

GRAVITATIONAL WAVES, BLACK HOLES AND FUNDAMENTAL PHYSICS

- Austria
- Belgium
- Bosnia & Herzegovina
- Bulgaria
- Croatia
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Israel
- Italy
- Malta
- Netherlands
- Norway
- Poland
- Portugal
- Romania
- Russia
- Serbia
- Slovenia
- South Africa
- Spain
- Sweden
- Switzerland
- Turkey
- United Kingdom
- United States

# Agenda

1. Welcome to participants
2. Verification of the presence of two-thirds of the Participating COST Countries or, if applicable, a quorum
3. Adoption of agenda
4. Approval of minutes and matters arising of last meeting
5. Update from the Action Chair
  - a) Status of Action: start and end dates of Action, participating COST countries, participating NNC/IPC institutions and Specific Organisations.
  - b) External rapporteur's assessment on Action progress
  - c) Short Term Scientific Missions (STSM): review of completed reports and new applications
6. Update from the Grant Holder: Action budget status
7. Update from the COST Association, if a representative is present
8. Monitoring of the Action

# Agenda

## 9. Implementation of COST policies on

- a) Promotion of gender balance and Early Career Investigators (ECI)
- b) Inclusiveness and Excellence (see below list of Inclusiveness Target Countries)

## 10. Follow-up of MoU objectives: progress report of working groups

## 11. Scientific planning

- a) Scientific strategy (MoU objectives, GP Goals, WG tasks and deliverables)
- b) Action Budget Planning
- c) Long-term planning (including anticipated locations and dates of future activities)
- d) Dissemination planning (Publications and outreach activities)

## 12. Requests to join the Action from:

- a) COST countries
- b) Institutions in Near Neighbouring Countries, International Partner Countries, and/or Specific Organisations: EU agencies, European RTD Organisation, International Organisations

## 13. AOB

## 14. Location and date of next meeting

## 15. Summary of MC decisions

## 16. Closing

#### 4. Approval of minutes and matters from last meeting

## 5. Update from the Action Chair

a. Status of Action: start and end dates of Action, participating COST countries, participating NNC/IPC institutions and Specific Organisations.

Start date: 7 April 2017

End Date: 6 April 2021

1<sup>st</sup> MC meeting: 7 April 2017

### Participating COST countries

- |                           |                 |                    |
|---------------------------|-----------------|--------------------|
| 1. Austria                | 11. Germany     | 21. Portugal       |
| 2. Belgium                | 12. Greece      | 22. Romenia        |
| 3. Bosnia and Herzegovina | 13. Hungary     | 23. Serbia         |
| 4. Bulgaria               | 14. Ireland     | 24. Slovenia       |
| 5. Croatia                | 15. Israel      | 25. Spain          |
| 6. Czech Republic         | 16. Italy       | 26. Sweden         |
| 7. Denmark                | 17. Malta       | 27. Switzerland    |
| 8. Estonia                | 18. Netherlands | 28. Turkey         |
| 9. Finland                | 19. Norway      | 29. United Kingdom |
| 10. France                | 20. Polanda     |                    |

## 5. Update from the Action Chair

a. Status of Action: start and end dates of Action, participating COST countries, participating NNC/IPC institutions and Specific Organisations.

### International Partner Countries

Caltech (Davide Gerosa)

Cape Town University (Bishop Mongwane)

Johns Hopkins University (Emanuele Berti)

Laboratory of Theoretical Physics, JINR (Yakov Shnir )

Montana University (Nico Yunes)

Mississippi University (Leo Stein)

Moscow State University (Dmitry Galt'sov)

Rhodes University (Nigel Nishop)

Virginia University (Kent Yagi)

## 5. Update from the Action Chair

b. External rapporteur's assessment on the Action progress.

### **The Rapporteur summarised the Action's major outcomes, impacts and successes as follows**

*The Action has engaged an impressive number of European astrophysicists and gravitational-wave astronomers. It created an excellent forum for these researchers and contributed effectively to the training of young scientists. Among the accomplishments of the action, we note the large number of awarded STSMs, organization of meetings, the delivery of an educational short movie, and the publication of a high quality roadmap document summarizing the status of the field and its future directions. This document will be an important asset for black hole research and we expect it to be widely used by researchers in the field. All these accomplishments have the potential for high return in the discipline. The Action Team is thus commended for their delivery. While not all objectives have been reached yet, the Action Team is well positioned to continue its activities and successfully meet its goals. We look forward to the many accomplishments to come that will stem from this Action*

## 5. Update from the Action Chair

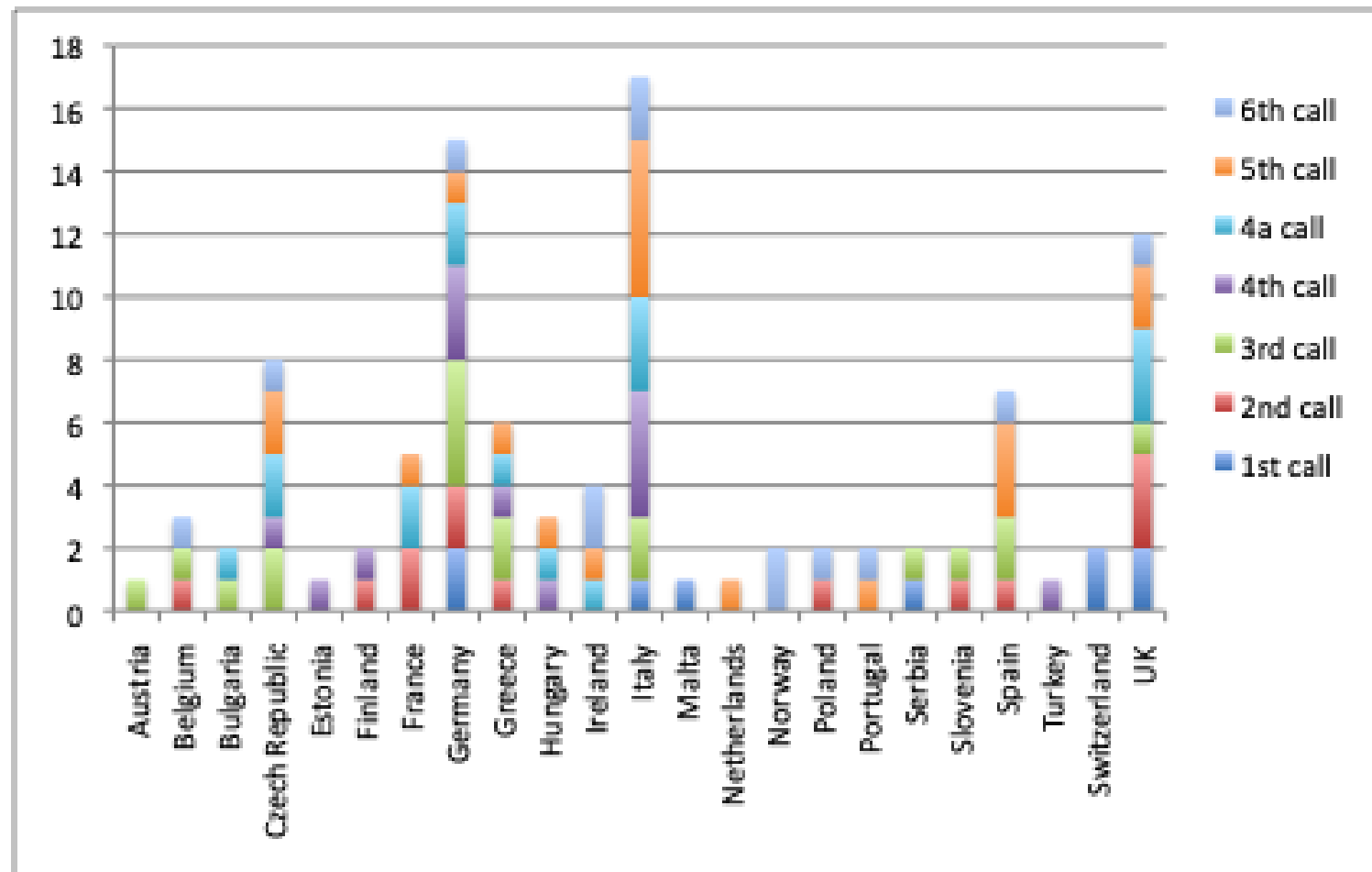
c. Short Term Scientific Missions (STSMs): review of completed reports and new applications



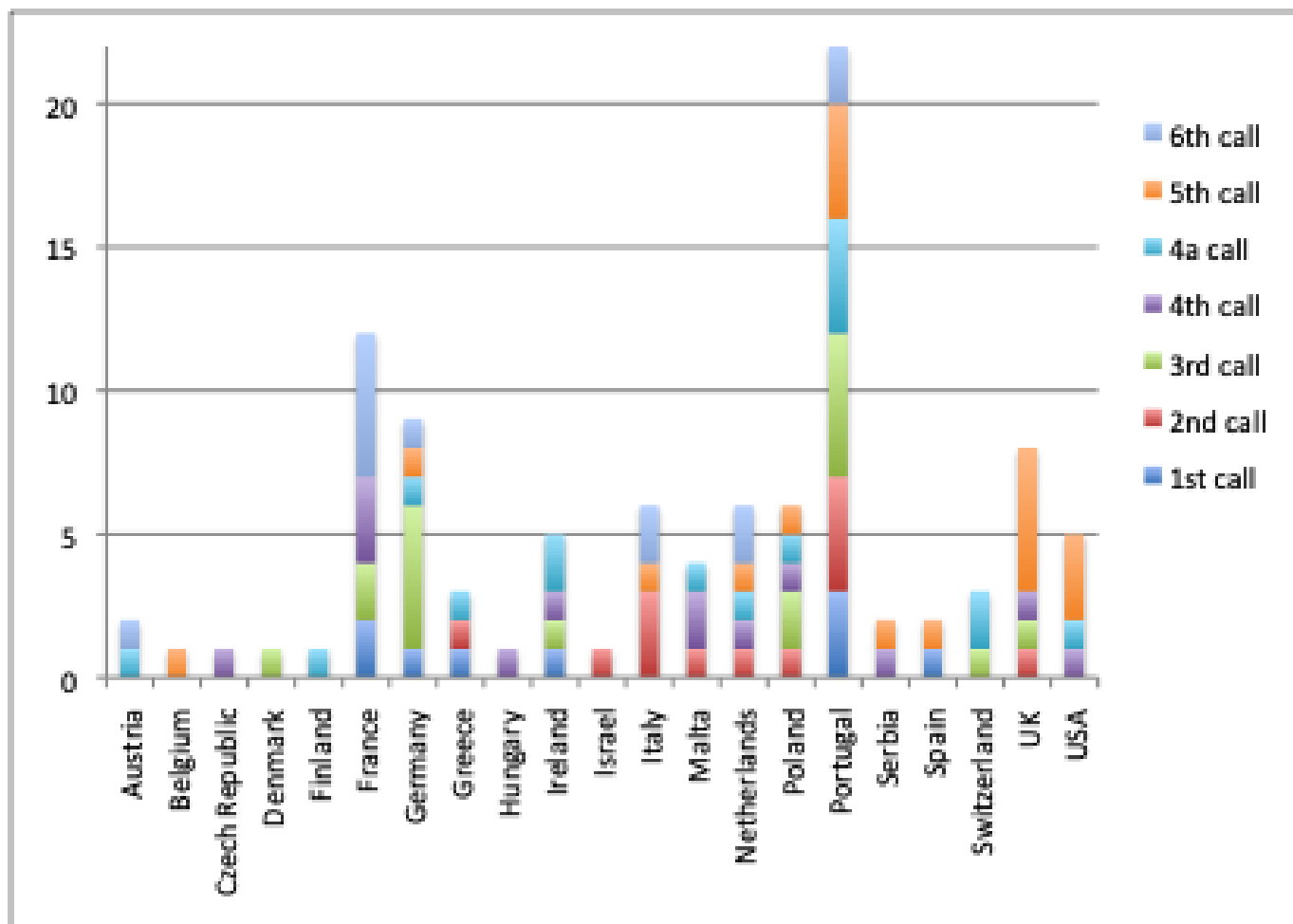
# STSMs

- **1<sup>st</sup> call** (01/07-30/11/17):  
9 applications, 9 approved (12 kEu)
- **2<sup>nd</sup> call** (01/11/17-30/04/18):  
13 applications, 13 approved (19 kEu)
- **3<sup>rd</sup> call** (01/05-30/11/18):  
24 applications, 18 approved (32 kEu)
- **4<sup>th</sup> call** (01/11/18-30/04/19):  
13 applications, 13 approved (2 reduced) (25 kEu)
- **additional 4A call** (01/02-30/04/2019):  
16 applications, 16 approved (26 kEu)
- **5<sup>th</sup> call** (01/05-30/11/19):  
30 applications, 19 approved (27 kEu)
- **6<sup>th</sup> call** (01/11/19-30/04/20):  
26 applications, 13 approved (19 kEu)
- **7<sup>th</sup> call** (01/05-30/11/20):  
opens May 1<sup>st</sup>, closes May 7<sup>th</sup>, results by May 15<sup>th</sup> ??
- ...

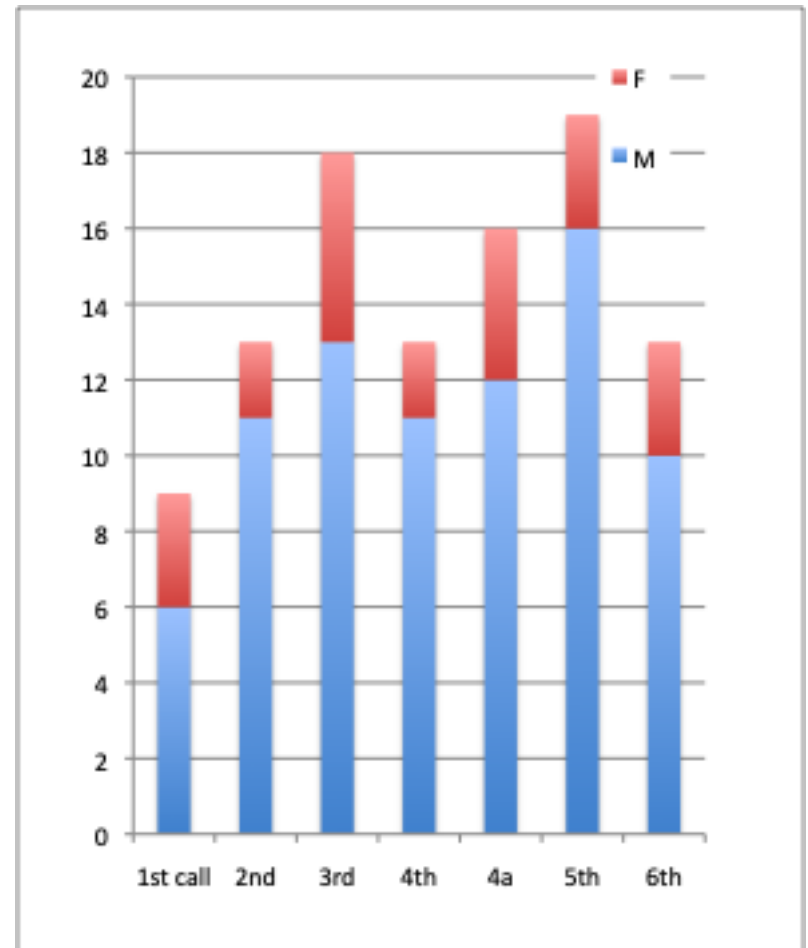
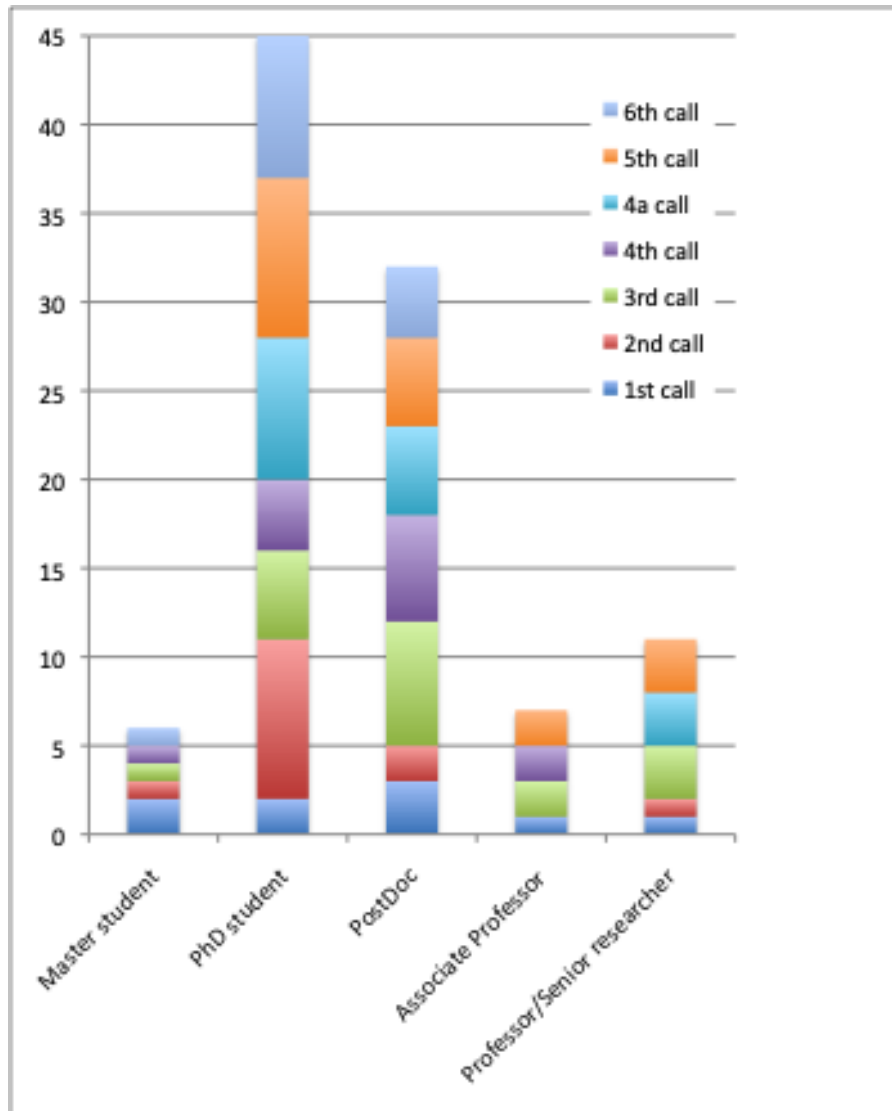
# home countries



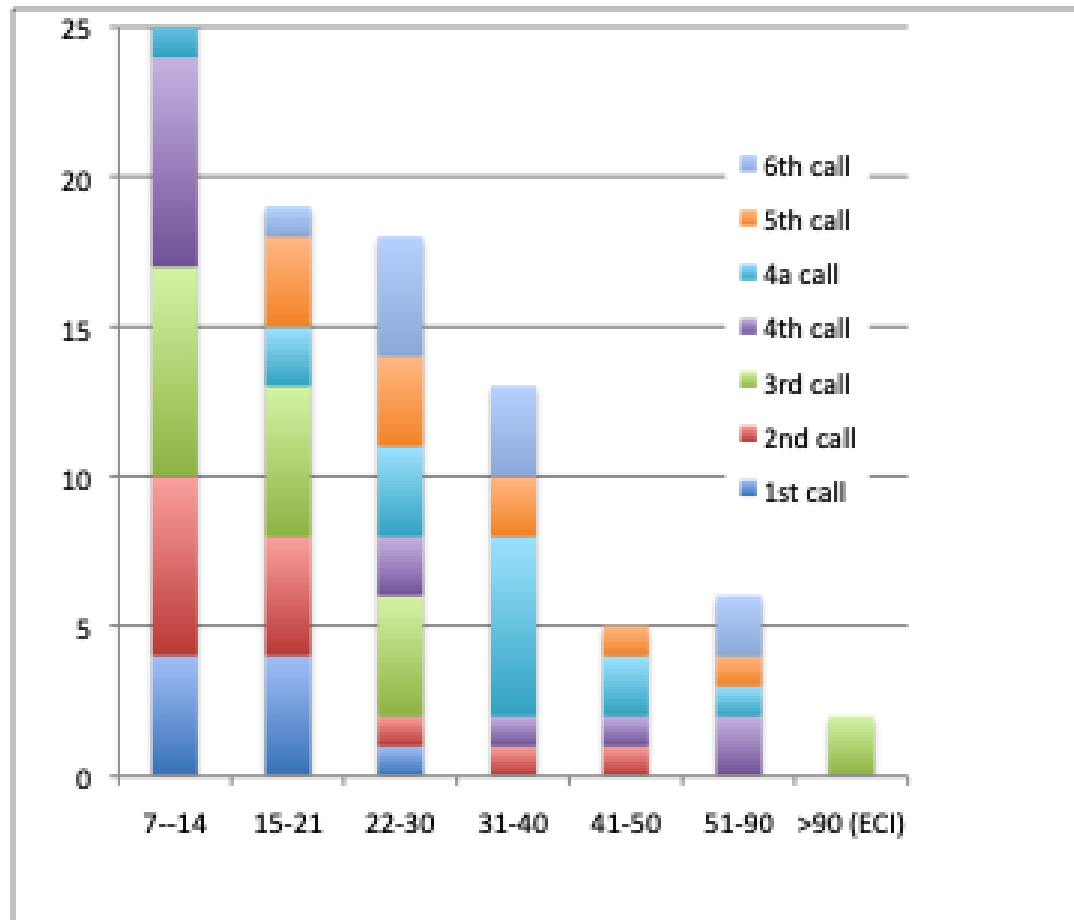
# host countries



# applicants



# duration



## 6. Update from the Grant Holder

### Financial Information GP2

	Grant budget (a)
Total Meeting	70 005.87
Total Training School	12 450.00
Total Short Term Scientific Mission (STSM)	89 023.00
Total Inclusiveness Target Countries Conference Grant (ITC CG)	4 473.00
Total Action Dissemination	0.00
Total Other Expenses Related to Scientific Activities (OERSA)	217.80
Total Networking expenditure	176 169.67
Total Eligible Networking expenditure	176 169.67
Total FSAC 15% of Eligible Networking expenditure	26 425.45
Total Eligible Costs	202 595.12

- 5 Meetings – **EUR 70 005.87**
- 1 Training School – **EUR 12 450.00**
- 3 ITC Conference Grant's – **EUR 4 473.00**
- 47 Short Term Scientific Missions: **EUR 89 023.00**

## 6. Update from the Grant Holder

### GWverse Budget GP3

Networking Tools	Quantity	Budget
Meetings	7	EUR 79 510.00
Training Schools	0	EUR 0.00
Short Term Scientific Missions (STSM)	42	EUR 42 000.00
ITC Conference Grant	3	EUR 5 100.00
COST Action Dissemination	0	EUR 0.00
Other Expenses Related to Scientific Activities (OERSA)	0	EUR 0.00
<b>Total Science Expenditure</b>		<b>EUR 126 610.00</b>
Financial and Scientific Administration and Coordination (FSAC) - MAX. 15%	13.6 %	EUR 17 218.96
<b>Total Grant</b>		<b>EUR 143 828.96</b>

# 6. Update from the Grant Holder

## Meetings

- 13-15 may 2019 - LISA Waveform Working Group Meeting - Potsdam – **EUR 6 064.98**
- 25 august – 4 september 2019 - Gravitational Waves From The Capture of Compact Objects And Observations Of The Galactic Centre - Alajar – **EUR 4 988.54**
- 28 – 30 august 2019 - Lost in Gravity 2019 – Saint Flour – **EUR 8 656.91**
- 13-16 january 2020 –Global Meeting 2020 – Trieste – **EUR 49 500.00**

## Next Meetings

- 9 - 11 march 2020 - LISA Astrophysics Working Group Workshop – **EUR 4 100.00** (*This event was expected to take place in November 2019 however due to the difficulty of finding a venue it was rescheduled for March 2020*)
- 24 - 26 march 2020 – GDG - Trieste– **EUR 3 150.00**
- 27 – 30 april 2020 - Cosmography via GW sources - Stavanger– **EUR 2 000.00**



## 6. Update from the Grant Holder

- Short Term Scientific Missions processed until today: **19 – EUR 27 667.00**
- Short Term Scientific Missions to be held until April: **13 – EUR 18 352.00**

*We exceeded the STSM budget by **EUR 4 019.00** however this amount has been supported by LOS abdicated from the Potsdam Event (**EUR 1 095.02**) and by FSAC (**EUR 2 923.98**)*

- ITC Conference Grants – 7 – EUR 7 172.00

*We exceeded **EUR 2 072.00** due it of the high interest of the conference subject. This difference was supported by FSAC.*

# GWverse Meeting

## Trieste

### 13-16 january 2020

- **177 registrations**
- **37 MC Members confirmed**
- **6 Invited Speakers**
- **35 participants with reimbursement (estimated)**

GRAVITATIONAL WAVES, BLACK HOLES AND FUNDAMENTAL PHYSICS

Belgium  
Bosnia & Herzegovina  
Bulgaria  
Croatia  
Czech Republic  
Denmark  
Estonia  
Finland  
France  
Germany  
Greece  
Hungary  
Ireland  
Israel  
Italy  
Malta  
Netherlands  
Poland  
Portugal  
Serbia  
Slovenia  
Spain  
South Africa  
Switzerland  
Turkey  
United Kingdom  
United States

# GWverse Curiosities

**At this moment our Cost Action...**

- **Has supported 15 meetings**
- **Has reimbursed about 230 participants**
- **Has supported 5 Local Organisers (LOS)**
- **Has processed 87 Short Training Scientific Missions**
- **Has processed 12 Inclusiveness Target Countries Conference Grants**

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Ireland  
Israel  
Italy  
Malta  
Netherlands  
Poland  
Portugal  
Serbia  
Slovenia  
Spain  
South Africa  
Switzerland  
Turkey  
United Kingdom  
United States

## 7. Update from the COST Association

## 8. Monitoring of the Action

### Recommendation from COST

#### Increase participation of ITCs at the leadership as well as participation level of Action

Of 8 core group members, 3 are ITCs (Chair, STSM coordinator and dissemination coordinator)

**Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, fYR Macedonia, Hungary, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Turkey**

#### Enhance participation of Early Career Investigators and maintain gender balance

~50% of core group are women, 50% are men; of these, ~40% from ITCs

~50% of TLs are ECIs

~1/3 WG Leader female

#### Seek cooperation with researchers from outside the COST countries, for example USA

One university from Russia, two from South Africa and five from the US joined

## 9. Gender balance and ECIs; Inclusiveness and Excellence

### 9. Implementation of COST policies on

- a) Promotion of gender balance and Early Career Investigators (ECI)
- b) Inclusiveness and Excellence (see below list of Inclusiveness Target Countries)

# Diversity

Diversity Advisor: Alicia M Sintes- UIB. Spain

## **Excellence and Inclusiveness aiming to promote and spread excellence 2014-2020**

<https://www.cost.eu/who-we-are/cost-strategy/excellence-and-inclusiveness/>

The COST inclusiveness policy is developed around **three main elements**:

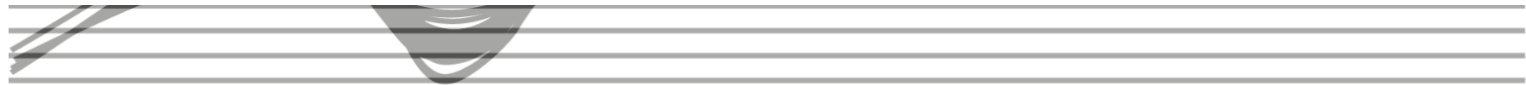
- geographical spread
- career stage: involving early career investigators
- gender balance

Geographical spread includes less research-intensive COST Members  
**COST Inclusiveness Target Countries (ITCs):**

Albania, Bosnia and Herzegovina, Bulgaria, Cyprus, Czech Republic, Estonia, Croatia, Hungary, Lithuania, Latvia, Luxembourg, Malta, Moldova, Montenegro, Poland, Portugal, Romania, Slovenia, Slovakia, the former Yugoslav Republic of Macedonia, Republic of Serbia and Turkey.

# Diversity and Ethics Statement/Pledge

<https://gwverse.tecnico.ulisboa.pt/diversity/>



gravitational waves, black holes and fundamental physics

## Diversity and Ethics Statement/Pledge

As members of the COST Action CA16104 Gravitational waves, black holes and fundamental physics (GWverse), we recognize the importance of diversity to enrich our research and scholarship. We pledge to provide a welcoming, inclusive environment to talented individuals regardless of characteristics such as, but not limited to, physical ability, race, ethnicity, gender, sexual orientation, economic status, or personal religious practices, and to support the professional growth of all members.

We also pledge to work to increase the numbers of women and under-represented groups that actively participate in the action, to involve them in leading roles, and to maximize their contribution to excellence in our research. We will strive to create a professional climate that encourages inclusion and that respects and values diversity.

Furthermore, GWverse endorses the European Astronomical Society (EAS) Ethics Statement and Guidelines for Good Practice.

We refer our members there for further guidance. ([http://eas.unige.ch/documents/EAS\\_Ethics\\_Statement.pdf](http://eas.unige.ch/documents/EAS_Ethics_Statement.pdf))





## Approved ITC Grants

Name	Institution	Conference	Date(s)
Nemanja Rakić	Faculty of Natural Sciences and Mathematics, University of Banjaluka, Bosnia and Herzegovina	Revisiting narrow-line Seyfert galaxies and their place in the Universe	9-13 April 2018
Fethi Ramazanoğlu	Koç University	American Physical Society April Meeting 2018	14-17 April 2018
Tanja Petrushevska	Center for Astrophysics and Cosmology, Slovenia	European Week of Astronomy and Space Science	23-30 June 2019
Katja Bricman	University of Nova Gorica, Slovenia	European Week of Astronomy and Space Science	23-30 June 2019
Georgios Doulis	University of Warsaw, Poland	22nd International Conference on General Relativity and Gravitation	7-12 July 2019
Károly Csukás	Wigner Research Center for Physics, Hungary	22nd International Conference on General Relativity and Gravitation	7-12 July 2019
Jan Kwapisz	University of Warsaw, Poland	Kavli RISE Summer School on Gravitational Waves	23-27 September 2019
Lorenzo Annulli	Instituto Superior Técnico, Portugal	Kavli RISE Summer School on Gravitational Waves	23-27 September 2019
Rodrigo Luís Lourenço Vicente	Instituto Superior Técnico, Portugal	Kavli RISE Summer School on Gravitational Waves	23-27 September 2019

# **Gwverse third global meeting**

## **Trieste 2020: Gravitational Waves, Black Holes and Fundamental Physics**

Code of conduct

Invited talk promoting communication in science

Effort in gender balance in plenary invited speakers

Effort in balance in presentations regarding career stage,  
gender and geographical spread

# **Trieste 2020: Gravitational Waves, Black Holes and Fundamental Physics**

## **Invited Speakers**

Béatrice Bonga, Radboud University, The Netherlands

François Foucart, University of New Hampshire, US

Nikos Karnesis, APC, France

Daniela Doneva, University of Tuebingen, Germany

Niels Warburton, University College Dublin, Ireland

Maximiliano Isi, MIT, US

Luciano Rezzolla, Frankfurt, Germany

Marcos Valdes, Scuola Normale Superiore, Italy

Raffaella Schneider, Rome, Italy

**presentations mostly** from young researchers

# **Trieste 2020: Gravitational Waves, Black Holes and Fundamental Physics**

**177 participants**

**35 countries:**

Argentina, Belgium, **Bosnia and Herzegovina**, Brazil, **Bulgaria**, Canada, Chile, Colombia, Croatia, **Czechia**, Denmark, **Estonia**, France, Germany, Greece, **Hungary**, India, Italy, Ireland, Israel, Japan, Netherlands, Norway, **Malta**, Pakistan, **Poland**, **Portugal**, **Romania**, Russia, **Slovenia**, Spain, Sweden, Switzerland, **Turkey**, UK, USA

**11 Inclusiveness Target Countries**

**Following COST inclusiveness objectives, we are working on:**

Increasing brain circulation between peripheral regions to research intensive territories

Empowering young talents at the beginning of their careers to acquire the necessary recognition and leadership

Ensuring equal opportunities and gender-friendly career advancement.

**Furthermore, GWverse endorses the European Astronomical Society (EAS) Ethics Statement and Guidelines for Good Practice.**

## 10. Progress report of WGs

10. Follow-up of MoU objectives: progress report of working groups (WG Leaders)

## 11. Scientific planning

### a) Scientific strategy (MoU objectives, GP Goals, WG tasks and deliverables)

Research Coordination 1	The Action will coordinate the efforts of different communities, promote collaboration across different disciplines and train the next generation of leaders in the field, and the very first 'native' GW/multi-messenger astronomers.
Research Coordination 2	Develop, share and disseminate relevant knowledge across the wide community, forming a single, interdisciplinary network.
Research Coordination 3	Create and maintain freely available catalogues with (1) up-to-date waveform models for GW searches, and (2) modified theories of gravity, with current observational constraints. This will be the most comprehensive effort to date, demanding a network-wide contribution.
Research Coordination 4	Perform a Europe-wide outreach action on gravitational physics, promoting public awareness of, and engagement in, this exciting field, which is bound to enjoy much media attention in the coming years, as more results come in from GW experiments.
Research Coordination 5	Train early-stage researchers in interdisciplinary topics, and prepare them for successful careers in research or (via acquisition of transferable skills) in the industry or education sectors.

## 11. Scientific planning

a) Scientific strategy (MoU objectives, **GP Goals**, WG tasks and deliverables)

- 1 Creation of webpage
- 2 Establish Working Group Structure
- 3 Opening call for STSM, and engage Early Career Investigators in the Action
- 4 Plan white paper for the field
- 5 Organize a global meeting with community

## 11. Scientific planning

a) Scientific strategy (MoU objectives, GP Goals, WG tasks and deliverables)

White paper (month 24)

Webpage (month 24)

GDG (month 36)

Short movie (month 36)

Documentary (month 48)

Training schools (month 48)



## 11. Scientific planning

b) Action Budget Planning and c) Long term planning

48 K STSMs

43 K Global

12 K ITCs

5 K Perturbation toolkit Prague May 31 2020

5 K Strong-field gravity Benasque July 5-18 2020

5 K EMRI meeting Southampton 10-14 August 2020

5 K GW meeting Belgrade October 12-17 2020

5 K GW meeting Nordita Stockholm November 11-13 2020

#### d) Dissemination planning (Publications and outreach activities)

Communication	Dissemination
About the <b>project and results</b>	About <b>results only</b>
<b>Multiple audiences</b> Beyond the project's own community (include the media and the public)	<b>Audiences that may use the results</b> in their own work e.g. peers (scientific or the project's own community), industry and other commercial actors, professional organisations, policymakers
<b>Inform and reach out to society</b> , show the benefits of research	<b>Enable use and uptake of results</b>

##### Webpage is regularly updated:

Many examples (TV/radio interviews,  
newspaper pieces, other media coverage...).  
Tell us more!

##### Some highlights:

- 1) GWverse roadmap was published in CQG (2019)
- 2) 5+3 sponsored meetings in 2018+2019
- 3) 368 papers that acknowledge COST (Jan 3 2020)

Acknowledge the project in publications (e.g.):  
"The authors would like to acknowledge network-  
ing support by the COST Action CA16104."

Use COST emblem in talks



## 12. Requests to join the Action

12. Requests to join the Action from:

a) COST countries

b) Institutions in Near Neighbouring Countries, International Partner Countries, and/or Specific Organisations: EU agencies, European RTD Organisation, International Organisations

1. Laboratory of Theoretical Physics, JINR
2. CBPF (Brazil, in course)
3. Earlham College (US, in course)
4. Abastumani Observatory (in course)

## 13. AOB

## 14. Location and date of next meeting

Lisbon 11-14 2020

## 15. Summary of MC decisions

## 16. Closing

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13. Hungary
14. Ireland
15. Israel
16. Italy
17. Malta
18. Netherlands
19. Norway
20. Poland

21. Portugal
22. Romenia
23. Serbia
24. Slovenia
25. Spain
26. Sweden
27. Switzerland
28. Turkey
29. United Kingdom



# International partners

1. Caltech
2. Cape Town University
3. Johns Hopkins University
4. Laboratory of Theoretical Physics, JINR
5. Montana University
6. Mississippi University
7. Moscow State University
8. Rhodes University
9. Virginia University
10. CBPF (Brazil, in course)
11. Earlham College (US, in course)
12. Abastumani Observatory (in course)