

Work And Budget Plan

CA21106 Grant Agreement Period 2

01/11/2023 to 31/10/2024

Action Profile

Action General Information

Action Code	CA21106	MC Chair	Prof Alessandro Mirizzi
Action Title	CA21106 - COSMIC WISPerS in the Dark Universe: Theory, astrophysics and experiments		
MOU	020/22	Draft MOU	OC-2021-1-25120
CSO Approval Date	2022-05-27		
Action Start Date	03/10/2022	Action End Date	02/10/2026
Science Officer	Dr Ralph Stuebner	Administrative Officer	Ms Rose Cruz Santos

Participation in the Action:

Number of	COST Full or Cooperating Members	COST Partner Members	Specific Organisations	Near Neighbour Countries	Third States	Total
Countries						
COST Members / Specific Organisations represented in the MC	25	0	0	n.a.	n.a.	25
	ITC 52%					
	Non-ITC 48%					
Countries represented in the Working Groups	30	0	0	1	9	40
	ITC 53%					
	Non-ITC 47%					
Individuals						
Nominated MC Members / MC Observers	38	0	0	n.a.	n.a.	38
	ITC 47%					
	Non-ITC 53%					
Approved Working Group members	229	0	0	2	20	251
	ITC 29%					
	Non-ITC 71%					

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Working Groups

	WG Title	WG Leader	Number of WG members
WG1	WG1: WISPs Model Building	Prof Michele Cicoli	69
WG2	WG 2: WISPs Dark Matter and Cosmology	Dr Edoardo VITAGLIANO	148
WG3	WG 3: WISPs in Astrophysics.	Dr Andrea Caputo	94
WG4	WG4: Direct WISPs searches.	Dr Claudio Gatti	88
WG5	WG 5: Dissemination and Outreach	Dr Olga Mena	63

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MoU objectives, Action deliverables and Grant Agreement Period Goals

Action Objectives from MoU

Aim/primary Objective
organize the scientific foundation for the next generation of WISPs experiments and searches, and to promote a roadmap for the researchers, research sponsors and the broader scientific community
Secondary objectives
<ol style="list-style-type: none"> 1. Provide a discussion forum for the European coordination of WISPs Physics and express collective view on the development of WISPs research. 2. Develop a Roadmap for WISPs Physics in Europe, a description of the status and perspectives of the field within Europe, linking them to activities in other parts of the world. 3. Coordinate and support in a synergic way WISPs searches carried on by the different WGs, in order to stimulate and consolidate collaborations. 4. Develop a common database on WISPs theoretical models, experimental and astrophysical bounds. 5. Coordinate the experimental searches in order to maximize the discovery potential of current and future experiments and optimize the detection strategies. 6. Compare WISPs theoretical models and assess performance of different experimental technique. 7. Provide input to Small and Medium Size Enterprises (SMEs) identifying progresses needed in key technologies for present and future experiments. 8. Disseminate the research results broadly to the scientific community, to the stakeholders and to the general public, attracting representative of SMEs and young students towards these subjects. 9. Provide cross community discussions to enable new experiments. 10. Promote the gender balance of the Action, favoring more women in leading positions. 11. Stimulate transfer of knowledge among established leading groups in the field and emerging excellent scientists in COST Inclusiveness Target Countries (ITC), as well as SMEs. 12. Involve new research groups from ITC countries into the Action. 13. Attract young talented researchers from all over the world towards the activities of the Action through training activities.

Action Deliverables

Deliverable	Month
1. Action webpage, twitter account and repositories concerning the activities of the network	6
2. Set the Dissemination, Outreach and Communication plans related to the Action activities	6
3. Draft report on theory and phenomenology on axion and WISP properties in Beyond the Standard Model frameworks	12
4. Draft report on axion and WISP in cosmology as dark matter candidates	12
5. Draft report on bounds and signatures of axions and WISPs in astrophysics	12
6. Draft report on axions and WISPs direct detection with different experimental techniques	12
7. Interim report on theory and phenomenology on axion and WISP properties in Beyond the Standard Model frameworks	24
8. Interim report on axion and WISP in cosmology as dark matter candidates	24
9. Interim report on bounds and signatures of axions and WISPs in astrophysics	24
10. Interim report on axions and WISPs direct detection with different experimental techniques	24
11. Public code to simulate axion effects on Large Scale Structures in the Universe	40
12. Report on Technologies Forums on technological challenges to detect axions and WISPs	40
13. Final report on theory and phenomenology on axion and WISP properties in Beyond the Standard Model frameworks	48
14. Final report on axion and WISP in cosmology as dark matter candidates	48
15. Final report on bounds and signatures of axions and WISPs in astrophysics	48
16. Final report on axions and WISPs direct detection with different experimental techniques	48
17. Lecture notes of the training Schools organized by the Action on topics relevant for axions and WISPs	48
18. Final White Paper on the Physics case for axions and WISPs based on the results of the Action	48

Grant Agreement Period

Grant Agreement Period Start Date	01/11/2023	Grant Agreement Period End Date	31/10/2024
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Grant Agreement Period Goals

Number	Grant Agreement Period Goal	MoU Objective(s) it relates to
GAPG 1	To continue and update the review on the state-of-the-art concerning: WISP models (WG1), cosmological (WG2), astrophysical (WG3) and experimental (WG 4) bounds	<ul style="list-style-type: none"> • Secondary objective 2 • Secondary objective 6
GAPG 2	To continue discussions in the WGs to agree on motivated benchmark theoretical models, on their current indirect (astro and cosmo) and direct constraints and on future discovery potential	<ul style="list-style-type: none"> • Secondary objective 1 • Secondary objective 2 • Secondary objective 3 • Secondary objective 4 • Secondary objective 9 • Secondary objective 11
GAPG 3	To train Phd students and young post-docs on both general interdisciplinary topics across the WGs and on specific topics of each WG	<ul style="list-style-type: none"> • Secondary objective 8 • Secondary objective 11 • Secondary objective 12 • Secondary objective 13
GAPG 4	To carry on and update the plan of Outreach Activities and of the Dissemination strategies	<ul style="list-style-type: none"> • Secondary objective 7 • Secondary objective 8 • Secondary objective 12
GAPG 5	To continue discussions on the technologies needed to develop next-generation WISP experiments, directly involving representatives of the SMEs	<ul style="list-style-type: none"> • Secondary objective 1 • Secondary objective 7 • Secondary objective 9 • Secondary objective 11 • Secondary objective 12
GAPG 6	To increase the contributions of Young Researchers and Innovators from ITC countries by 20%, while safeguarding gender balance and enhancing diversity in the Action	<ul style="list-style-type: none"> • Secondary objective 10 • Secondary objective 11 • Secondary objective 12 • Secondary objective 13
GAPG 7	To start a review on the status and future plans of international laboratories to carry on WISPs searches, to develop possible synergies and collaborations	<ul style="list-style-type: none"> • Secondary objective 1 • Secondary objective 2 • Secondary objective 5 • Secondary objective 9

Work and Budget Plan for the Grant Agreement Period

Work and Budget Plan Summary

A. COST Networking Tools	EUR
(1) Meetings	97,650.00
(2) Training Schools	30,000.00
(3) Mobility of Researchers and Innovators	13,000.00
(4) Presentation at Conferences organised by Third Parties	3,000.00
(5) Dissemination and Communication Products	2,800.00
(6) Other Expenses Related to Scientific Activities (OERSA)	900.00
B. Total Science Expenditure (sum of (1) to (6))	147,350.00
C. Financial and Scientific Administration and Coordination (FSAC) (max. of 15% of B)	22,102.50
Total Grant (B+C)	169,452.50

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Meetings

Overview

Meeting Title	Meeting Type	Dates	Location	ITC	Total Cost (EUR)
Working group Meeting of CA21106 COSMIC WISPers	Working Group Meeting	14/02/2024 - 15/02/2024	bari (Italy)	No	26,650.00
2st General Meeting of CA21106	Management Committee Meeting, Workshops/Conferences	03/09/2024 - 06/09/2024	BARI (Italy)	No	71,000.00
				Total	97,650.00

Details

Title of the Meeting	Working group Meeting of CA21106 COSMIC WISPers		
Meeting Type(s)	Working Group Meeting		
Grant Period Goal(s) it will address	To continue and update the review on the state-of-the-art concerning: WISP models (WG1), cosmological (WG2), astrophysical (WG3) and experimental (WG 4) bounds, To continue discussions in the WGs to agree on motivated benchmark theoretical models, on their current indirect (astro and cosmo) and direct constraints and on future discovery potential, To carry on and update the plan of Outreach Activities and of the Dissemination strategies, To continue discussions on the technologies needed to develop next-generation WISP experiments, directly involving representatives of the SMEs, To start a review on the status and future plans of international laboratories to carry on WISPs searches, to develop possible synergies and collaborations		
Description	The Working Group Meeting will structure the WG activities of the GP. The plan of the meeting is the following: 1st day-morning. Plenary session with Introduction + talks by WG leaders and key talks to define the state-of-the-art of the different WG (4+4 talks). 1st day-afternoon: Parallel WG sessions (4 talks in each Session). 2 day morning: 4 talks from different international laboratories to present current and future plans for WISP searches. Common Round table to plan directions of investigations and possible collaborations among WGs. 2nd day afternoon: Technology forum (4 speakers). All the speakers will receive reimbursement for travel and accommodation. In order to guarantee a broad participation of COST members, this meeting is planned in hybrid version		
Output(s)	Definition of the working plan for the 2st GP of the different WGs. Start the interim report of different WGs. Discuss and update of the Communication and Dissemination Plan. Slides will be available on the Action webpage.		
Location	bari (Italy)	ITC	No
Start Date	2024-02-14 09:00:00	End Date	2024-02-15 18:00:00
Duration	2 days	Attendance Type	Hybrid
Total number of expected participants	65	Number of participants expected to be reimbursed from COST funds	43
Daily allowance (EUR)	100.00	Average number of daily allowances per participant	3
Average Long-Distance Costs (EUR)	250.00		
Average reimbursement (per participant) (EUR)	550.00		

Total Travel, Accommodation and Subsistence Costs (EUR)	23,650.00		
Total unique participants to be accounted for LOS grant	30	Local Organiser Support (EUR)	3,000.00
Total cost of the meeting (EUR)	26,650.00		

Title of the Meeting	2st General Meeting of CA21106		
Meeting Type(s)	Management Committee Meeting, Workshops/Conferences		
Grant Period Goal(s) it will address	To continue and update the review on the state-of-the-art concerning: WISP models (WG1), cosmological (WG2), astrophysical (WG3) and experimental (WG 4) bounds, To continue discussions in the WGs to agree on motivated benchmark theoretical models, on their current indirect (astro and cosmo) and direct constraints and on future discovery potential, To carry on and update the plan of Outreach Activities and of the Dissemination strategies, To increase the contributions of Young Researchers and Innovators from ITC countries by 20%, while safeguarding gender balance and enhancing diversity in the Action, To start a review on the status and future plans of international laboratories to carry on WISPs searches, to develop possible synergies and collaborations		
Description	The 2st General Meeting of the CA21106 is provided to combine the Management Committee Meeting with a workshop to discuss the developments in the activities of the different WGs. It will be a 4-days event with the following structure: 1-2-3-4 day morning: Review talks from WG1,2,3,4 1-2-3 day afternoon: Parallel sessions of the different WGs 4 day afternoon: Management Committee It will be also devoted time to round tables. An outreach talk will be organized. One representative of the MC from each country will be financially supported. The MC meeting will be in hybrid form in order to allow a larger participation of members. Leaders of mandatory positions will be also supported.		
Output(s)	Slides of the talks will be available on the Action webpage. Proceedings with all contributions will be published on open-access journal		
Location	BARI (Italy)	ITC	No
Start Date	2024-09-03 09:00:00	End Date	2024-09-06 19:00:00
Duration	4 days	Attendance Type	Hybrid
Total number of expected participants	80	Number of participants expected to be reimbursed from COST funds	50
Daily allowance (EUR)	200.00	Average number of daily allowances per participant	5
Average Long-Distance Costs (EUR)	250.00		
Average reimbursement (per participant) (EUR)	1,250.00		
Total Travel, Accommodation and Subsistence Costs (EUR)	62,500.00		
Total unique participants to be accounted for LOS grant	55	Local Organiser Support (EUR)	8,500.00
Total cost of the meeting (EUR)	71,000.00		

Training Schools

Overview

Title of the Training School	Dates	Location	ITC	Total Cost (EUR)
2nd CA21106 COSMIC WISPer Training School	10/06/2024 - 13/06/2024	Lecce (Italy)	No	30,000.00
			Total	30,000.00

Details

Title of the Training School	2nd CA21106 COSMIC WISPer Training School		
Grant Period Goal(s) it will address	To train Phd students and young post-docs on both general interdisciplinary topics across the WGs and on specific topics of each WG, To increase the contributions of Young Researchers and Innovators from ITC countries by 20%, while safeguarding gender balance and enhancing diversity in the Action		
Description	The Training School will highlight to young researchers but also to others interested in the topic, the challenges of WISPer physics and will discuss the latest developments in the field. The theoretical background, observational motivation, and experimental avenues to observe WISPer signatures in the laboratory will be covered. Lectures will be complemented with exercise sessions and students sessions in which they will present the results of their research. Financial support will be provided to PhD students, with priority to improve gender balance and for students from ITC countries. Lecturers will also be reimbursed. Established researchers with own travel funds can join the Training School without reimbursement by the Action. The daily allowance will be fixed in relation to the typical local costs.		
Output(s)	Slides of the lectures will be available on the Action website. Lectures notes will be published on electronic version.		
Location	Lecce (Italy)	ITC	No
Start Date	2024-06-10 09:00:00	End Date	2024-06-13 18:00:00
Duration	4 days	Attendance Type	Face to face
Participant information	Trainers	Trainees	
• Daily allowance (EUR)	150.00	100.00	
• Average number of daily allowances per participant	5	5	
• Average Long-Distance Costs (EUR)	250.00		
• Average reimbursement (EUR)	1,000.00	750.00	
• Total number of expected trainers/trainees	9	30	
• Trainers/trainees expected to be reimbursed from COST funds	9	20	
Total Travel, Accommodation and Subsistence Costs (EUR)	24,000.00		
Total unique participants to be accounted for LOS grant	30		
Local Organiser Support (EUR)	6,000.00		
Total cost of the Training School (EUR)	30,000.00		

Mobility of Researchers and Innovators

Grant Period Goal(s) it will address:	To increase the contributions of Young Researchers and Innovators from ITC countries by 20%, while safeguarding gender balance and enhancing diversity in the Action	
Description:	The mobility of Researchers and Innovators will be awarded via a call	
Budget (EUR)	Short Term Scientific Missions (STSM) grants	13,000.00
	This budget would allow for approx. 7 STSM grants (based on the average costs per STSM grant spent by all Actions).	
	Virtual Mobility grants	0.00
	This budget would allow for approx. 0 Virtual Mobility grants (based on the average costs per VM grant spent by all Actions).	
	Total	13,000.00

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Presentations at Conferences organised by Third Parties

Description:	Those grants are aimed to even further publicise the work of the Action and of individuals participating in the Action. Targeted conferences are the “Patras workshop”, a renowned conference on WISP physics, and the TAUP (Topics in Astroparticle and Underground Physics) Conference, a highly-attended general conference discussing WISPs physics.	
Budget (EUR)	ITC Conference grants	2,000.00
	This budget would allow for approx. 2 ITC Conference grants (based on the average costs per ITC Conference grant spent by all Actions).	
	Dissemination Conference grants	1,000.00
	This budget would allow for approx. 1 Dissemination Conference grants (based on the average costs per DC grant spent by all Actions).	
Total	3,000.00	

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Dissemination and Communication Products

Overview

Dissemination and Communication Product	Title	Total Cost (EUR)
Scientific publication in Open Access	Proceedings of the General Meeting and of Training School	2,200.00
Action Website	Action website	600.00
	Total (without VAT)	2,800.00

Details

Dissemination and Communication Product:	Scientific publication in Open Access
Title:	Proceedings of the General Meeting and of Training School
Description:	The talks of the 1st General Meetings and the Lectures of the Training School will be published in OPEN ACCESS journal. This will help to disseminate the Action results to a larger audience. Action participants will be involved as coauthors, editors and will be in charge of the peer-review.
Total (EUR): (without VAT)	2,200.00

Dissemination and Communication Product:	Action Website
Title:	Action website
Description:	Action website maintaining
Total (EUR): (without VAT)	600.00

Other Expenses Related to Scientific Activities (OERSA)

Overview

Item	Total Cost (EUR)
Bank charges	900.00
Total	900.00

Details

Type:	Bank charges
Total (EUR): (without VAT)	900.00

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