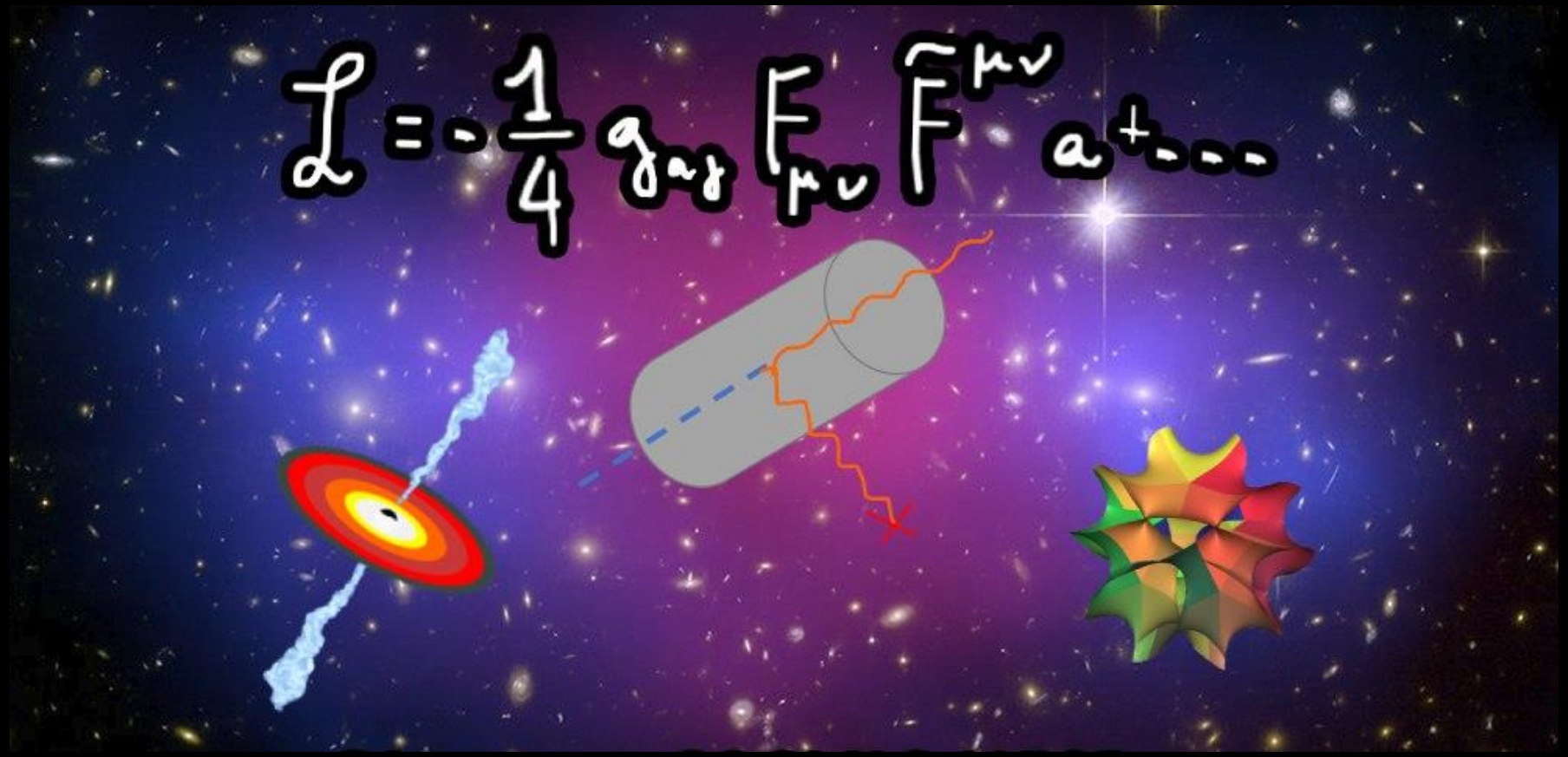


TAUP VIENNA 2023

COST Action CA21106

COSMIC WISPers in the Dark Universe: Theory, astrophysics and experiments

COSMIC WISPers CA21106

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

Funded by the European Union

Loredana Gastaldo

Kirchhoff Institute for Physics
Heidelberg University

COST21106 aims and structure

The aim of this Action is to coordinate and support WISPs searches (on axions, dark photons, etc.) in a synergic way at the boundary between particle physics, astrophysics and cosmology.

Chair: Alessandro Mirizzi, Bari University, IT

Vice-Chair: Francesca Calore Annecy University, FR

Working groups

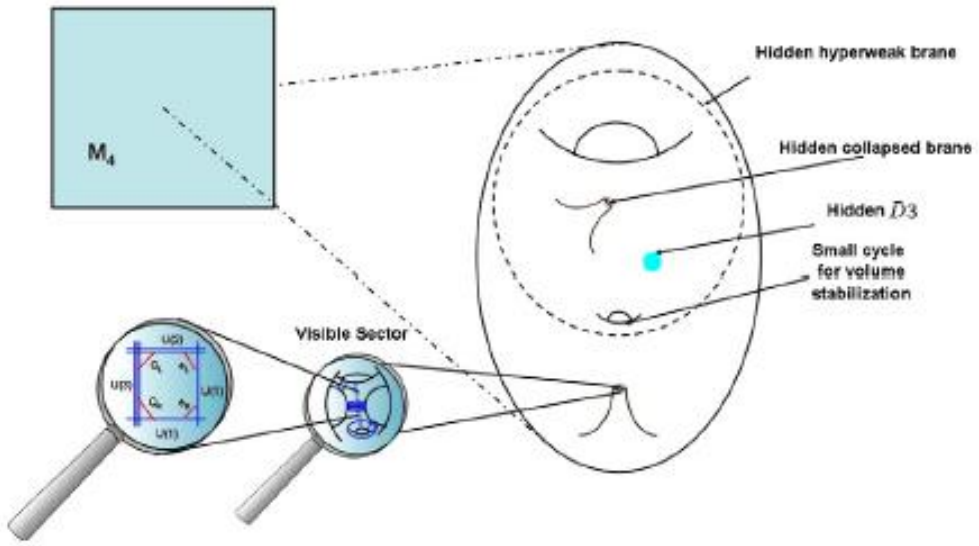
	Topic
WG1	WISPs Model Building
WG2	WISPs DM and Cosmology
WG3	WISPs in Astrophysics
WG4	Direct WISPs searches
WG5	Dissemination and Outreach

Horizontal Committees

Topic	Coordinator
Grant Evaluation Committee	Venelin Kozhuharov (Sofia Univ., BG)
Young Researchers and Innovators Representative Council	Pierluca Carenza (Stockholm Univ., SW)
Gender and Diversity Advisor	Deniz Sunar Cerci (Adiyaman Univ., TR)

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



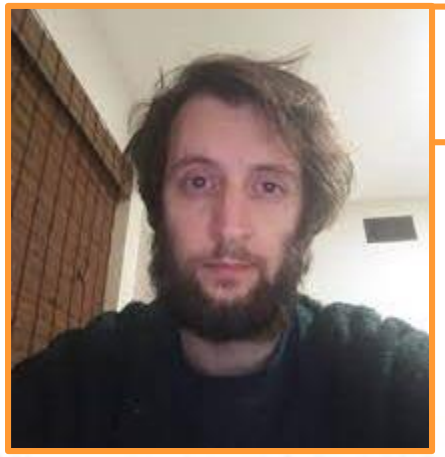
Leader: Michele Cicoli, Bologna University, IT

Deputy: Ilaria Brivio, Bologna University, IT and Zurich University, CH

J. Jaeckel, A. Ringwald, Ann. Rev.Nucl.Part. Sci. 60 (2010) 405

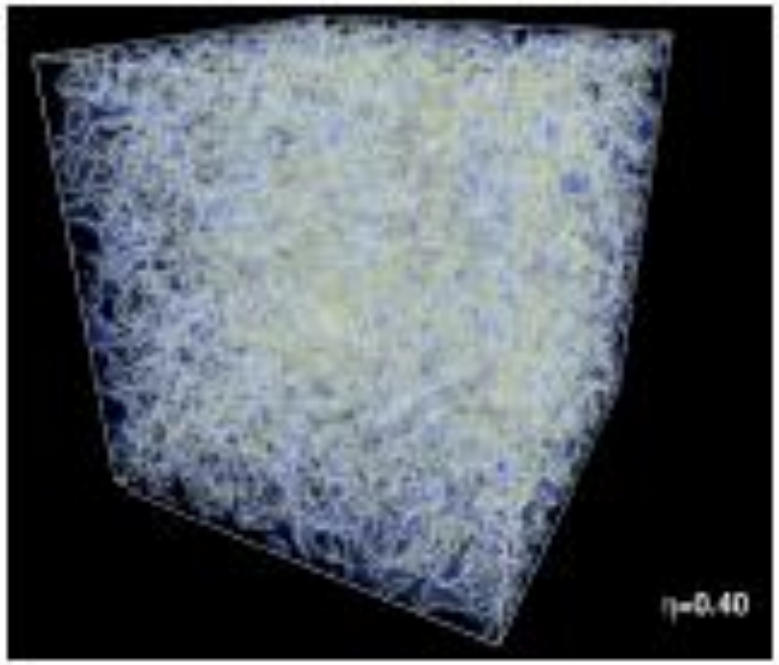
WG2: Dark Matter and Cosmology

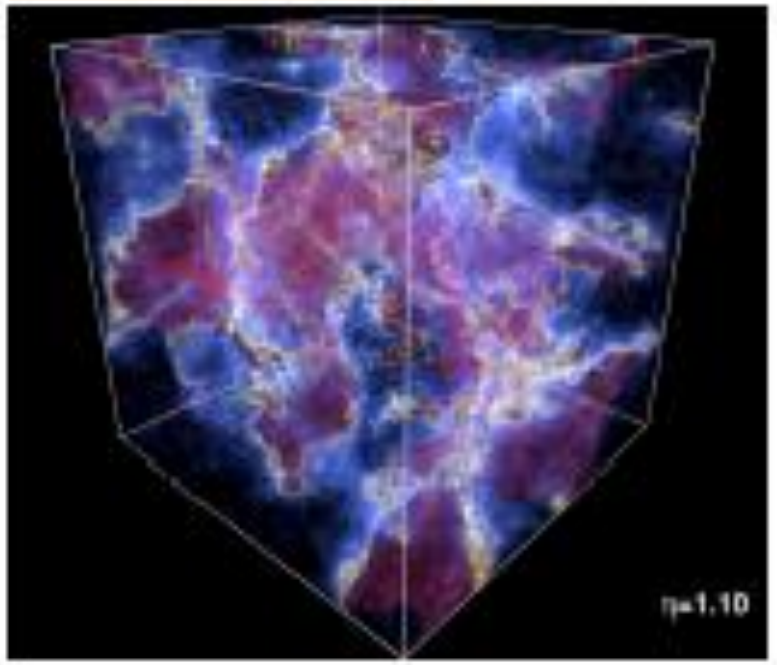
Obtain precise predictions of axion and WISP DM relic abundance and identify distinguishing features of WISP DM in Large Scale Structure data

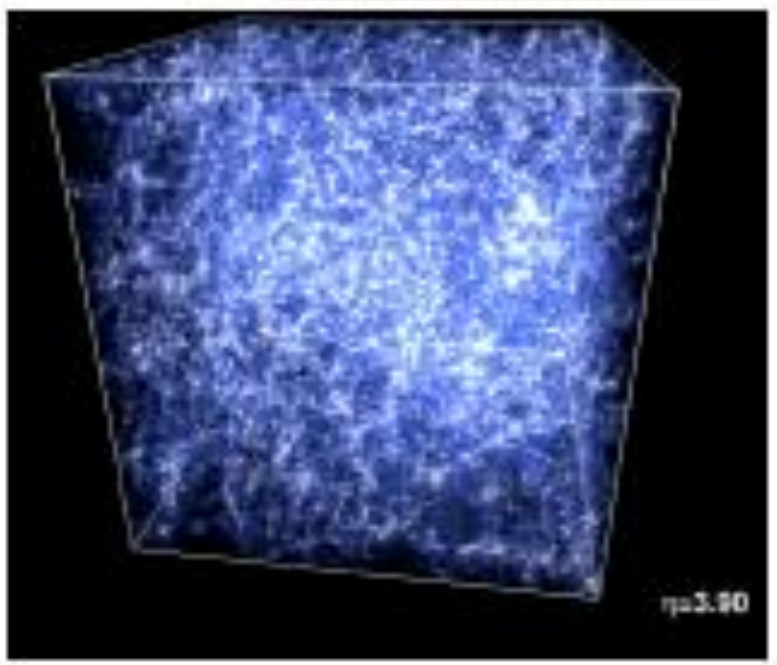


Leader: Edoardo Vitagliano, Hebrew University, IL

Deputy: Javier Redondo Zaragoza University, ES







Bauschmann, Fosterm Safdi, PRL 124, 161103 (2020)

WG3: WISPs in Astrophysics

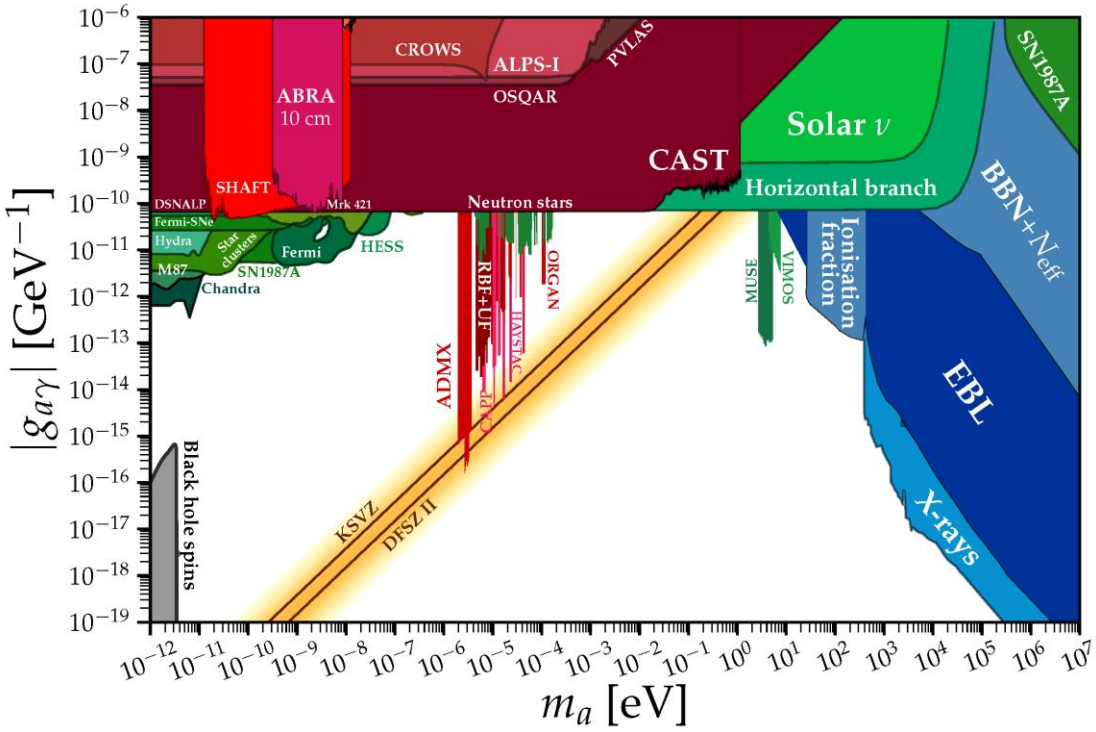
Deepen the studies of the signatures of WISPs in astroparticle physics. These include WISP oscillations into photons, WISP-induced energy loss in stellar systems and signatures from gravitational waves and from primordial black-hole superradiance.

Leader: Andrea Caputo, CERN, CH

Deputy: Oscar Straniero, INAF, IT

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



Ciaran O'Hare Github

Leader: Claudio Gatti, LNF, INFN, IT

Deputy: Marin Karuza, Rijeka University, HR

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.

Leader: Olga Mena, Valencia University, ES

Deputy: Loredana Gastaldo, Heidelberg University, DE

Science Communication Plan

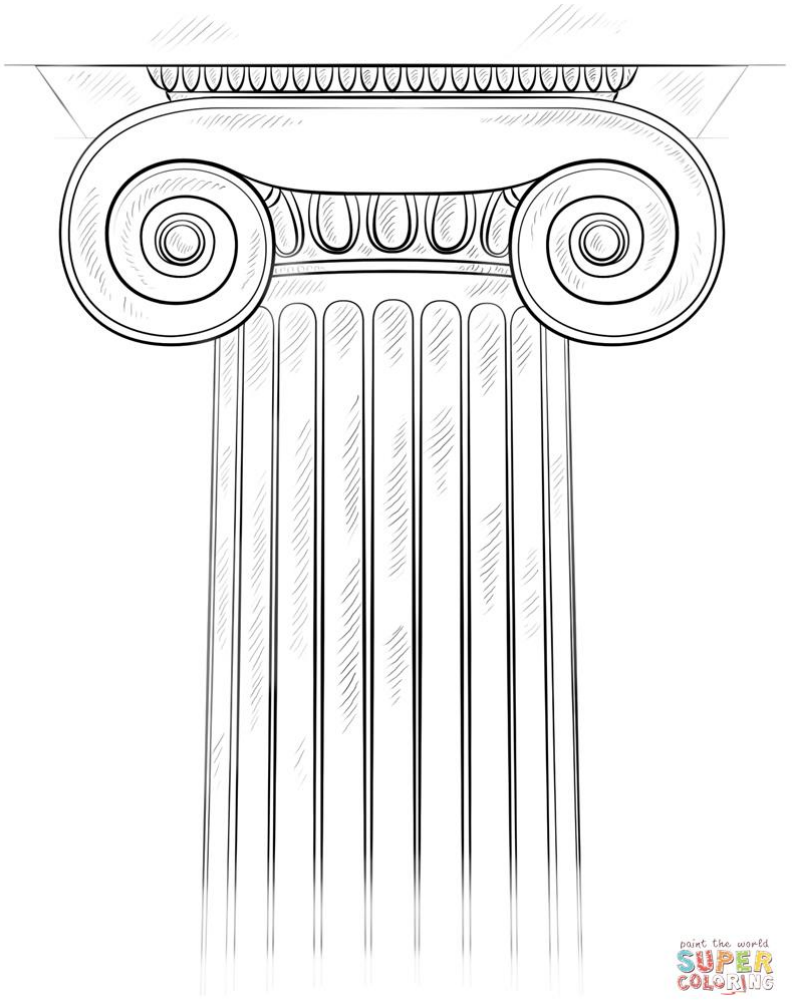
Or why it is relevant to communicate about the Action

A few examples:

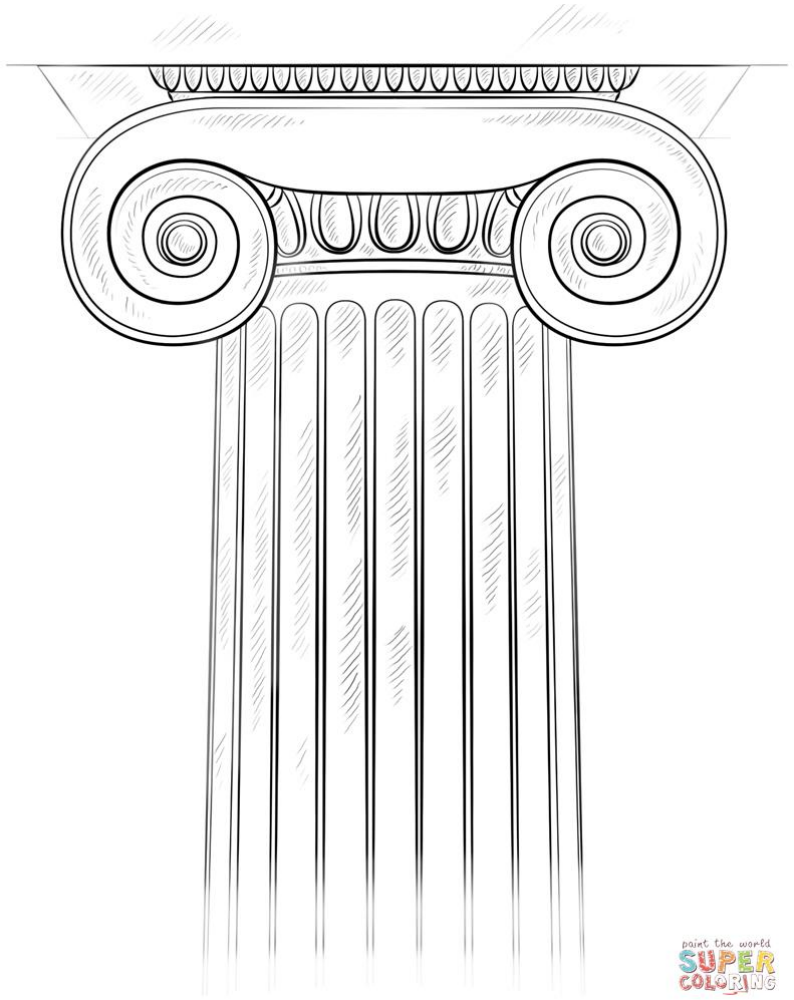
- Research has been **scattered** across Europe
- Urgent need for coordinated and joint effort to build a **collaborative platform** linking science, industry and management
- Raise **awareness**
- Bring added value of belonging to a **multidisciplinary network** involving **numerous countries**
- To spark **new collaborations**

3 Pillars

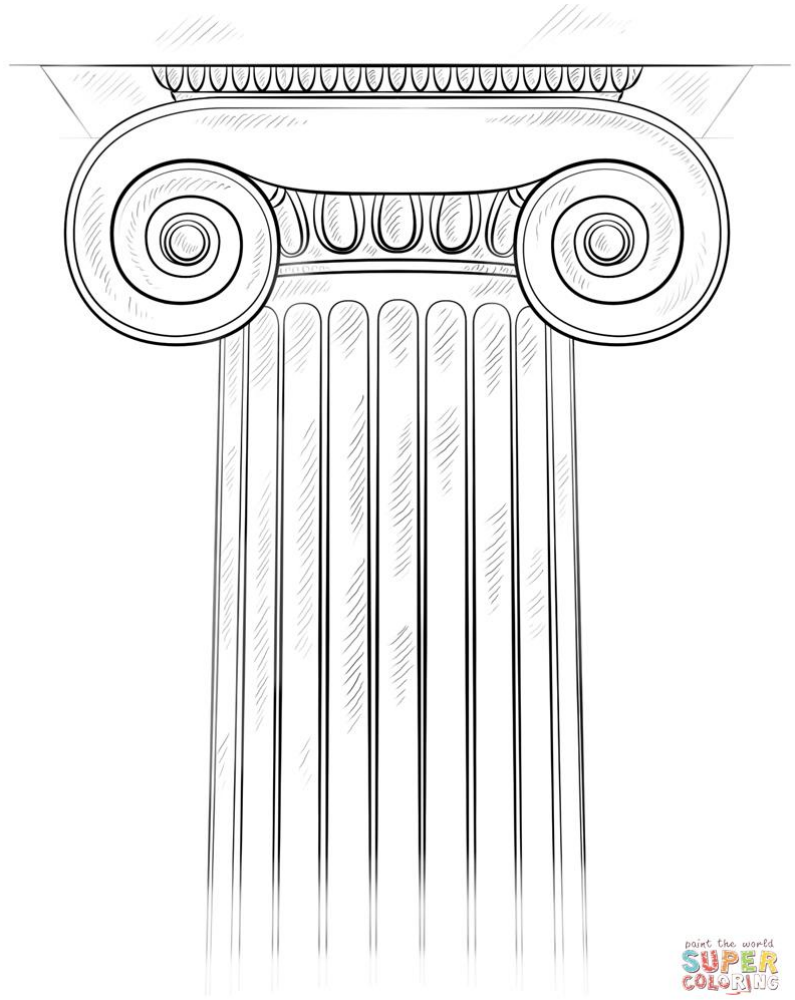
Communication



Dissemination



Valorization



3 Pillars

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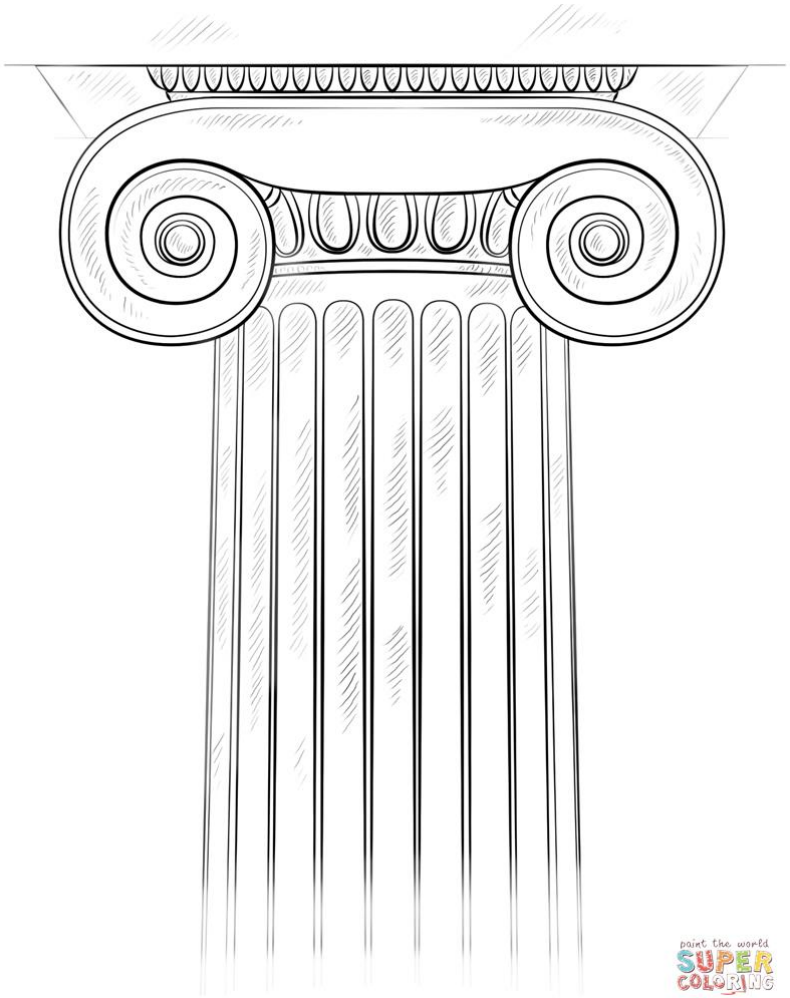
The communication goal of the Action is to share the motivations and the achievements of WISPs related research with policy makers and the public at a level that can be understood by non-experts.

Dissemination



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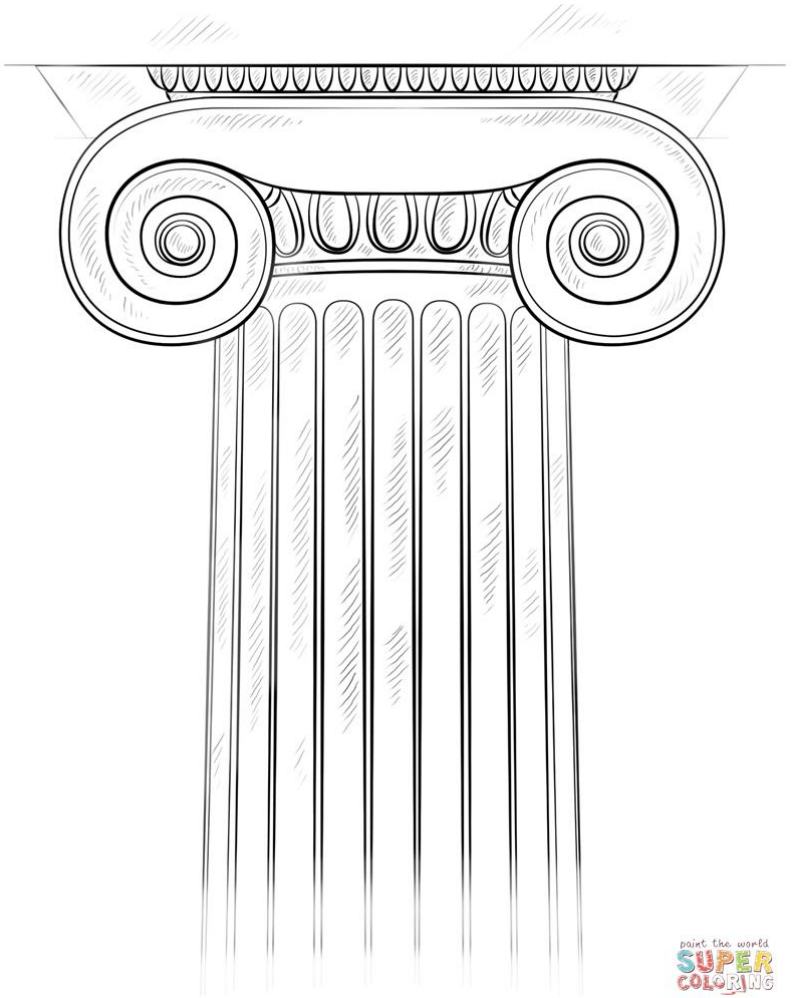

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Dissemination

Make research performed within groups in CA21106 and results obtained by joint efforts to reach high impact in the scientific community and funding agencies

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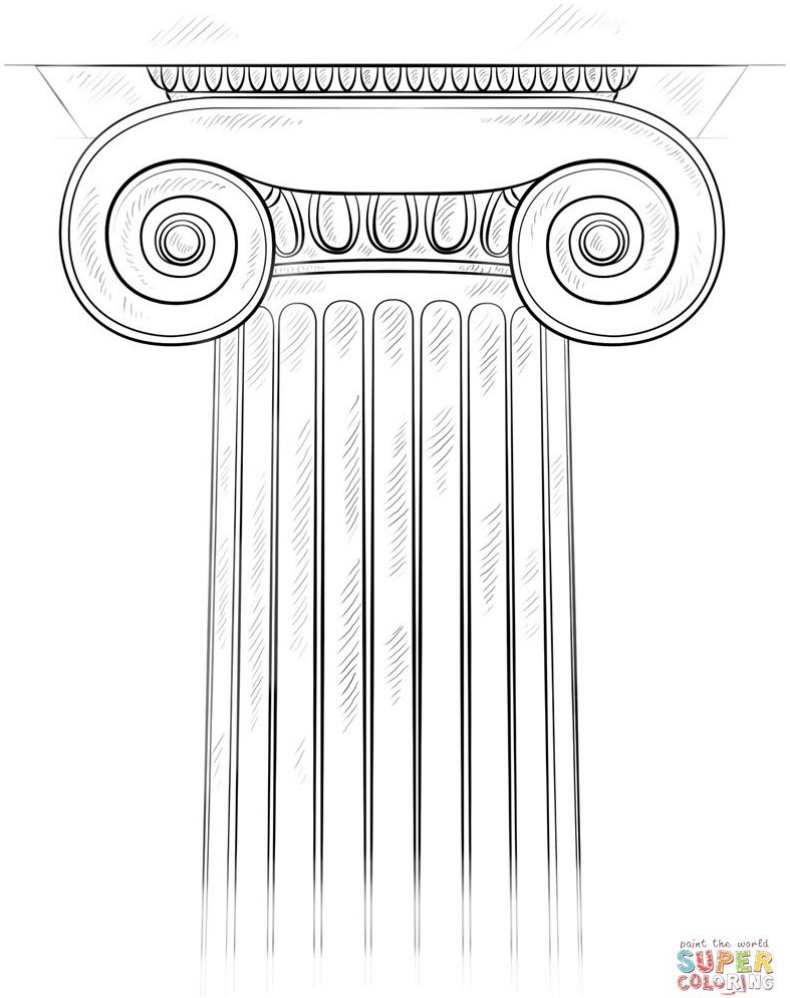

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Valorization

Attract Small and Medium Size Enterprises (SMEs) as well as funding agencies to support technological developments for WISPs related experiments

Who can contribute

Working group	Communication	Dissemination	Valorization
WG1 WISPs Model Building	✓	✓	
WG2 WISPs DM and Cosmology	✓	✓	
WG3 WISPs in Astrophysics	✓	✓	
WG4 Direct WISPs searches	✓	✓	✓
WG5 Dissemination and Outreach	✓	✓	

NOT ONLY WG5!

Meetings

- Kick-off meeting 23 – 24 Feb. 2023, Frascati LNF
  https://agenda.infn.it/event/33570/

  Public talk by Caterina Braggio about "Axion Searches with Quantum Technologies" (in Italian)

- Annual Conference 05 – 08 Sept. 2023, Bari (+Management Committee Meeting)
  https://agenda.infn.it/event/33570/

  Public talk by Andrea Caputo about "Dark Matter, Gravitational Wave and Black holes" (in Italian)

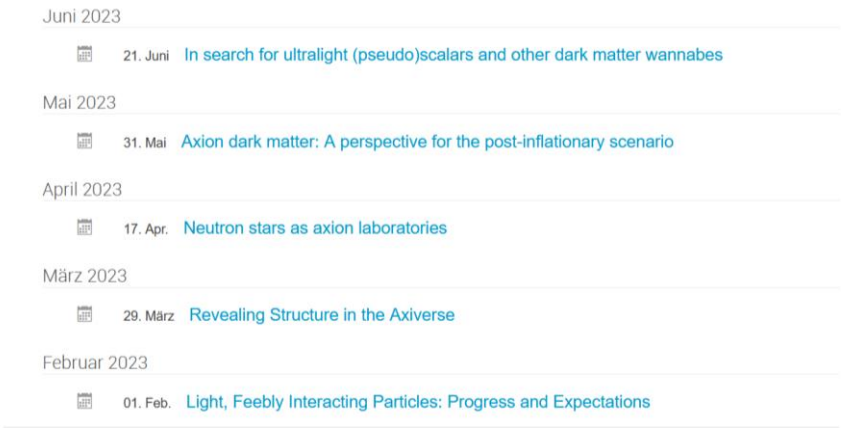
- Training School 11 – 14 Sept. 2023, Lecce
  https://agenda.infn.it/event/34190/

  37 registered students

On-line Events and Communication

- Journal Club + presentation of ongoing projects

- Monthly Online Colloqium



Council of Early Investigators to coordinate Journal Club, social media (Twitter) and organize in presence and virtual events

- WG meeting about every month
- Monthly e-mail with papers and events

Communication Material

Webpage

https://cosmicwispers.eu/

Poster & Brochure

Applications to join COST 21106

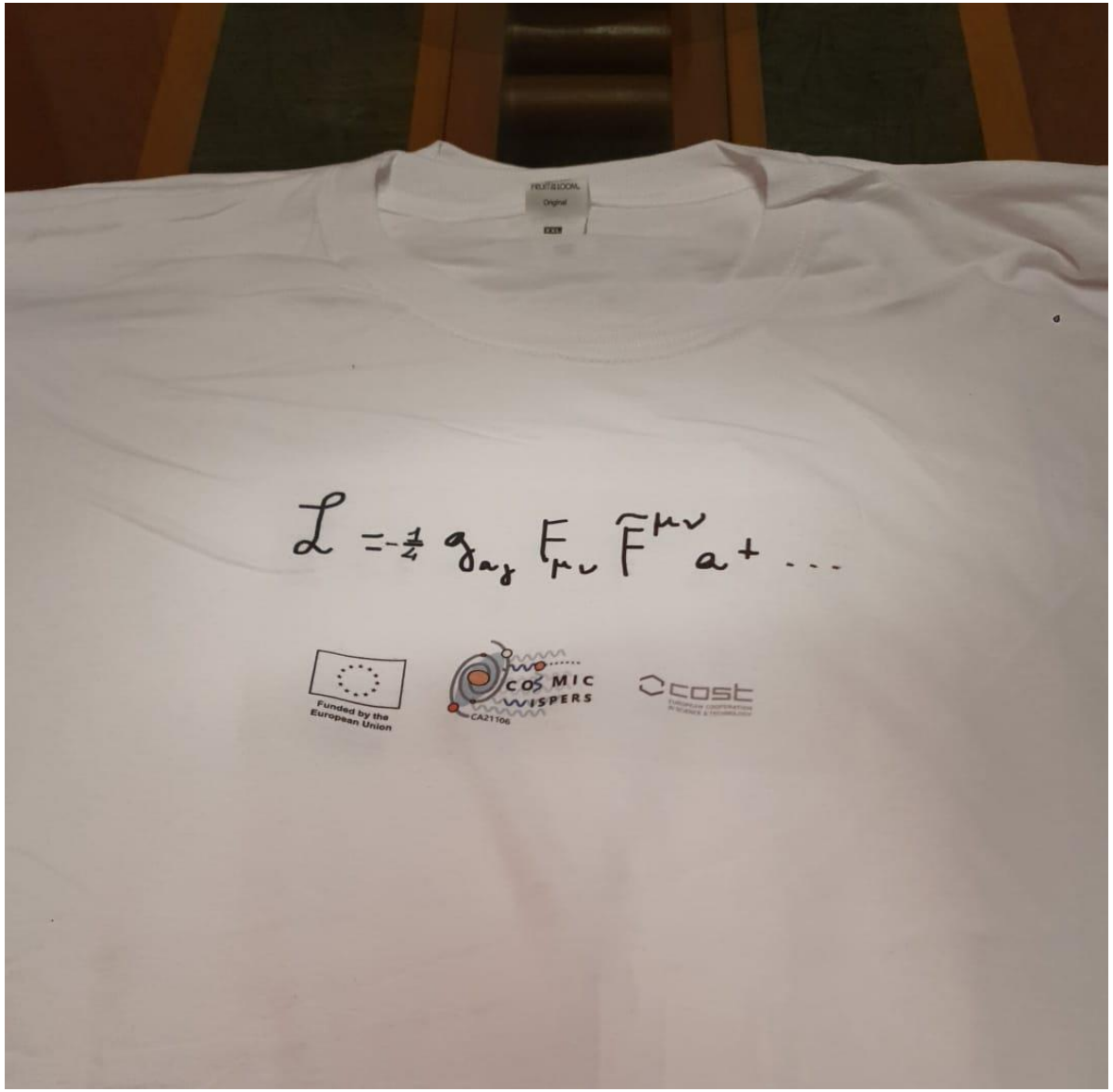
https://cosmicwispers.eu/

Join us

Are you interested in joining the Cosmic WISPers Action?

- Write at cosmicwispers@gmail.com
- Register to the Working Groups on the CA21106 webpage at COST
- Contact the Chair of the Action
  Prof. Alessandro Mirizzi
  e-mail: alessandro.mirizzi@ba.infn.it

Very dynamic community both in theory and experiments and exciting events are waiting for you!



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Thank you for the attention!