COST ACTION CA21106

COSMIC WISPers in the Dark Universe:

Theory, astrophysics and experiments

Slides by Alessandro Mirizzi

European Cooperation in Science & Technology

MISSION

COST provides networking opportunities for researchers and innovators in order to strengthen Europe's capacity to address scientific, technological and societal challenges

VISION

Europe's most empowering research programme

STRATEGIC PRIORITIES

Promoting and spreading excellence

Fostering interdisciplinary research for breakthrough science

Empowering and retaining young researchers

COST Membership

40 Members

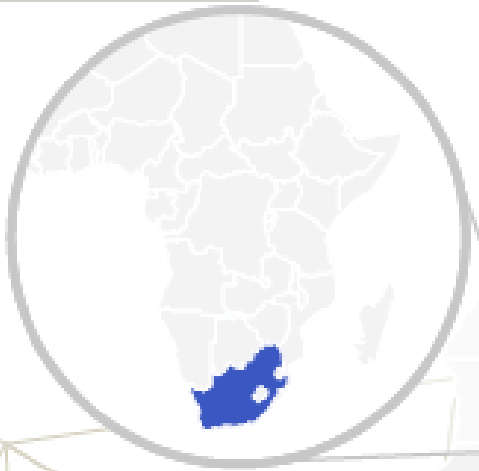
- Albania
- Austria
- Belgium
- Bosnia and Herzegovina
- Bulgaria
- Croatia
- Cyprus
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Georgia
- Germany
- Greece
- Hungary
- Iceland
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Malta
- The Republic of Moldova
- Montenegro
- The Netherlands
- The Republic of North Macedonia
- Norway
- Poland
- Portugal
- Romania
- Serbia
- Slovakia
- Slovenia
- Spain
- Sweden
- Switzerland
- Turkey
- Ukraine
- United Kingdom

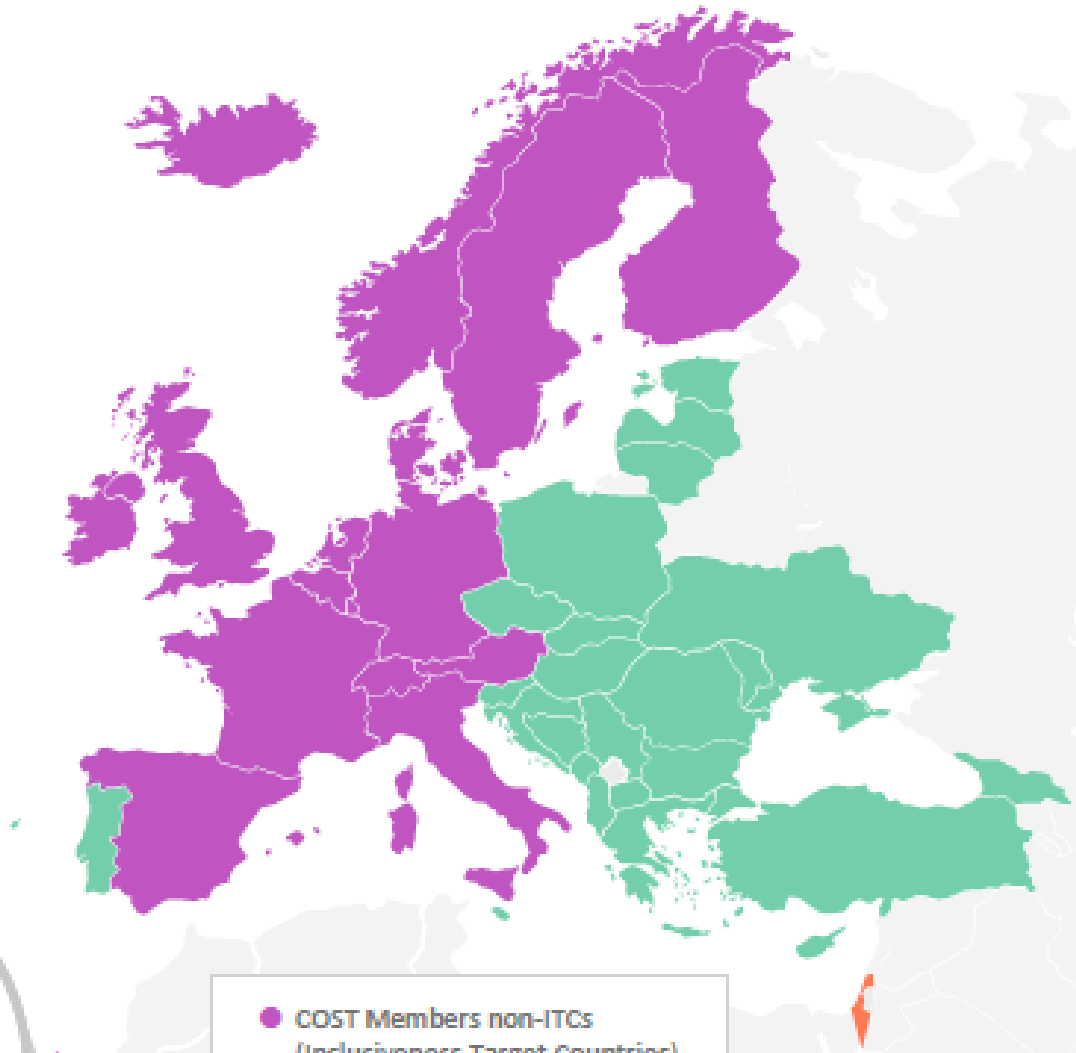
1 Cooperating Member

- Israel

1 Partner Member

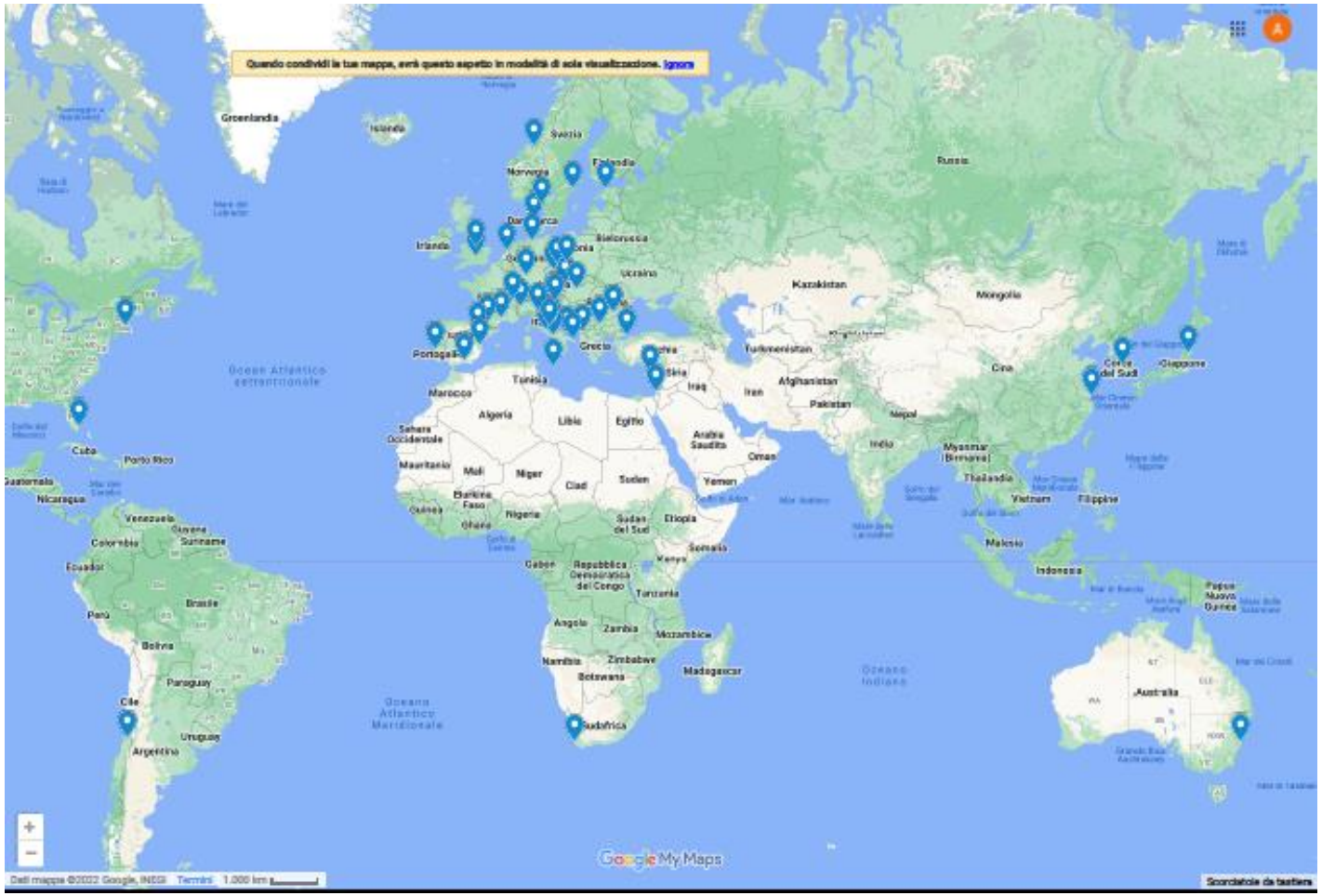
- South Africa





COST support beyond the COST Action

COSMIC WISPers NETWORK



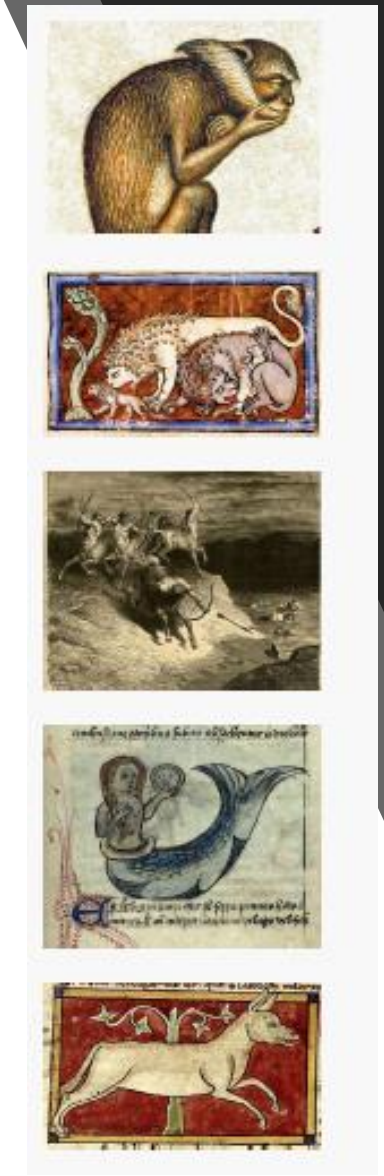
~ 70 *proposers*

Main Proposer:

Alessandro Mirizzi
(Bari Univ., Italy)

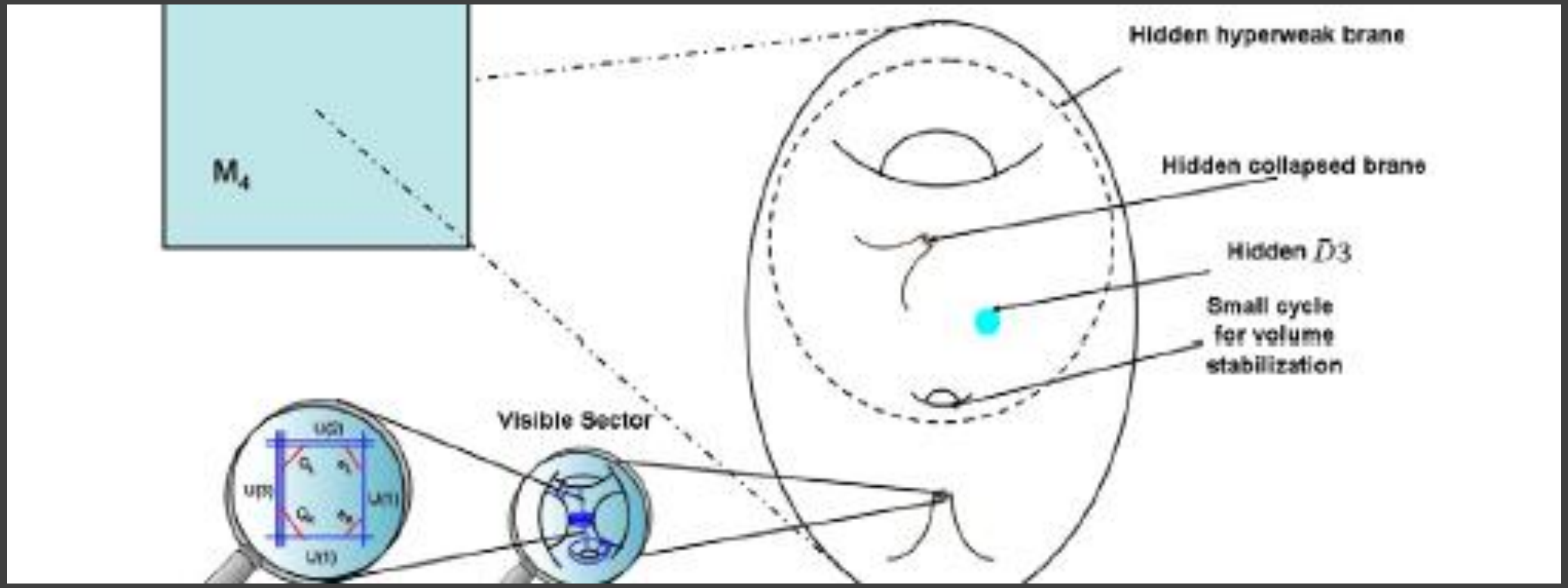
E-mail:
alessandro.mirizzi@ba.infn.it

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



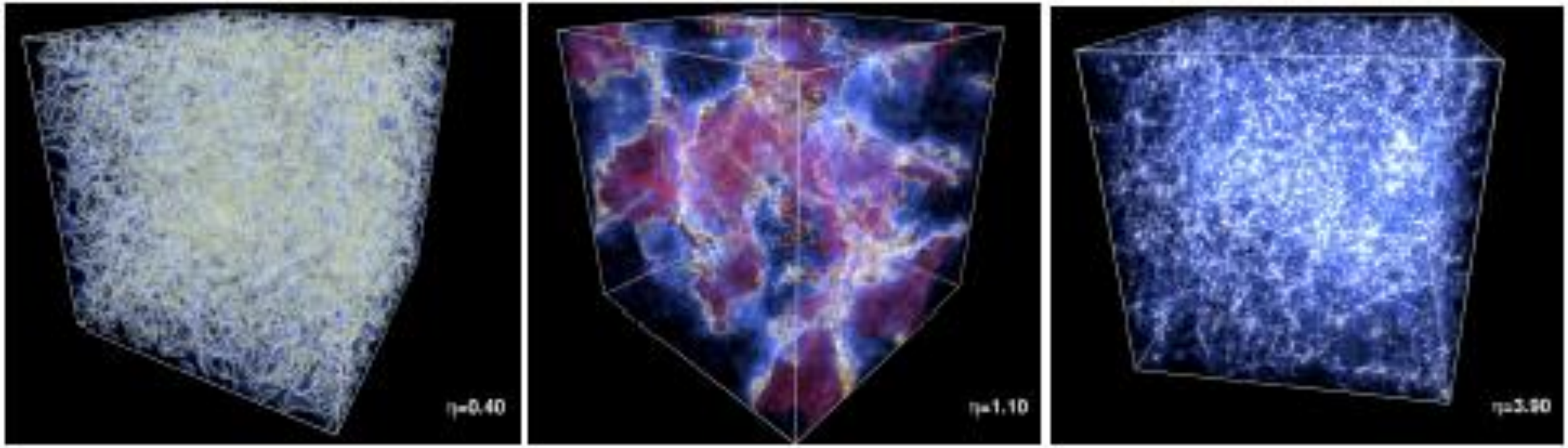
WISPs

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



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



WG2: DARK MATTER AND COSMOLOGY

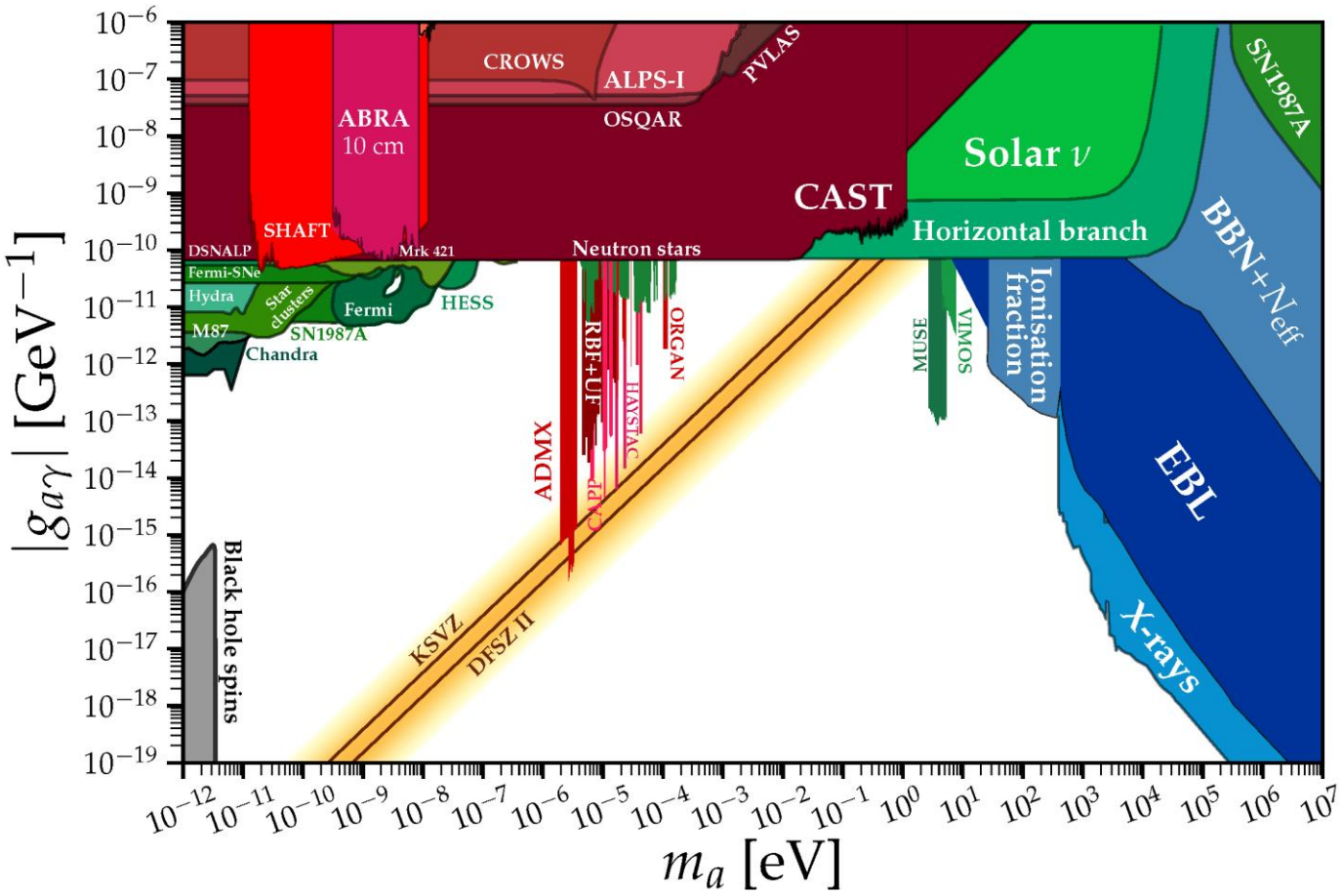
Obtain precise predictions of axion and WISP DM relic abundance and identify distinguishing features of WISP DM in Large Scale Structure data

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.

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



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.

HOW TO JOIN

- Apply to join the WG of your interest on the Action webpage https://www.cost.eu/actions/CA21106/
- Inform the Main Proposer of your interest at alessandro.mirizzi@ba.infn.it

More information available at https://www.cost.eu/actions/CA21106/