

# *Welcome to the 3rd Annual Conference of CA18108*



# CA18108: Quantum gravity phenomenology in the multi-messenger approach (QG-MM)

CSO approval: 13/11/2018

Start Date: 14/03/2019

End Date: ~~13/03/2023 (4 years)~~ 13/09/2023 (4 years and 6 months)

- **Main Aim:**

*Investigate **possible signatures** predicted by **quantum gravity models** in the **observation of different cosmic messengers**, by creating the conditions for a **close collaboration** between **theorists** and the **various experimental communities** involved in the detection of such cosmic messengers*

## Keywords:

gamma-ray astronomy  
cosmic neutrinos  
ultra-high-energy cosmic rays  
gravitational waves  
Lorentz invariance violation and deformation

Key point to address the challenge:

**Join different communities**

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The map displays the geographical distribution of European Union membership. Green-shaded countries include the United Kingdom, Ireland, France, Germany, Poland, Czech Republic, Slovakia, Austria, Hungary, Slovenia, Croatia, Bulgaria, Romania, Greece, and Turkey. Orange-shaded countries include Spain, Portugal, Italy, Finland, Sweden, Norway, Denmark, and Iceland. Grey-shaded countries include Russia, Ukraine, Belarus, and the Baltic states (Estonia, Latvia, Lithuania). The map also shows the Mediterranean Sea, the Black Sea, and the North Atlantic Ocean.

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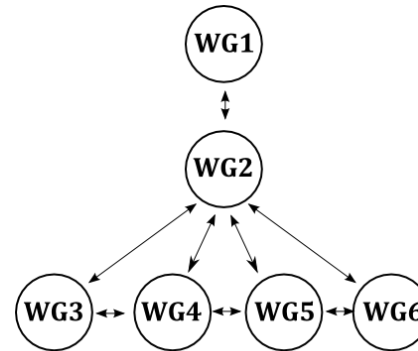
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# CA18108 Coordination

## Working Groups:

- **WG1:** Theoretical frameworks for gravity effects below the Planck energy
- **WG2:** Phenomenology of QG
- **WG3:** Gamma rays
- **WG4:** Neutrinos
- **WG5:** Cosmic rays
- **WG6:** Gravitational waves



## Committees:

- Advisory committee for Training Schools and Annual Conferences
- Committee for outreach and gender activities
- Committee for the evaluation of STSM
- Committee for the evaluation of ITC Conference Grants

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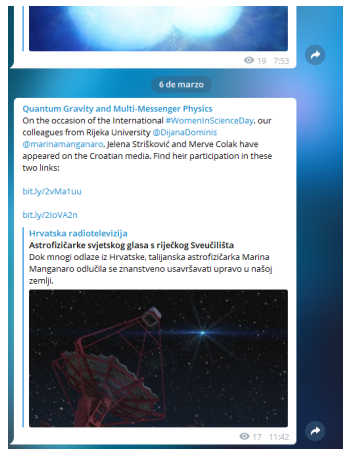
- **Advisory committee for Training School**
- **Committee for outreach and gender action**
- **Committee for the evaluation of STSM**
- **Committee for the evaluation of ITC Conference Grants**

Core Group	
Action Chair	Jose Manuel Carmona
Action Vice-Chair	Giovanni Amelino-Camelia
Grant Holder Scientific Represent	Manel Martinez
Science Communication Manager	Mariam Tórtola
STSM Coord	Dijana Dominis Prester
ITC CG Manager	Julien Bolmont
WG1 Leaders	Christian Pfeiffer
	Giulia Gubitosi
WG2 Leaders	Flavio Mercati
	Stefano Liberati
WG3 Leaders	Tomislav Terzić
	Julian Sitarek
WG4 Leaders	Rodrigo Gracia Ruiz
	Carlos Pérez de los Heros
WG5 Leaders	Armando di Matteo
	Günter Sigl
WG6 Leaders	Tanja Hinderer
	Germano Nardini



# CA18108 Information channels

Website: <https://qg-mm.unizar.es/>  
Facebook: [@COSTQGMM](#)  
Twitter: [@COST\\_QGMM](#)  
Instagram: [@cost\\_qgmm](#)  
Telegram: [@COST\\_QGMM](#)



HOME NEWS About Working Groups Calls Events Publications Tools Outreach Diversity Join



## QG-MM: COST Action CA18108

### QUANTUM GRAVITY PHENOMENOLOGY IN THE MULTI-MESSENGER APPROACH



Group picture @ the kick-off meeting in Barcelona, October 2019

The exploration of the Universe has recently entered a new era thanks to the multi-messenger paradigm. The detection of cosmic particles (photons, neutrinos, cosmic rays), now joined by the birth of gravitational wave astronomy, gives us information about the different sources in the Universe and the properties of the intergalactic medium

The most energetic events allow us to test our physical theories at energy regimes which are not directly accessible in accelerators. This is in fact the target of quantum gravity phenomenology, a quite recent field of physics that tries to set phenomenological models that may incorporate some of the effects of the Planck scale, thus providing a bottom-up approach to the largely studied quantum gravity problem.

### OUR GOAL

The main objective of the proposed COST Action is to gather theoretical and experimental working groups from the relevant communities (with proper geographical, age and gender balance) to work in the

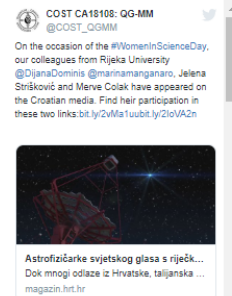
### NEWS

- COST publishes a FAQ document concerning coronavirus impact on Action Grants
- COST CA18108 celebration of the International Day of Women and Girls in Science
- Universidad Nacional de La Plata joins CA18108 as IPC institution
- 3rd ITC Conference call is open
- Russia and Armenia join as Near-Neighbour Countries in COST Action CA18108

### JOIN OUR PUBLIC TELEGRAM CHANNEL

[Quantum gravity and Multi-Messenger Physics: News on cosmology, particle and astroparticle physics \(gamma-rays, neutrinos, cosmic rays and gravitational waves\).](#)

### Tweets by @COST\_QGMM



Dear followers  
the last 25 days we highlighted the achievements of the favourite female scientist of QGMM members. The collected slides can be downloaded for free use on our homepage:

# Summary of activities in our 3<sup>rd</sup> Grant Period:

## 11 Short Term Scientific Missions (STSM)

**No ITC Conference Grants** (*call open till 31<sup>st</sup> August*)

## Training Schools

- *2<sup>nd</sup> TS: Belgrade, 3 – 10 Sept 2022*

## Face-to-face Meetings:

- *Naples Workshop, 11 – 12 July 2022*
- *3<sup>rd</sup> Annual Conference: Naples, 13 – 15 July 2022*
- *Belgrade Workshop, 1 – 3 September 2021*

## Online Meetings:

- *WG3 Meeting, 31<sup>st</sup> March, on combining multi-instrument data*
- *White paper meetings (20<sup>th</sup> April, 25<sup>th</sup> May + WP Committee Meeting, 27<sup>th</sup> June)*

## Review on QG phenomenology:

- *Progress in Nuclear and Particle Physics, July 2022*

# Summary of activities in our 3<sup>rd</sup> Grant Period:

## Outreach and diversity activities:

- Initiatives on social media, esp for the International Day of Women and Girls in Science*

