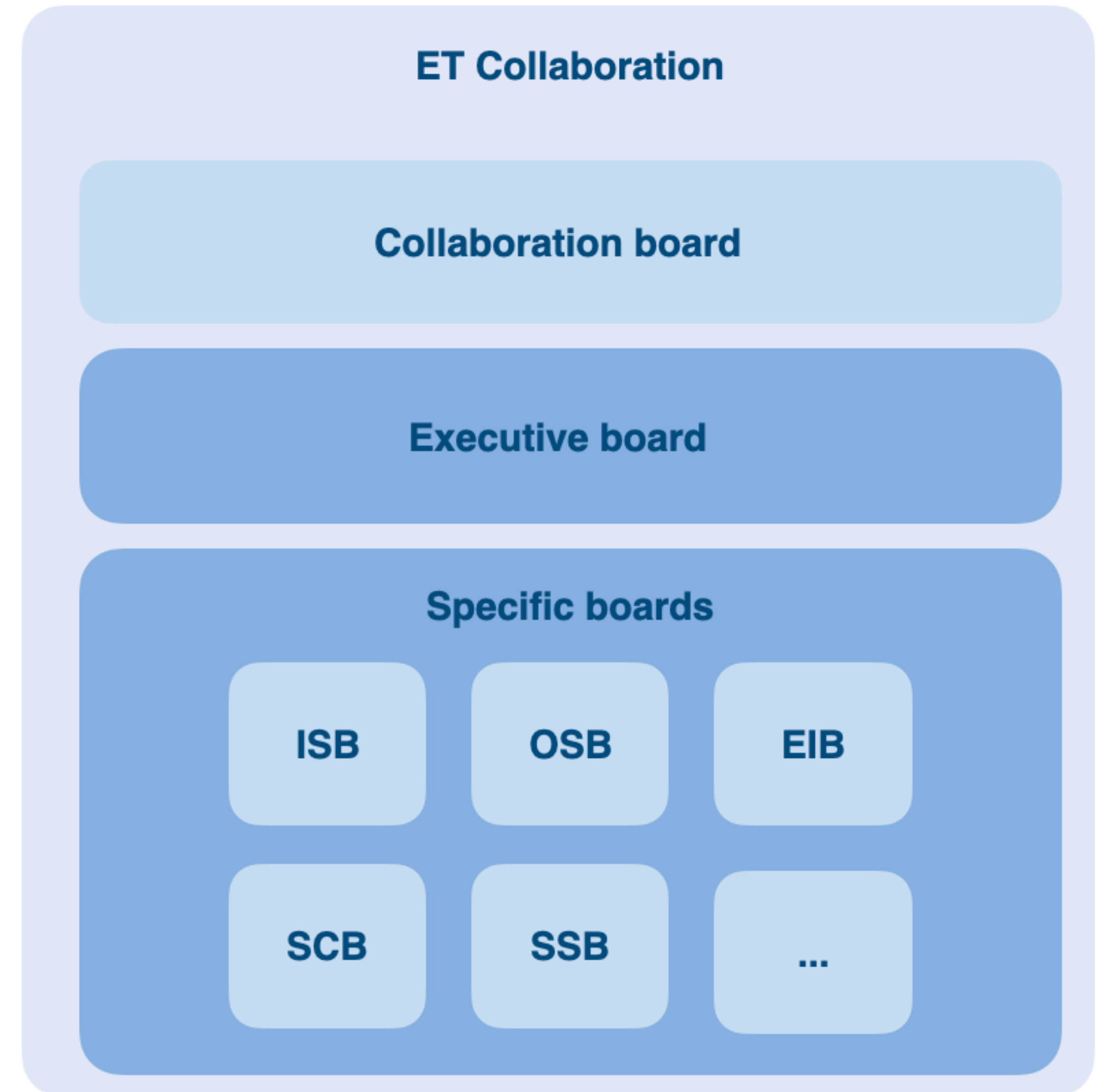
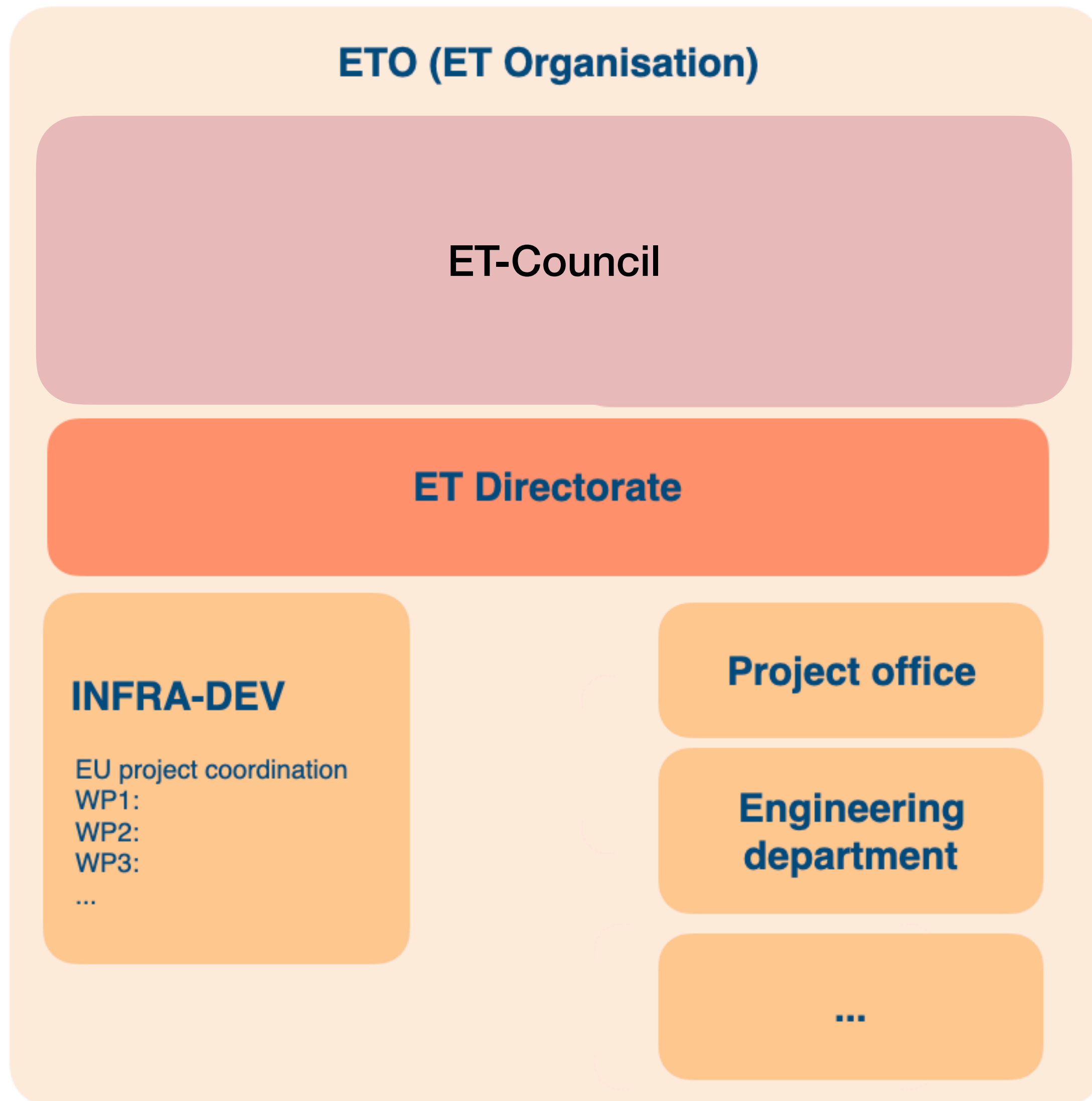
A project organisation to construct a legal entity to build and operate a research infrastructure.

ET Collaboration

The collaboration defines the scientific goals and requirements of the detector.

A dual structure:

1) project organisation (towards legal entity) and 2) scientific collaboration



MANDATE FOR THE PD

Mandate for the ET Directors for the “Design and Preparatory Phase I”

Deliverables:

- Reports addressed to the ET Board of Governmental Representatives (BGR), a group of ministry delegates, suggesting them to give a first approval for:
 - the construction of the ET Research Infrastructure and its locations(s),
 - a budget and a schedule which both cover the procurement process, the installation, the commissioning, the operation and finally the dismantling,
 - for the establishment of a legal entity for the Implementation Phase.

The final report as delivered by the PD includes a comparison of two scenarios:

- the baseline consisting of one triangle versus an alternative option based on two L-shaped infrastructures, in scientific potential, risk analysis and costs.

LINE OF AUTHORITY

ET Coordinators

- ET ESFRI Project Coordinators (the President of the INFN and the Director of Nikhef), are in charge and responsible for the creation of the ET Research Infrastructure.
- Their authority is recognised by the BGR in their Terms of References.
 - The coordinators will be consulted by the BGR on the progress and process of realizing ET

ET Directors

- The ET Coordinators nominated two ET Directors:
 - Fernando Ferroni (INFN) and Andreas Freise (Nikhef).
- ET Directors are mandated to set up and manage the structure of the ETO (Phase I).
- Mario Martinez (IFAE) is responsible for the INFRA-DEV project.
 - He operates under the responsibility of the two Directors and is a member of the Directorate.

MANDATE

The ET Directors are mandated by the ET Coordinators to:

1. Set up the organization and the operations of the ETO.
 - Defining the structure of the ETO (Phase I), giving mission statements and work programmes to the work units, naming staff members in the various work units, setting deadlines and quality control criteria.
2. Compare the triangle geometry with the geometry of two L-shaped infrastructures
 - in scientific potential, risk analysis and costs.
3. Develop a budget plan and schedule for the Design and Preparation Phase I.
 - Control the budget and account for the funds allocated to the ETO (Phase I)
4. Steer and oversee the studies and the production of the documentation
 - Position BGR to review, modify, update and approve the report; to prepare execution
5. The ET Directors will give a progress report to the ET Coordinators each trimester

MANDATE COMMENTS

This mandate is a starting point

- PD is now in the position to act
- PD will be creating new terms to describe how the organisation works
 - PD and the Collaboration will have to engage to the benefit of the project
 - PD has to communicate the 'roadmap of activities'

The link from the PD to the collaboration is of course important

- Communication to the collaboration probably have to be improved
- Overall strategy on the geometry, time schedule, etc has to be further developed

The link from the PD to the local teams (Sardinia, EMR) equally important

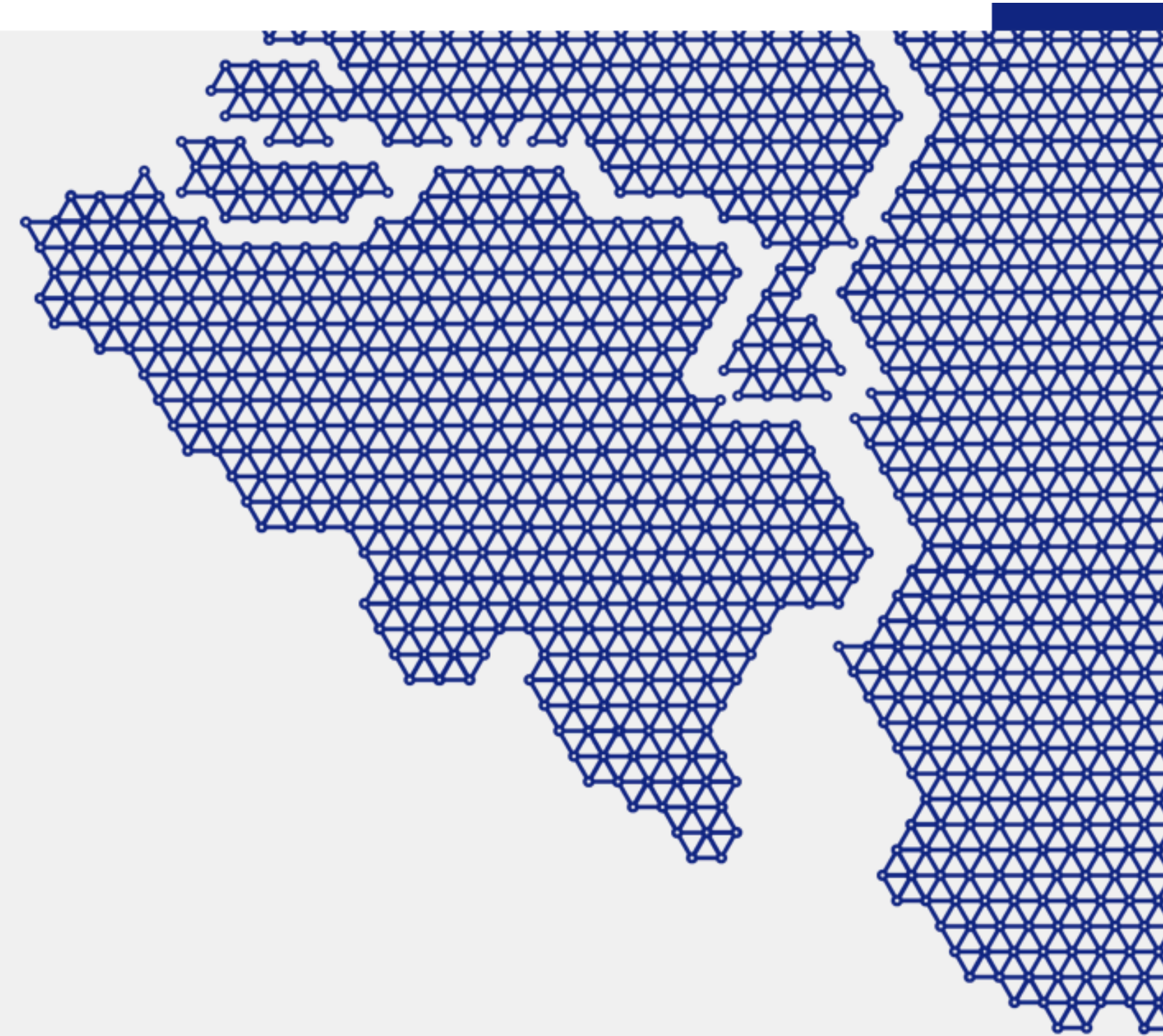
- PD as coordination between the collaboration and local team

NEWS FROM THE EMR SITE

The Einstein Telescope?

The Einstein Telescope is an advanced gravitational-wave observatory, currently in the planning stage. The border region of the Netherlands, Belgium and Germany is an ideal location. This is because of its tranquillity, stable ground and strong ecosystem of scientific institutions and high-tech companies.

Will this new centre for research into the distant universe be located in the region? Scientists, companies and governments in all three countries are exploring the possibilities together.



When stars collide or black holes form, space vibrates

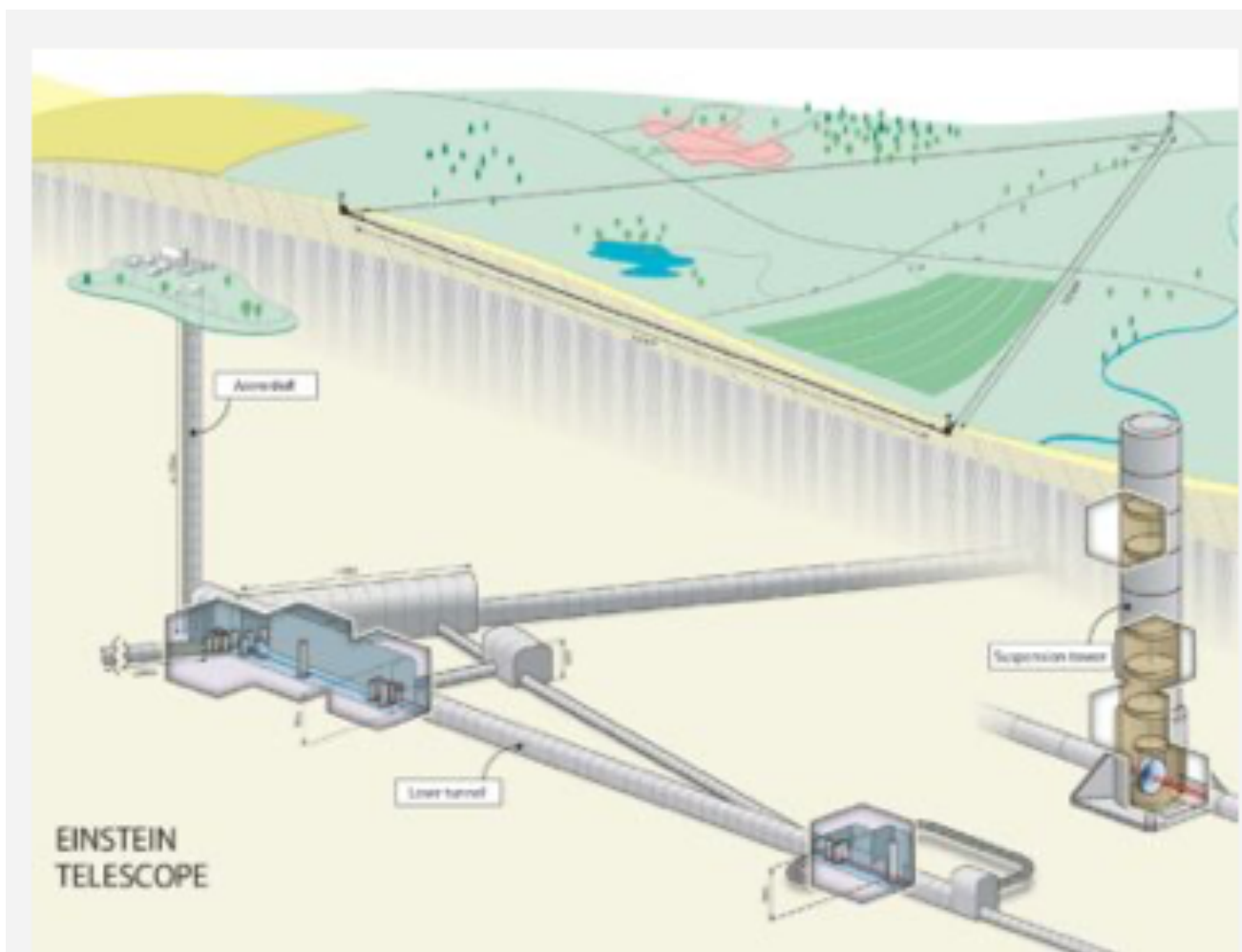
Gravitational waves contain information about the most extreme events in the universe, from the nature of black holes and neutron stars to the first moments after the Big Bang. Thanks to these waves, we can study the cosmos as never before.



NEWS FROM THE EMR REGION

Building robust consortium

- Taskforce Belgium, Germany and the Netherlands
 - Ministerial representation B, G, NL (e.g. Robbert Dijkgraaf - minister of science)



5 December 2022

Flanders invests in preparation Einstein Telescope



13 December 2022

Taskforce from Belgium, Germany and the Netherlands strengthens candidacy for Einstein Telescope



16 February 2023

Unanimous support for Einstein Telescope from Belgian ministers for science



NEWS FROM THE PROJECT OFFICE

Ecosystem is strengthening

- Maastricht as home-base for Project Office
- Same building as the ETpathfinder
- Flanders, Wallonia, Netherlands & Germany



24 October 2022

Einstein Telescope EMR: work in progress

- Many R&D projects
- Institutes and industry collaborating
- Over 100 mln. of funding already

- Very thriving and collaborative environment
-



www.etpathfinder.eu

www.etest-emr.eu

www.et2smes.eu

www.et-technologies.nl

42 MEuro for geology, industry, R&D, local project office
+ 870 MEuro construction of underground infrastructure

Dutch government embraces plans for Einstein Telescope in Limburg region

www.dbhc.nl

ca 4 MEuro for setting up an Project Office on European level.

~~ca 10 MEuro for R&D activities across Europe.~~

ETPATHFINDER

ETpathfinder becoming very real

- Focal point for technology development and R+D
- Testing and prototyping Innovation!

PREPARATIONS IN EMR REGION

Ban on windturbines

- (political) support to protect the area for ET



3 April 2023

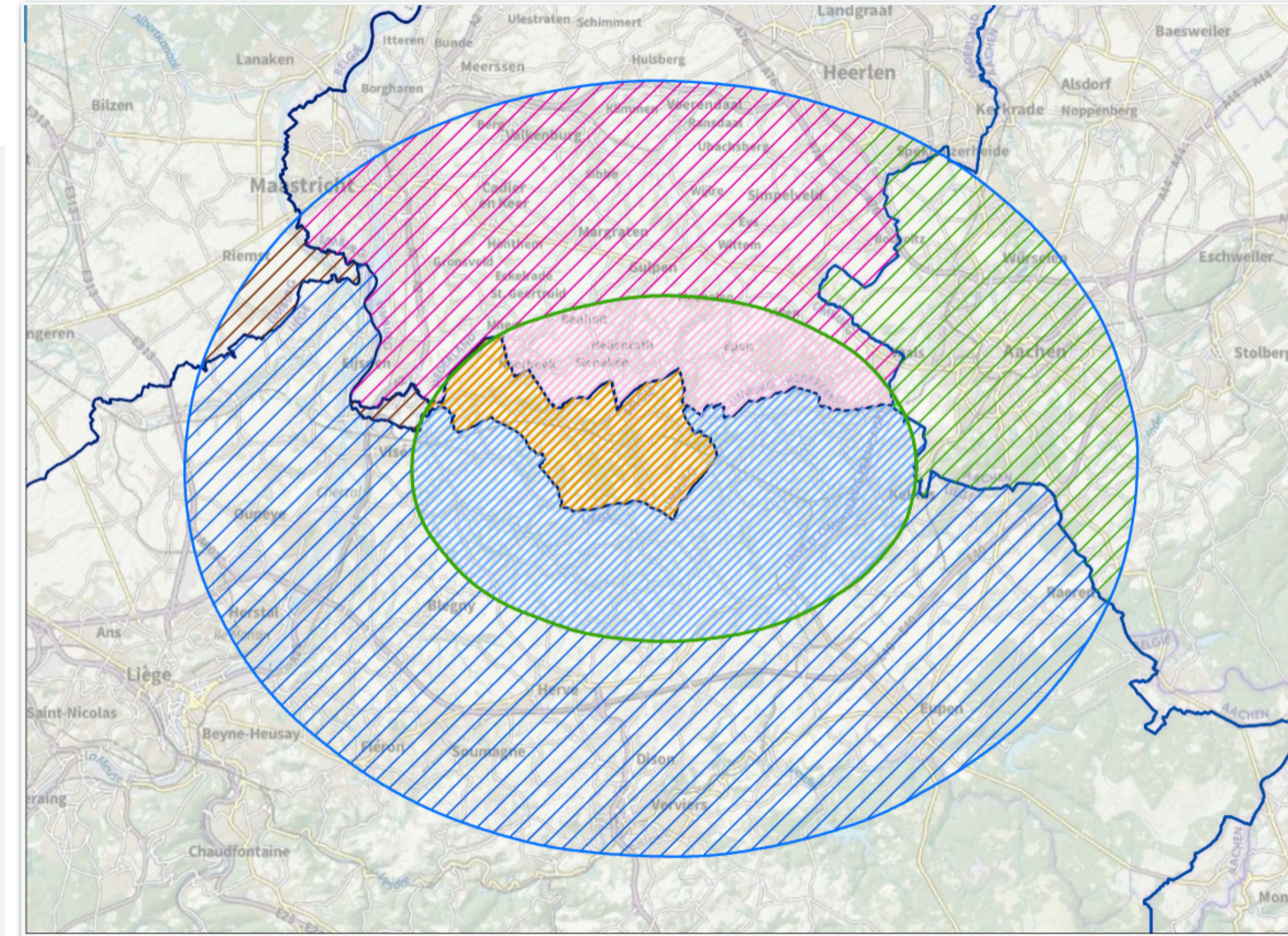
Belgian Council of State scraps Dalhem wind turbines for Einstein Telescope



19 December 2022

Province of Limburg (NL): ban on wind turbines in search and protection area Einstein Telescope

Site studies progressing



- Defining the exact tracé
- see Wim Walk



EMR CONSORTIUM

Strong political and social support, increased focus on education

High tech industry and top academia nearby

Challenging subsurface, indeed, but we see a clear path forward



28 February 2023

Academic network discusses Einstein Telescope progress in Aachen



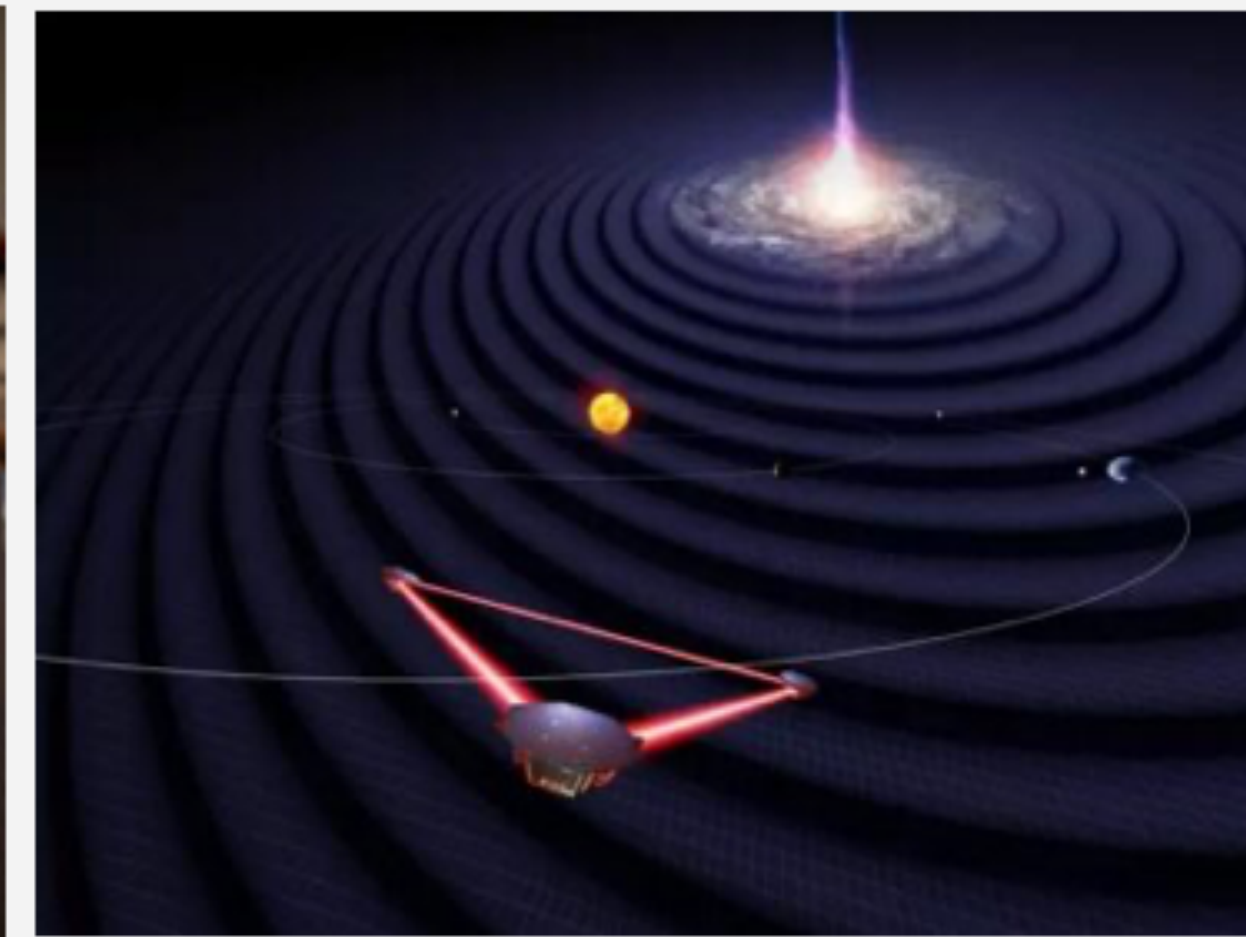
13 March 2023

Vice-President EC Frans Timmermans: "Euroregion has excellent opportunity with the Einstein Telescope"



13 January 2023

Einstein Telescope presents progress in Brussels



8 May 2023

Dutch fund for large-scale research infrastructure supports LISA and Einstein Telescope

NEWS FROM THE ITALIAN SITE

A lot of developments at national and regional level

- **10/02/2023:** The Minister of University and Research Bernini has appointed a scientific advisory board [“Comitato Tecnico Scientifico per la Candidatura Italiana”] composed by:
 - Giorgio Parisi - Nobel prize
 - Ettore Sequi - Ambassador, new Italian member of BGR
 - Marica Branchesi
 - Nando Ferroni
 - Antonio Zoccoli
- Mandate: **official advisors of the Minister and of the Government on the Italian candidature**



NEWS FROM THE ITALIAN SITE

A lot of developments at national and regional level

- **21/03/2023:** Visit of Anna Maria Bernini at SOS Enattos and SAR-GRAV Laboratory

ET is an unmissable opportunity for Sardegna and Italy as a whole.

Sos Enattos is the perfect site to host the infrastructure and become a focal point of international scientific research



NEWS FROM THE ITALIAN SITE

A lot of developments at national and regional level

- 9/5/2023: CAGLIARI, Official presentation of Italian Candidature
- New ET-Italia WEB site: <https://www.einstein-telescope.it/>
 - Officially approved and sponsored by Government, MUR, RAS and INFN
- New ET-Italia LOGO approved and adopted by the Government



REGIONE AUTÒNOMA
DE SARDIGNA
REGIONE AUTONOMA
DELLA SARDEGNA



NEWS FROM THE ITALIAN SITE

A lot of developments at national and regional level

- 6/06/2023: Press conference in Roma for official governmental support
 - Prime Minister Giorgia Meloni
 - Minister of Foreign Affairs Antonio Tajani
 - Minister of University and Research Anna Maria Bernini
 - Minister of Labour and Social Policies Marina Elvira Calderone
 - President of Sardinia Region Christian Solinas



LA VOLONTÀ

«Volevo offrire con la mia presenza l'attenzione, la volontà, la dedizione che il governo intende mettere sulla candidatura dell'Italia a ospitare l'Einstein Telescope, simbolo dell'Italia che vuole guardare verso l'alto. C'è un'Italia che è sempre stata capace di guardare in grande, ma spesso quello che ci è mancato è la consapevolezza»
Giorgia Meloni,
presidente del Consiglio



NEWS FROM THE ITALIAN SITE

A lot of developments at national and regional level

- 6/06/2023: Press conference in Roma for official governmental support
- HUGE Press converge [380 pages of]
- 293 articles on journals, 8 TV services on national broadcast

Libero

Nuovo duello

Scienza e occupazione Giorgia sfida l'Olanda per costruire in Italia il telescopio di Einstein

La premier candida la Sardegna per ospitare l'infrastruttura sotterranea capace di ascoltare le onde gravitazionali: «Guardiamo in alto, siamo da grandi imprese»

il Giornale

Data 07-06-2023
Pagina 6
Foglio 1

SULLE ORME DEL GRANDE FISICO

L'Italia lancia la Sardegna per il superteleoscopo «Con il progetto Einstein 36mila posti di lavoro»

Il governo candida l'isola per il progetto europeo sulle onde gravitazionali

Il Sole
24 ORE

Ricerca, l'Italia lancia la candidatura per l'Einstein Telescope

PROGETTO EINSTEIN

L'Italia si candida a ospitare il «Telescope»

ROMA

L'Italia entra ufficialmente nella gara per ospitare l'Einstein Telescope, il più potente strumento mai costruito per catturare le onde gravitazionali, fino a spingersi quasi al Big Bang che ha dato origine all'universo.

La candidatura ufficiale, con il sito di Sos Enattos, in Sardegna, è stata presentata a Roma dalla presidente del Consiglio Giorgia Meloni: «volevo offrire con la mia presenza l'attenzione, la volontà, la dedizione che il governo italiano intende mettere sulla candidatura dell'Italia a ospitare l'Einstein Telescope, volevo che questa volontà fosse

chiarissima», ha detto la premier. Ospitare in Italia questo strumento senza precedenti è «per la scienza, un enorme balzo in avanti nella nostra capacità di comprendere il cosmo; per la politica è un modo per far tornare la ricerca italiana ed europea centrale», ha aggiunto. «Ce la metteremo assolutamente tutta: è un segnale all'Italia e al mondo che l'Italia può giocare nel mondo». Con il governo e il ministero della Ricerca, la candidatura è sostenuta dalla Regione Sardegna e coordinata scientificamente dall'Istituto Nazionale di Fisica Nucleare in collaborazione con enti di Ricerca e Università di tutta Italia.



La premier Giorgia Meloni (Ansa)



Meloni: l'Et sarà a Sos Enattos

La premier lancia la candidatura dell'isola per ospitare l'Einstein telescope
Un investimento che genererà un giro di affari da 6 miliardi di euro

La premier Giorgia Meloni dà il suo imprimatur alla candidatura di Lula per l'Et. Lo fa a Roma davanti a diversi ministri, al governatore Solinas e al Nobel Parisi.

di Zoccheddu a pag. 2 e 3

«L'Einstein telescope rilancerà Italia e Sardegna»

La presidente del consiglio Meloni ufficializza la candidatura di Sos Enattos
«Guardare il cielo per dimostrare che siamo capaci di grandi imprese»

