

FEB 12-16, 2024

PHYSICS DEPT., SAPIENZA UNIVERSITY OF ROME

<https://agenda.infn.it/e/GWFPF>

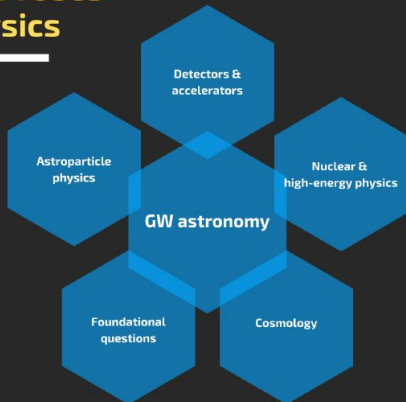


1st Bottom-Up Cross-Cutting Workshop of the JENAS initiative

Gravitational Wave Probes of Fundamental Physics

A cross-cutting initiative for a common platform to:

- Foster synergies among astroparticle, atomic, nuclear, high-energy, and gravitational physics, cosmology, and GW and multi-messenger astronomy
- Strengthen the connection between the theoretical and experimental/observational communities
- Share expertise, tools, cutting edge technologies to attack multidisciplinary problems
- Train a new generation of researchers with diverse expertise and background
- Share and disseminate knowledge in fundamental physics



Endorse this initiative @ <https://agenda.infn.it/e/GWFundPhys>

INVITED SPEAKERS & MODERATORS

N. Afshordi, M. Agathos, A. Bauswein, D. Blas, R. Brito, K. Clough, P. Cole, M. Dax, G. Franciolini, E. Majorana, C. Palomba, K. Peters, I. Rothstein, A. Sesana, N. Schöneberg, J. Steinheimer, S. Vitelland

ORGANIZING COMMITTEE

T. Galatyuk, P. Pani
on behalf of the Steering Committee of the initiative

SCIENTIFIC SECRETARIAT

A. Curto (alessandra.curto@uniroma1.it)



Alessandra

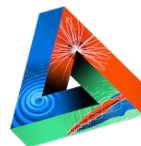


Tetyana



Paolo

- JENAS initiative: <https://agenda.infn.it/e/GWFundPhys>
- New mailing list: <https://lists.infn.it/sympa/info/gwfundphys>



JENAA

Joint ECFA-NuPECC-APPEC Activities

Scope of the initiative



JENAA

Joint ECFA-NuPECC-APPEC Activities

ECFA

European Committee for Future Accelerators

NuPECC

APPEC

The landmark detection of gravitational waves (GWs) has opened a new era in physics, giving access to hitherto unexplored systems. In parallel to their countless astrophysical applications, these discoveries open new avenues to explore fundamental physics.

- **WP1: Matter under extreme conditions**
- **WP2: Nuclear and atomic physics and their role in multi-messenger astronomy**
- **WP3: Fundamental problems in high-energy and gravitational physics**
- **WP4: GWs & Cosmology**
- **WP5: Synergies between particle accelerators and GWs**

Attacking these grand problems requires a **multidisciplinary effort at the interface of different communities**.

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- GWs and multi-messenger astronomy
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Timeline of the initiative

- May 2020: expression of interest to JENAS
- 720 registrations to date
- 2020-2021: online activities
- Apr 2022: “Manifesto”

feature article

Nuclear Physics News, 2022



Fundamental Physics in the Gravitational-Wave Era

SONJA BERNITT¹, GIANFRANCO BERTONE², VITOR CARDOSO³, ROBERTO EMPARAN⁴, TETYANA GALATYUK⁵,
ALEKSI KURKELA⁶, ANN-CECILIE LARSEN⁷, MARLENE NAHRGANG⁸, SAMAYA NISSANKE², PAOLO PANI⁹,
RAFAEL PORTO¹⁰, ANTONIO RIOTTO¹¹, AND STEPHAN ROSSWOG¹²

Today we inaugurate a new phase of the initiative:

- New mailing list: <https://lists.infn.it/sympa/info/gwfundphys> (175 members to date)
- First in-person global meeting
- Discuss science, organizations, and future initiatives

Scope of the workshop

- **Bottom-Up Approach:**

The workshop structure and topics have emerged from the bottom up, based on the feedback from the community

- **Working groups:**

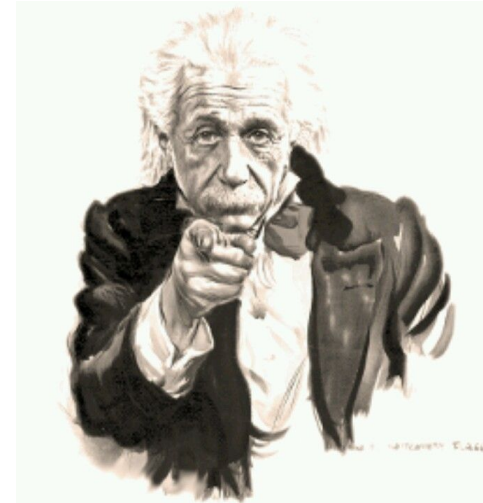
- WG1: Matter under extreme conditions
- WG2: Nuclear and atomic physics and their role in multi-messenger astronomy
- WG3: Fundamental problems in high-energy and gravitational physics
- WG4: GWs & Cosmology
- WG5: Synergies between particle accelerators and GWs

- **Each WG has a session coordinated by two Conveners**

- Overview + Contributed Talks + Final Podium

- **Topics for the discussion sessions:**

- Cross-cutting scientific problems
- Develop common tools (e.g., repositories, public codes)
- Where are we going? Organize initiative and future meetings



Practical information

<https://agenda.infn.it/e/GWPFP>

All sessions will be hosted in Aula Amaldi, first floor, Physics Department (Marconi Building) (see [map](#)).

The only exception will be the afternoon session after the coffee break on DAY 1.

That session will be hosted in Aula Cabibbo, ground floor, Physics Department (Fermi Building, see [map](#)).

The map of Sapienza main campus and virtual tour of the campus are [available here](#).

The Marconi Building is CU013, the Fermi Building is CU033.

The reception and coffee breaks will be always held at the Marconi Building.

If weather permits, in the outdoor yard, otherwise on the second floor.

Sapienza main campus has several entrances. They can all be used for in the morning, but the one closest to the workshop venue (which also stays open during the evening) is the main one on **Piazzale Aldo Moro**.

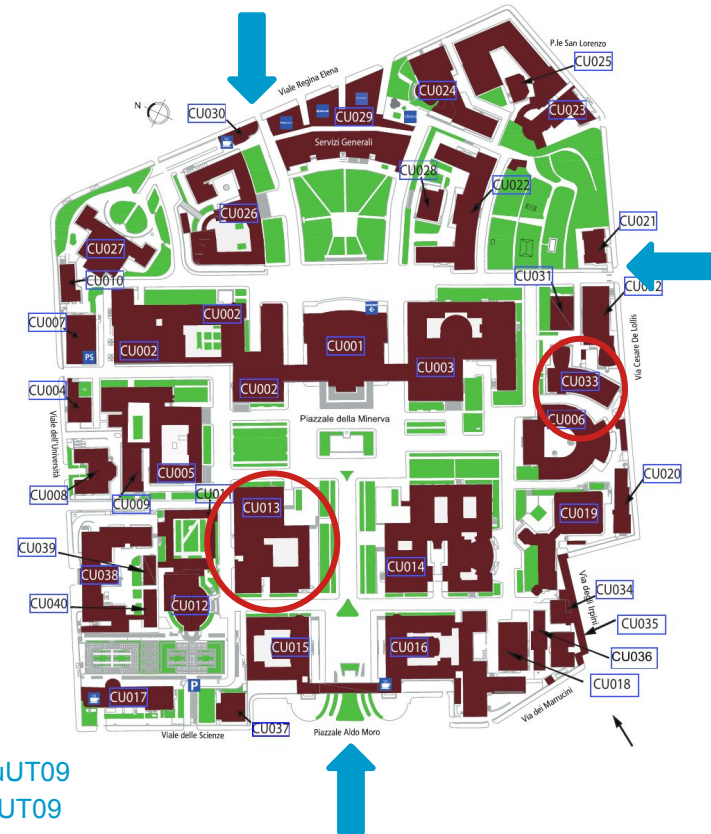
Food options: There are countless options for lunch and dinner within walking distance from the venue.

Suggestions on the webpage.

zoom (can be used also by speakers to share the slides)

Amaldi: <https://uniroma1.zoom.us/j/81814969317?pwd=QUMrWVIDRHZmall4bWg3N0ZRRVpuUT09>

Cabibbo: <https://uniroma1.zoom.us/j/85144188982?pwd=d2ppdVU1dHArTEJYzjVZVTBLbXJVUT09>



International Day of Girls and Women in Science

Round table (in Italian) at 15:45 in Aula Amaldi

Poster session & Meet the Scientists at 18:00 on the first floor

Dj Set at 19:45 (after our Wine & Cheese) in front of Marconi Building

She rocks Science

Monday 12 February, Aula Amaldi

15:45-18:00 Aula Amaldi - Tavola rotonda su Donne e Scienza.

Interverranno:

Camilla Gaiaschi (Università del Salento): Le disuguaglianze di genere in accademia: numeri, ragioni e meccanismi

Ilenia Picardi (Università Federico II di Napoli): Labirinti di cristallo nella scienza: un'analisi delle strutture di genere in Fisica

Mariacristina Sciannamblo (Università La Sapienza): Fare la differenza: raccontare l'informatica attraverso il genere

Eleonora Severini (Università di Pavia): "Whose science? Whose knowledge?" La prospettiva femminista in epistemologia

A seguire tavola rotonda con il pubblico presente

18:00-19:30 Primo piano Edificio Marconi- Meet and Greet:

le giovani scienziate attive nel Dipartimento di Fisica presenteranno dei poster sulla loro attività di ricerca. I poster avranno carattere divulgativo in modo da essere accessibili anche a student* della laurea triennale e magistrale.

19:45-21:00 Piazzale antistante Edificio Marconi

- Dj Set and Aperò: DjLepton aka Eva Kant
momento di musica e condivisione aperto a tutt*.

Per partecipare registrarsi entro
L'11 Febbraio 2024 (codice QR)



12:00	Registration	<i>Alessandra Curto</i>
	<i>Physics Department - Aula Amaldi (Marconi Building), Sapienza University of Rome</i>	12:00 - 12:45
13:00	Welcome Coffee	
	<i>Physics Department - Aula Amaldi (Marconi Building), Sapienza University of Rome</i>	12:45 - 13:30
	Welcome & Scope of the Workshop	<i>Paolo Pani et al.</i>
	<i>Physics Department - Aula Amaldi (Marconi Building), Sapienza University of Rome</i>	13:30 - 13:45
14:00	The QCD equation of state from Heavy ion collisions and neutron star mergers:	<i>Jan Steinheimer-Froschauer</i>
	<i>Physics Department - Aula Amaldi (Marconi Building), Sapienza University of Rome</i>	13:45 - 14:30
	Pions, hyperons and quark matter in neutron star mergers	<i>Andreas Bauswein</i>
15:00	<i>Physics Department - Aula Amaldi (Marconi Building), Sapienza University of Rome</i>	14:30 - 15:15
	Coffee Break	
	<i>Physics Department - Aula Amaldi (Marconi Building), Sapienza University of Rome</i>	15:15 - 15:45
16:00	Overview by Conveners	<i>Massimo Mannarelli et al.</i>
	<i>Aula Cabibbo (Fermi Building), Sapienza University of Rome</i>	15:45 - 16:15
	Properties of quark matter in extreme conditions	<i>Massimo Mannarelli</i>
	<i>Aula Cabibbo (Fermi Building), Sapienza University of Rome</i>	16:15 - 16:40
	Constraints on Phase Transition in Neutron Stars in a Generalized Setup	<i>Jan-Erik Christian</i>
	<i>Aula Cabibbo (Fermi Building), Sapienza University of Rome</i>	16:40 - 17:05
17:00	Turbulent magnetic field amplification in binary neutron star mergers	<i>Ricard Aguilera Miret</i>
	<i>Aula Cabibbo (Fermi Building), Sapienza University of Rome</i>	17:05 - 17:30
	A degeneracy between the effect of dark matter and strongly interacting matter at high densities	<i>Violetta Sagun</i>
	<i>Aula Cabibbo (Fermi Building), Sapienza University of Rome</i>	17:30 - 17:55
18:00	Studying strong-interaction matter under extreme conditions with high-energy heavy-ion experiments	<i>Joachim Stroth</i>
	<i>Aula Cabibbo (Fermi Building), Sapienza University of Rome</i>	17:55 - 18:15
19:00	Wine & Cheese	
	<i>Physics Department - Aula Amaldi (Marconi Building), Sapienza University of Rome</i>	18:15 - 19:45

Aula Amaldi (here)

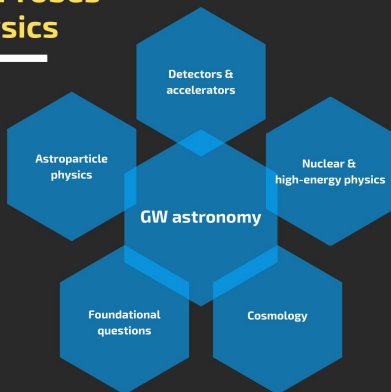
Aula Cabibbo (Fermi Building)

Aula Amaldi (here)

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Scientific Secretariat: Alessandra Curto

Organizing Committee: Tetyana Galatyuk, Paolo Pani

on behalf of the **Steering Committee:**

Sven Bernitt, Gianfranco Bertone, Vitor Cardoso, Roberto Emparan, Tetyana Galatyuk, Tanja Hinderer, Alekski Kurkela, Ann-Cecilie Larsen, Marlene Nahrgang, Samaya Nissanke, Paolo Pani, Rafael Porto, Antonio Riotto, Stephan Rosswog

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SAPIENZA
UNIVERSITÀ DI ROMA



NuPECC



JENAA
Joint ECFA-NuPECC-APPEC Activities



MINISTERO DELL'ISTRUZIONE, DELL'UNIVERSITÀ E DELLA RICERCA



European
Research
Council



Istituto Nazionale di Fisica Nucleare