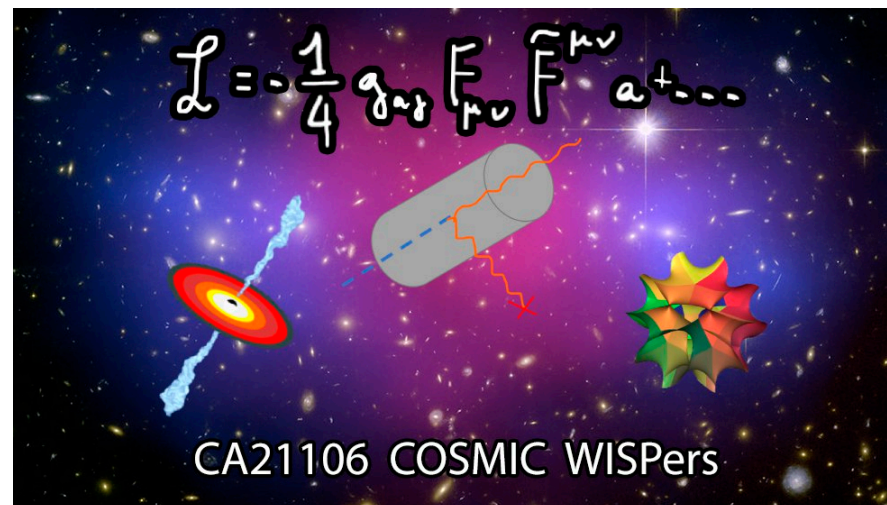
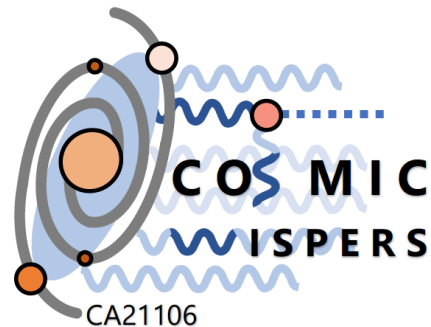


COST ACTION CA21106

COSMIC WISPerS in the Dark Universe:

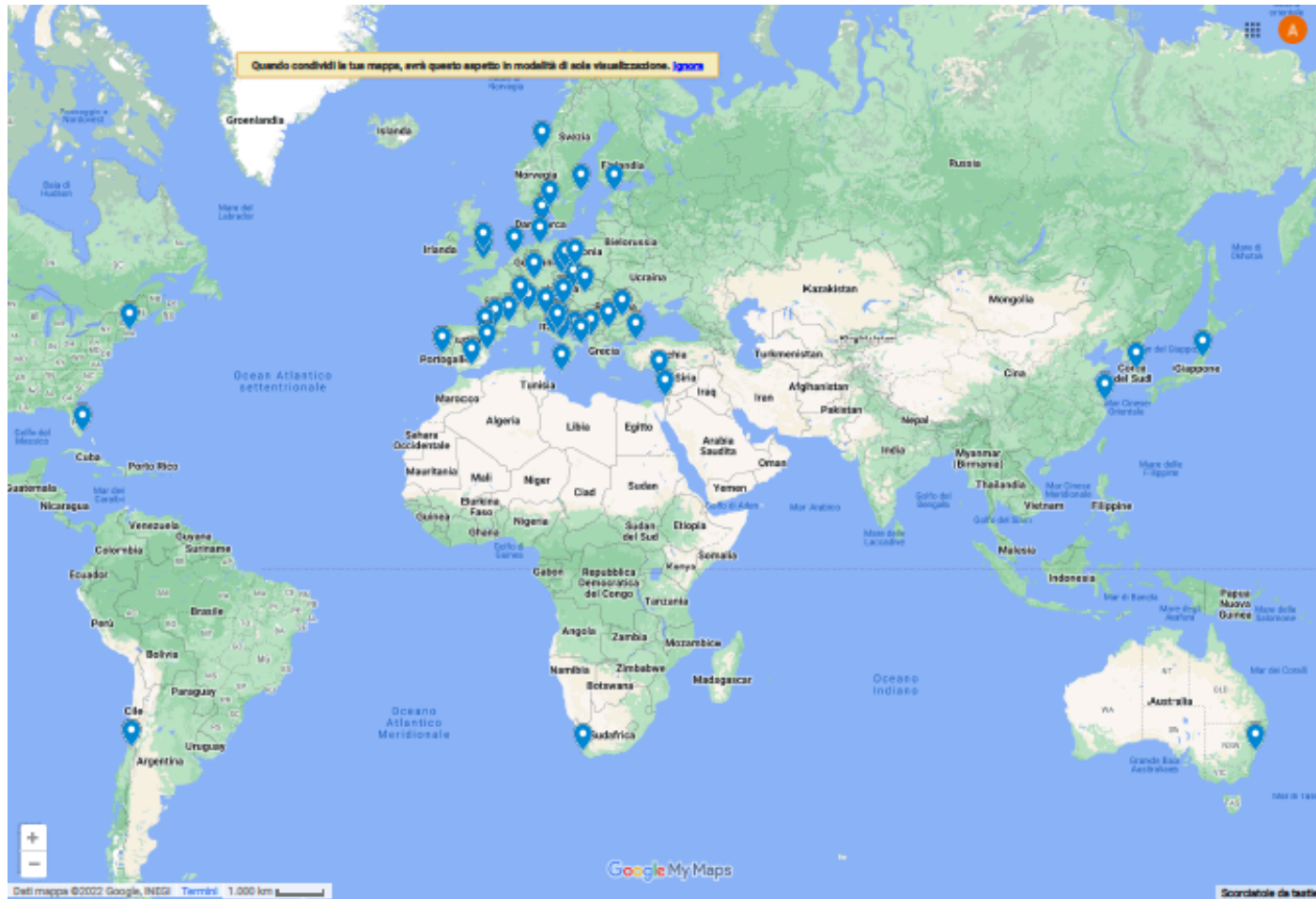
Theory, astrophysics and experiments

Alessandro Mirizzi
(Bari Univ. & INFN, Italy)



Funded by the
European Union

COSMIC WISPErs NETWORK



~ 70 proposers

**Currently > 250
participants!**

COST Country(25) : Albania , Austria , Bulgaria , Croatia , Cyprus , Czech Republic , Denmark , Estonia , France , Germany , Hungary , Israel , Italy , Malta , Netherlands , Norway , Poland , Portugal , Romania , Slovenia , Spain , Sweden , Switzerland , Turkey , United Kingdom
International Partner Country(7) : Australia, Chile, China, Japan, South Africa, South Korea, United States

WISPs



WISPs are very Weakly Interacting Slim ($m < \text{GeV}$) Particles which emerge in several extensions of the Standard Model of Particle Physics.

CHALLENGE

The aim of this Action is an exhaustive study of these WISPs, notably axions, axion-like particles (ALPs) and dark photons, ranging from their theoretical underpinning, over their indirect observational consequences in astrophysics, to their search at colliders and beam-dump and their direct detection in laboratory experiments.

OBJECTIVES (from MoU)

- ✓ Provide a discussion forum for **European coordination** of WISPs Physics activities
- ✓ Develop a **Roadmap** for WISPs Physics in Europe
- ✓ Coordinate and support in a **synergic** way WISPs searches
- ✓ Compare WISPs **theoretical** models and assess performance of different **experimental** techniques
- ✓ Provide input to **Small and Medium Size Enterprises** (SMEs)
- ✓ **Disseminate** the research results
- ✓ Provide **cross community discussions** to enable new experiments
- ✓ Stimulate **transfer of knowledge** among established leading groups on the field and emerging excellent scientists in ITC
- ✓ Promote **gender balance**
- ✓ Involve **new research groups** from ITC
- ✓ Attract **young talented researchers**

STRATEGIES

- Common platform to connect WISP research activities in different areas. Collaborations in a structured way through Working Groups, Workshops and Short-Term Missions
- Organize much of the scientific foundation for present and next generation WISPs experiments. Develop a European roadmap for experiments. Interplay between theorists, experimentalists and representatives of SMEs
- Training activities to offer inter-disciplinary research competences which are difficult to obtain locally
- Offer to ECI the opportunity to develop management skills sharing responsibility in the management of the Action. Particular emphasis on the gender balance
- Promote the visibility of researchers from ITC connecting them with leading scientists in EU countries
- Outreach activities. Improve the communication skills of the young participants

1° MANAGEMENT COMMITTEE MEETING

3-rd October 2022



Zoom Meeting

Original Sound for Musicians: Off COST Katchamon Nimprang is talking... View

Participants (28)

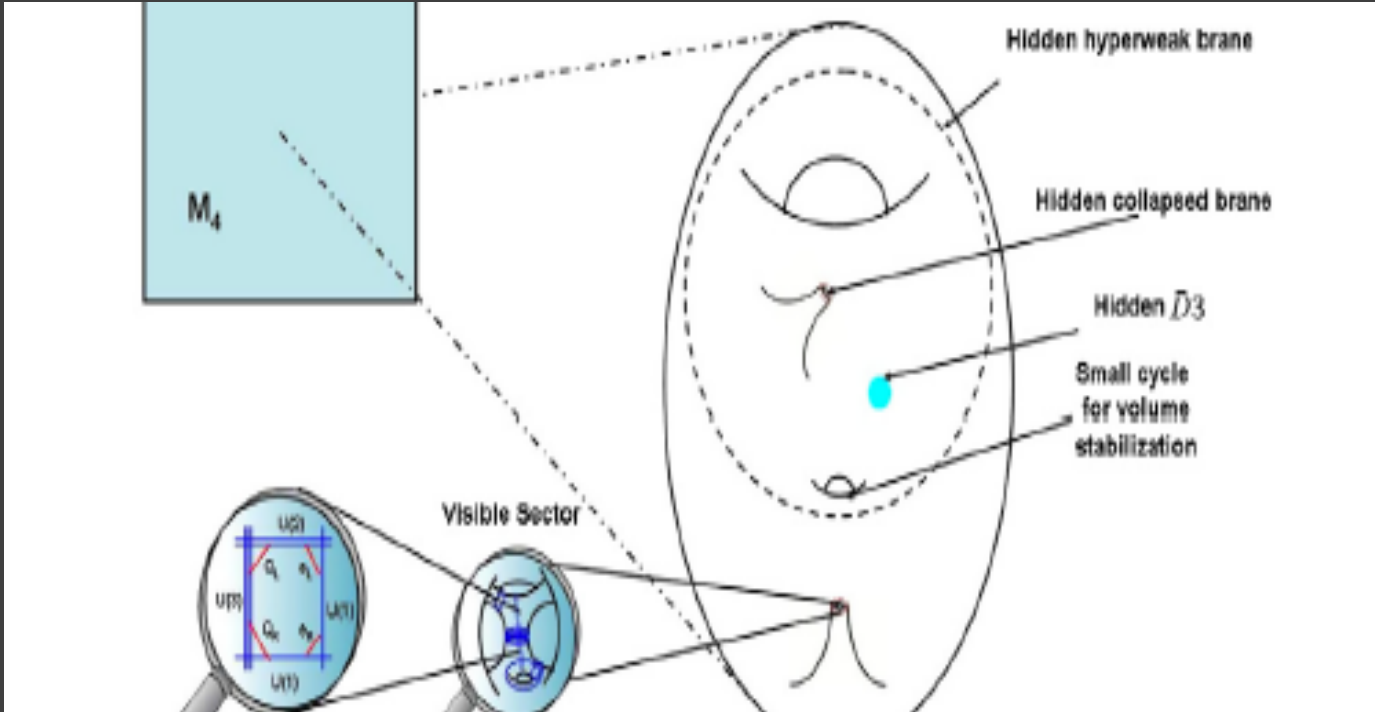
Find a participant

- EE Maria Benito Castaño
- EI ES Igor García Irastorza
- FP FR Pierre Pugat
- HM HR Marin Karuza
- A IT Alessandro Mirizzi
- IM IT Maria Paola Lombardo
- MC Michele Cicoli
- NW NL-Christoph Weniger
- M PT Michele Gallinaro
- RS Zoran D. Grujić
- SE - David Marsh
- SI Miha Nemevšek
- TR Serkant Çetin
- UJ UK Joseph Conlon
- WG- Andrea Caputo
- WI WG Inma Dominguez

Unmute Stop Video Security Share Screen Apps More Leave Invite Mute All

Action Chair: Alessandro Mirizzi
(Bari Univ, IT)

Action Vice-Chair: Francesca Calore
(LAPTh, Annecy, FR)



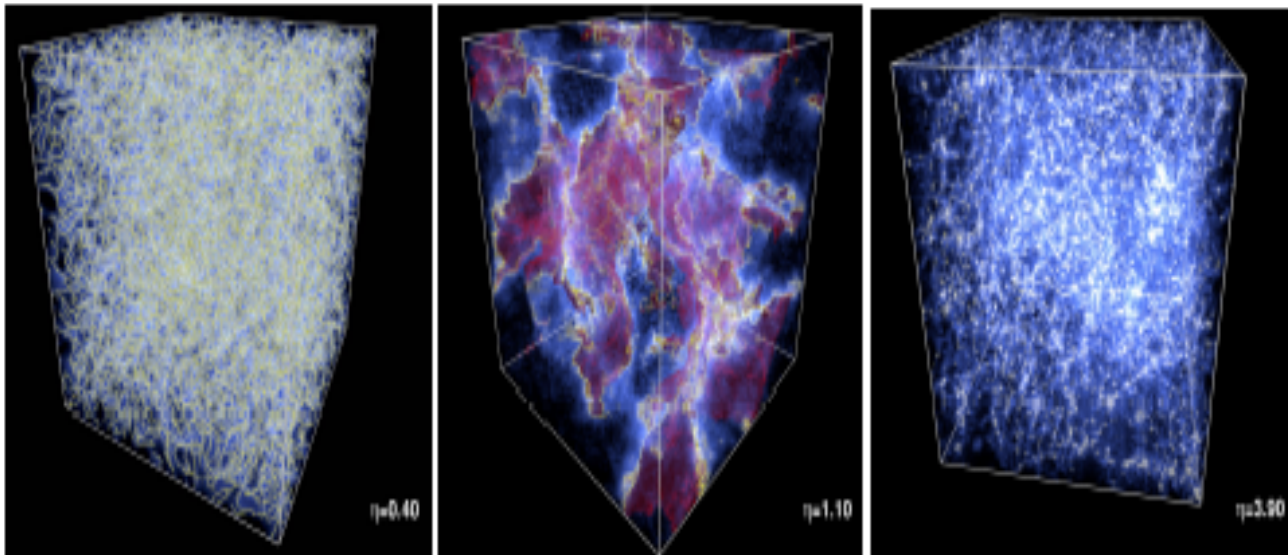
WG Leaders

Michele Cicoli (Bologna Univ., IT)
Ilaria Brivio (Bologna Univ., IT)

69 participants

WG1: THEORY AND MODEL BUILDING

Determine the nature, number, masses and couplings of WISPs that arise in well-motivated theories of fundamental physics, and in particular within string compactifications that join moduli stabilisation with (semi)-realistic matter sectors



WG Leaders

Edoardo Vitagliano (Hebrew Univ. IS)
Javier Redondo (Zaragoza Univ., ES)

148 participants

WG2: DARK
MATTER AND
COSMOLOGY

Obtain precise predictions of axion and WISP DM relic abundance and identify distinguishing features of WISP DM in Large Scale Structure data

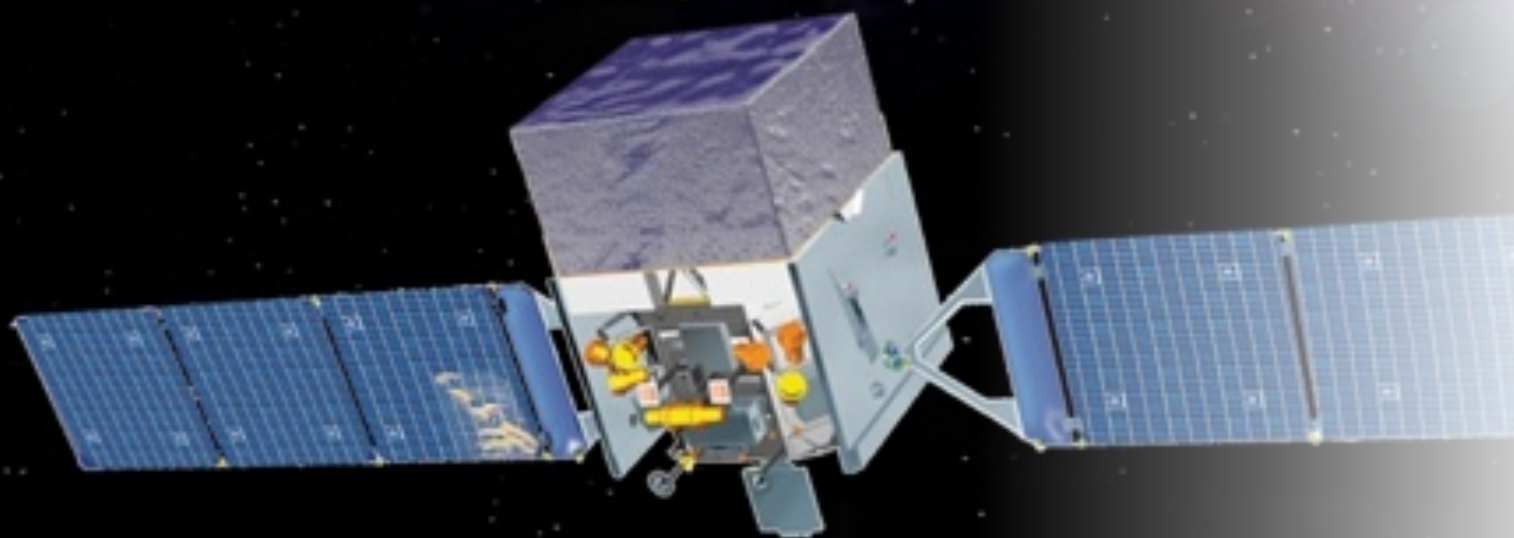
WG3: WISPs IN ASTROPHYSICS

Deepen the studies of the signatures of WISPs in astroparticle physics. These include WISP oscillations into photons, WISP-induced energy loss in stellar systems and signatures from gravitational waves and from primordial black-hole superradiance.

WG Leaders

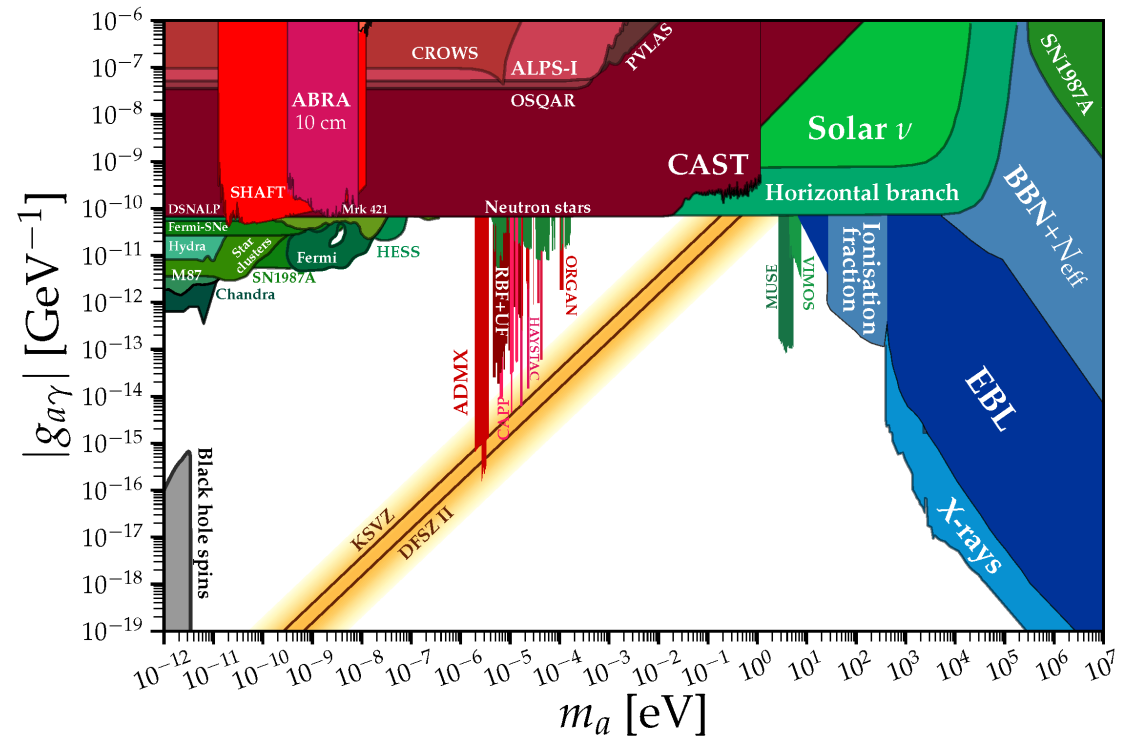
Andrea Caputo (CERN, CH)
Oscar Straniero (INAF, IT)

94 participants



WG4: DIRECT WISPs SEARCHES

Produce a complete, updated and revised summary of the status of WISP searches, highlighting parts of the parameter space, models or couplings that are not under test by present or future searches. Outline a roadmap to WISP discovery and a way to disentangle among different WISP models



WG Leaders

Claudio Gatti (LNF, IT)
Marin Karuza (Rijeka Univ. , HR)

88 participants

WG5: DISSEMINATION AND OUTREACH

Enhance the dissemination and communication of the results, and to structure outreach activities to attract public awareness to the challenges and achievements in astro-particle physics.



WG Leaders

Olga Mena (IFIC, ES)

Science Communication Coordinator

Loredana Gastaldo (Heidelberg Univ , DE)

63 participants

DELIVERABLES (from MoU)

Deliverable number	Deliverable title	WG number	Deliverable date (months)
D1.1	Draft Report on theory and pheno	1	12
D1.2	Interim Report on theory and pheno	1	24
D1.3	Final Report on theory and pheno	1	48
D2.1	Draft Report on DM and cosmology	2	12
D2.2	Interim Report on DM and cosmology	2	24
D2.3	Final Report on DM and cosmology	2	48
D2.4	Public code to simulate axion effects on LSS	2	40
D3.1	Draft Report on astroph.	3	12
D3.2	Interim Report on astroph.	3	24

D3.3	Final Report on astroph.	3	48
D4.1	Draft Report on direct detection	4	12
D4.2	Interim Report on direct detection	4	24
D4.3	Final Report on direct detection	4	48
D4.4	Report on Technologies Forums	4	36
D5.1	Action webpage, twitter and repositories	5	6
D5.2	Set Dissemination and Communication Scheme	5	6, 18,30
D6.1	Lecture notes of the training schools	1,2,3,4	12,24,32,48
D7.1	Final White Paper on the Physics case	1,2,3,4	48

HORIZONTAL COMMITTEES



Grant Evaluation Committee: provides to the Action MC a proposal of selected grants and amounts for their approval

Grant Awarding Coordinator: **Venelin Kozhuharov** (Sofia Univ., BG)



Young Researchers and Innovators Representative Council: involve the ECI in the management of the Action and in organization of the Activities

Coordinator: **Pierluca Carenza** (Stockholm Univ., SW)



Gender and Diversity Advisor: monitor the gender balance and provide a plan to implement gender balance

Deniz Sunar Cerci (Adiyaman Univ., TR)

- **Journal Club Organizers:** Maria Benito Castano (Tartu Obs., EE), Michele Tammaro (Jozef Stefan Inst., SI)
- **Colloquium Organizers:** Arturo de Giorgi (Inst. De Fis. Teor, ES), Giuseppe Lucente (Bari Univ., IT) , Hugo Tercas (Ist. de Plasma, Lisboa, PT)
- **Newsletter Editors:** Damiano Fiorillo (NBI, Copenhagen, DE), Giovanni Grilli de Cortona (INFN, IT)

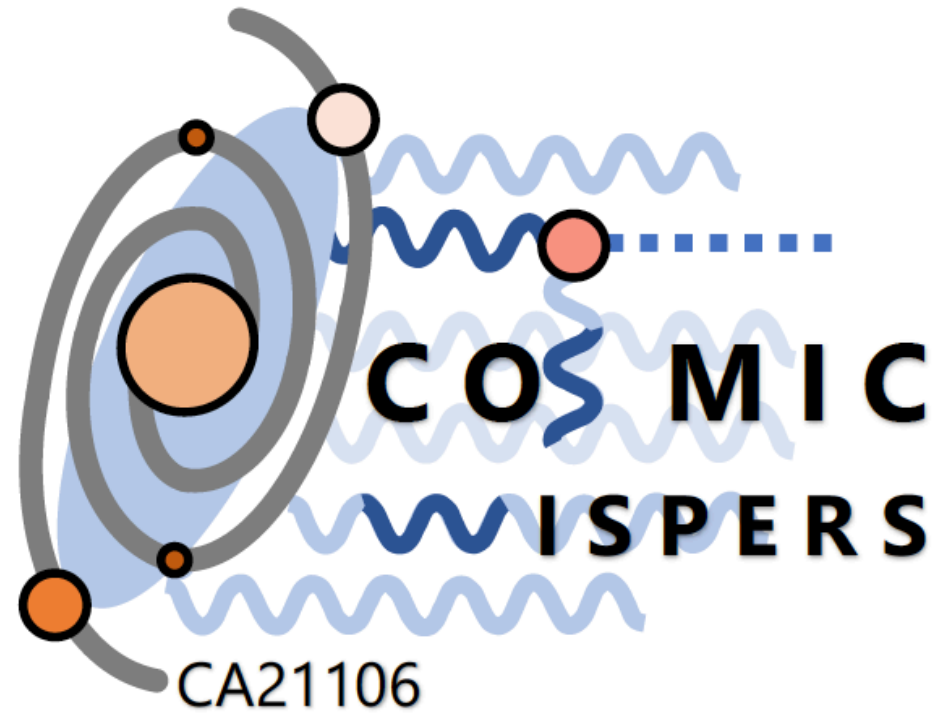
All events announced on the webpage www.cosmicwispers.eu

CORE GROUP

The Action MC decided to delegate part of their power to a **Core Group** that may carry-on day by day management and urgency cases

The Core Group is constituted by Chair, Vice-Chair, WG Leaders, Grant Holder Scientific Repr., Science Comm. Coordinator, Grant Award. Coord., Young Researc. Council Repres., Gender Advisor

CA21106 LOGO

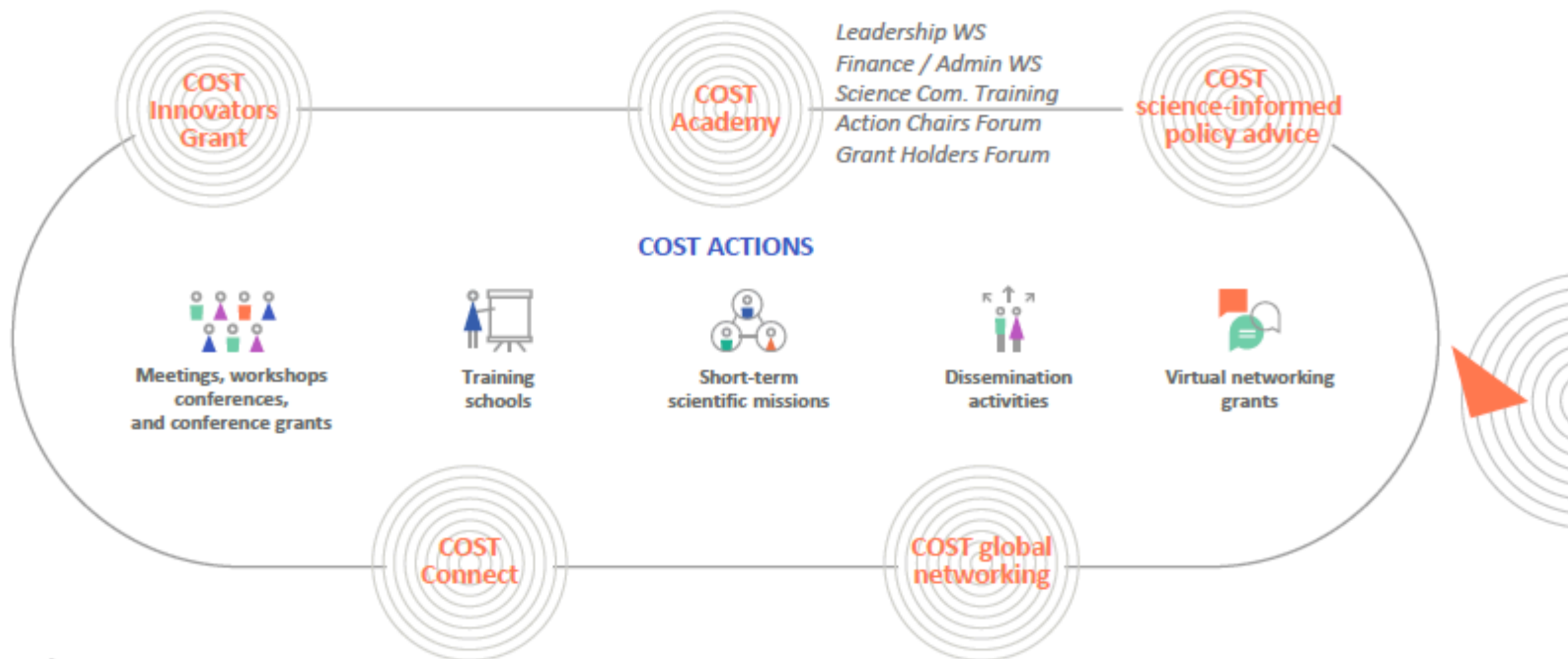


By Igor Irastorza

WHAT YOU CAN DO FOR THE ACTION?

- Advertise the Action on social media and through press release
- Ask your colleagues and collaborators to register
- Post interesting events and papers on twitter and to the e-mail
- Put acknowledgements on your publication: "This article/publication is based upon work from COST Action COSMIC WISPerS CA 21106, supported by COST (European Cooperation in Science and Technology)"
- Use Action Logo and COST visual identity in your talks
-

COST support beyond the COST Action



2023 EVENTS



22-23 Febr: Kick-off Meeting
(Frascati, IT)



5-8 Sept: General Meeting
+ MC Meeting
(Bari, IT)



11-14 Sept: Training School
(Lecce, IT)



Kick-off meeting in Frascati





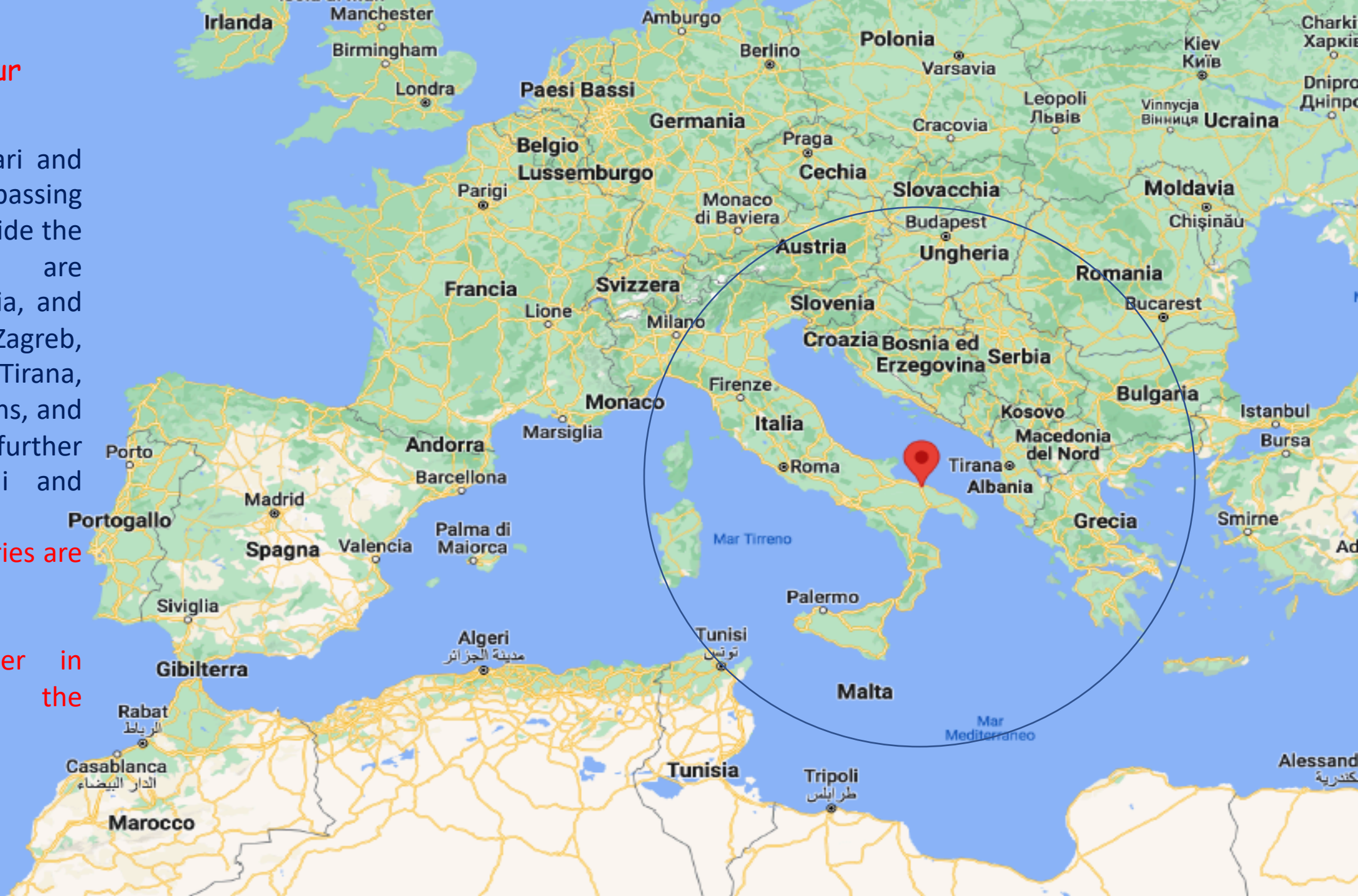
WELCOME IN BARI

Strategical location for our COST Action

If we focus on Bari and draw a circle passing through Milan, inside the circle there are Budapest and Sofia, and then Belgrade, Zagreb, Sarajevo, Tirana, Thessaloniki, Athens, and Tunis. Just a little further there are Tripoli and Istanbul.

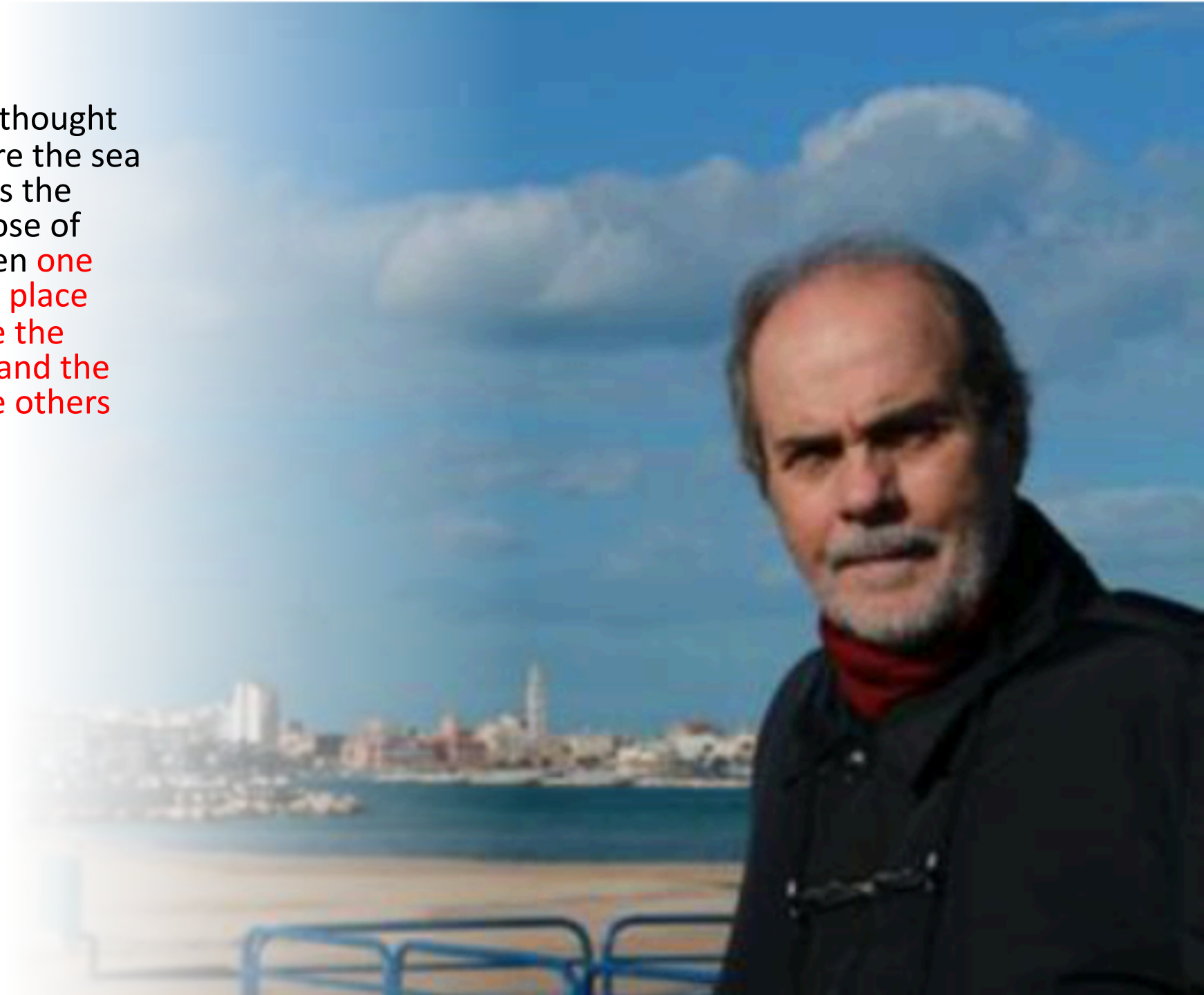
Most of ITC countries are in the circle.

We are together in Europe and the Mediterranean.



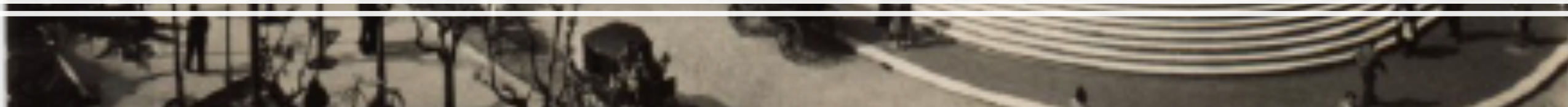
“Meridian thought is the kind of thought that begins to be felt within where the sea begins, when the shore interrupts the dogmas of the land (primarily those of economy and development), when one discovers that the border is not a place where the world ends, but where the different ones touch each other, and the game of the relationship with the others becomes challenging and real.”

(Franco Cassano)





PALAZZO POSTE E TELEGRAFI (1931)



BARI SEPT. 9th 1943

- Bari, **September 9, 1943**: The day after the armistice, in the capital of Apulia, **the Royal Postal Palace**, housing the state telegraph and telephone installations, **becomes a symbolic location of Bari's resistance**. General Nicola Bellomo upon learning that the Wehrmacht had organized a sabotage operation to destroy the main port infrastructure of the Apulian city, gathered some Italian military units. **At the Post Office headquarters**, the personnel on duty, with the help of the Carabinieri of Postal Censorship, also organized to defend the headquarters, undoubtedly a very important strategic-military location.



Radio Bari 1943: the first free radio in continental Europe



CONFERENCE HALLS



Alessandro Leongrande, journalist,
writer (1977-2017)

It's the border. For many, it's synonymous with impatience, for others with terror. For yet others, it coincides with the ramparts of a fortress they want to defend. Everyone places it above other words, as if these words existed solely to support the sentences outlining its features. The border always runs in the middle. On this side, there's the world of before. On the other side, there's what is yet to come, and perhaps may never arrive.



Carlo De Trizio, Marshal of Carabinieri (1969-2006)
Victim of the terroristic attack in Nassirya (Iraq)

A quick look to the CA21106 General Meeting program

There will be plenary sessions and 4 parallel sessions corresponding to the different Working Groups:

- **WG1:** Theory and Model Building [Convenors: **Michele Cicoli**, Ilaria Brivio]
- **WG2:** Dark Matter and Cosmology [Convenors: **Edoardo Vitagliano**, Javier Redondo]
- **WG3:** Astrophysics [Convenors: **Andrea Caputo**, Oscar Staniero]
- **WG4:** Direct Searches [Convenors: Claudio Gatti, **Marin Karuza**]
- There will be also review on the WG activities by WG Leaders and round tables.
- On Thursday afternoon after the session there will be an **outreach talk** (in Italian) by **Andrea Caputo** on the Dark Side of the Universe

All the contributions will be published on Proceedings of Science (PoS) edited by SISSA

PLEASE SIGN EVERY MORNING THE ATTENDANCE LIST

HELP DESK

Alessandro Lella

Pierluca Carenza

Giuseppe Lucente



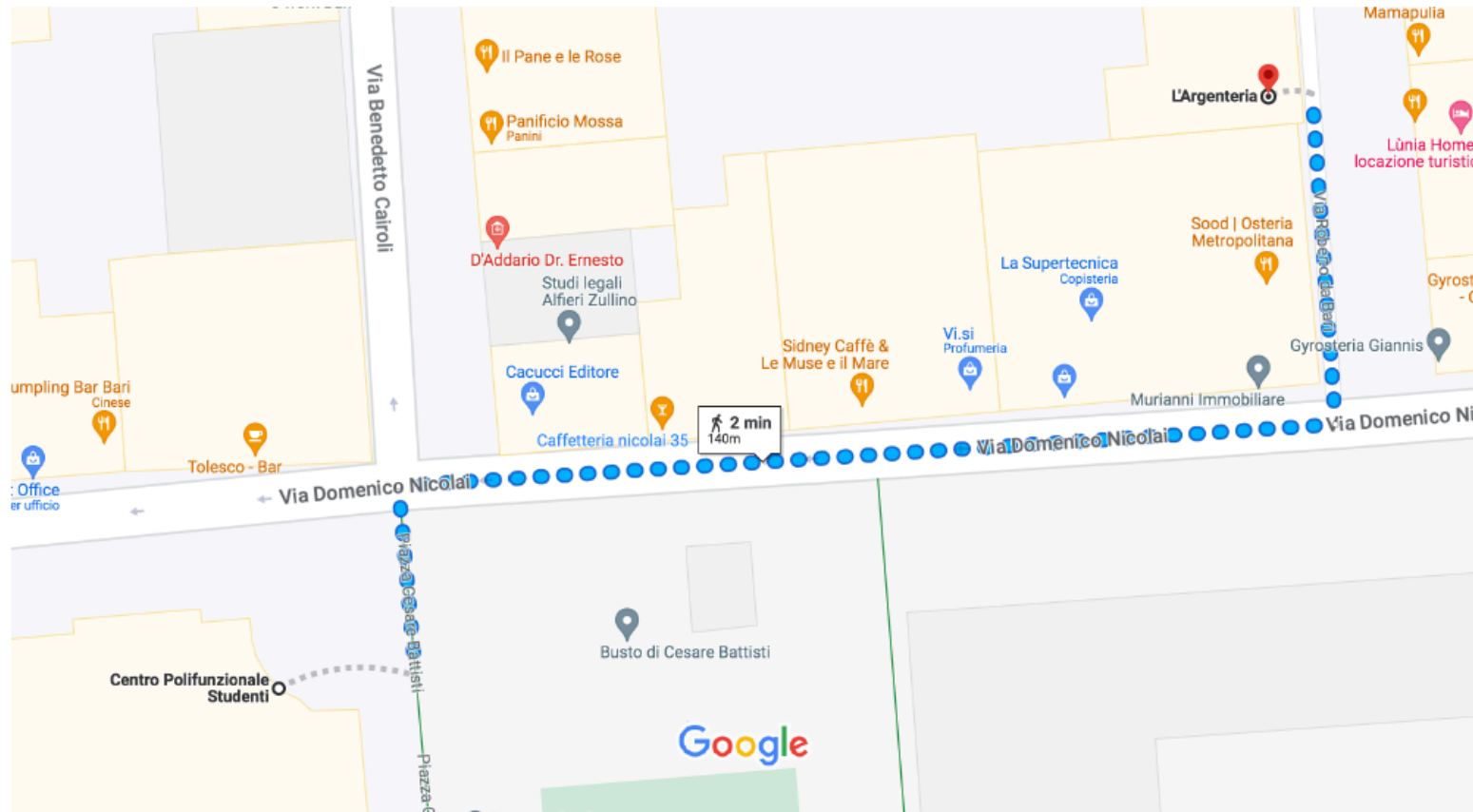
COFFEE AND LUNCH BREAK

BAR L'ARGENTERIA Via Roberto da Bari 139

Google Maps

da Centro Polifunzionale Studenti a L'Argenteria

A piedi 140 m, 2 min



Dati cartografici ©2023 Google 10 m

FREE TIME



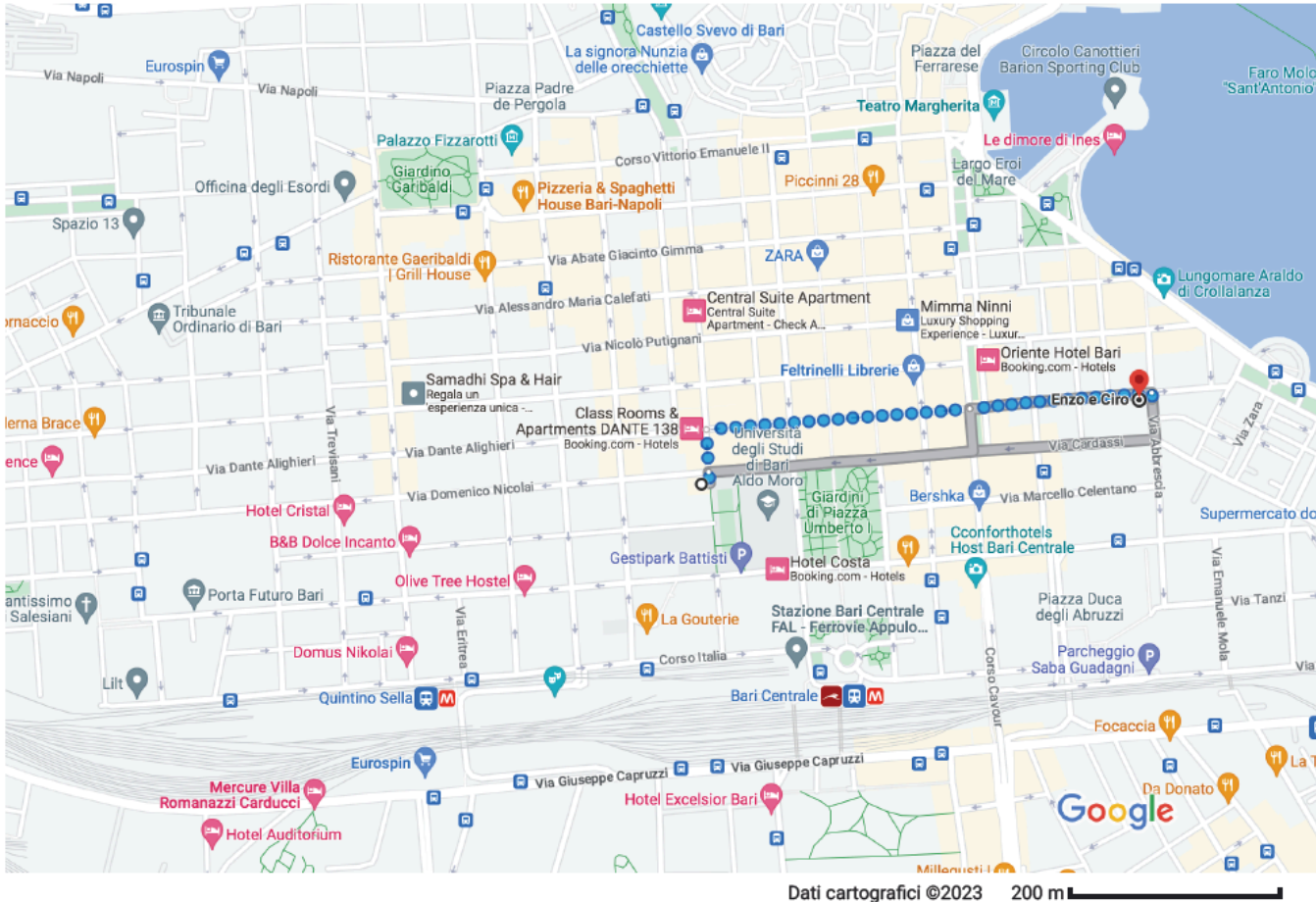
On Wednesday evening (at 6 pm) we will have a guided tour in the medieval town of Bari (Bari Vecchia)



At the end of the visit we plan to have «panzerotti» and «birra» in Largo Albicocca in Bari Vecchia

Google Maps

da Centro Polifunzionale Studenti, Piazza Cesare Battisti, 1, 70121 Bari BA a Enzo e Ciro, Via Matteo Renato Imbriani, 79, 70121 Bari BA



On 7 th evening
at 8 pm Social
Dinner in Pizzeria
«Enzo e Ciro»



tramite Via Dante Alighieri e Via 10 min

DON'T MISS IN BARI !

Spaghetti all'assassina



Focaccia barese





WE HOPE YOU ENJOY THE MEETING, THE CITY AND THE SEA !