

Maria Assiduo

PROFILE

Ph.D in “Research methods in Science and Technology”, cycle XXXVI a.a. 2021-2023, at University Carlo Bo of Urbino (PU), in affiliation with Istituto Nazionale di Fisica Nucleare Firenze. Thesis defended on 21th May 2024.

Invited Reasercher by Viola Sordini, current LIGO-Virgo CBC chair group, for 6 Months research activity at the “Institute des deux infinities de Lyon” in France, from October 2022 to March 2023.

TUTOR INFORMATICA APPLICATA – Integrative teaching/tutoring activity at Università Carlo Bo Urbino. April 2021-November 2021 for first year university students in Informatica and Computational Science.

Master Degree in Subnuclear and Astroparticles Physics, final vote 109/110, at University Federico Secondo di Napoli (NA) in affiliation with INFN Napoli. Results published in the Astrophysical Journal, Volume 915, Number 2, Citation R. Abbott et al 2021.

“Search for Gravitational Waves Associated with Gamma-Ray Bursts Detected by Fermi and Swift during the LIGO–Virgo Run O3a “.

Science Divulgator in collaboration with Città della Scienza, Futuro Remoto and PONYS (Physics and Optics Naples Young Scientists) from 2011 to 2019.

Espositore alle seguenti iniziative: Passione Fisica. Termogiocando! Storie di Rivoluzioni, Scienza e Tecnologia. Da Leonardo Da Vinci ad oggi. Un viaggio tra scienza e fantascienza.

WORKSHOPS AND CONFERENCES (with personal contribution)

- Virgo Week 15 Novembre 2021 - A search for Gravitational Waves from Binary Black Holes systems with precessing-spins
- Face-to-face MBTA group meeting CNRS Lyon, France 29 Marzo 2022 - Improving the sensitivity search of the pipeline MBTA to Gravitational Waves signals from Binary Black Hole systems with precessing-spin
- LVK Collaboration meeting-Poster session 14 Settembre 2022 – Intermediate Mass Back Holes (IMBH) binary systems and precessing-spin Gravitational Waves data analysis
- Face-to-face MBTA group meeting CNRS Strasbourg, France 27 Marzo 2022 - Improving the sensitivity search of the pipeline MBTA to

Gravitational Waves signals from Binary Black Hole systems with precessing-spin

WORKSHOPS AND CONFERENCES (without personal contribution)

- Virgo Week 25-29 Gennaio 2021
 - Virgo Week 19-22 Aprile 2021
 - Virgo Week 5-9 Luglio 2021
 - Virgo Week 24 -27 Gennaio 2022
 - LVK week 14-17 Marzo 2022
 - Virgo Week 4-8 Aprile 2022
 - Virgo Week 4-8 Luglio 2022
 - Rencontre du groupe de travail “méthodes d’analyse des données” du GdR Ondes Gravitationelles 15 Novembre IP2I Lyon
 - WOW Physics! (Women Of the World in Physics!) 9-11 November 2022
 - ET ISB Workshop GSSI 17-21 Oct 2022
 - Multi-Messenger Astrophysics Workshop (MMAW) 10-12 Ottobre
 - Machine Learning in GW search: g2net next challenges 28-30 Settembre 2022
 - 14th LISA Symposium 25-28 luglio 2022
 - 9th International KAGRA Workshop 6-8 Giugno 2022
 - Kyoto- The Next Generation Gravitation Wave detectors 14-18 Febbraio 2022
 - Low latency and data analysis in Multi-Messenger Astronomy 13-14 Gennaio 2022
 - 1st International workshop for gravitational wave detection on the moon 14 Ottobre 2021
 - Osimo lab settimana mondiale dello spazio – III Edizione Women in Space 4-10 Ottobre 2021
 - LVK Webinar- Gravitational waves from neutron star-black hole coalescences 1 Luglio 2021
 - APS (American Physics Society) Physics Virtual Meeting 18-21 April 2020
 - VST in the era of the large sky surveys. Astronomical Observatory of Capodimonte, Naples, Italy 5-8/06/2018.
 - Workshop on Dark Matter and Dark Energy to University Federico II of Naples, Italy, 24-26/01/2017
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- SSM PhD Lectures “Gravitational Waves from Theory to Experiments: the Birth of a New Astronomy”. Scuola Superiore Meridionale - Università di Napoli Federico II. 14 - 28 June 2021
 - Lake Como School in Contemporary Relativity and Gravitational Physics, XIV Edition 2021: De Multis Sidereis Nunciis Multi-messenger Asdtrophysics 28 June -2 July 2021
 - SIGRAV International School 2021: Gravity of compact astrophysical objects and gravitational waves. 1-5 February 2021

SUMMER / WINTER SCHOOLS ATTENDED

Publications list

1. Search for Gravitational Waves Associated with Gamma-Ray Bursts Detected by Fermi and Swift during the LIGO–Virgo Run O3a. The Astrophysical Journal, Volume 915, Number 2 Citation R. Abbott et al 2021 ApJ 915 8.
My contribution is related to the data analysis associated to three gamma-ray-bursts (GRB190510430, GRB190606080, GRB190817953).
2. Assessing the compact-binary merger candidates reported by the MBTA pipeline in the LIGO-Virgo O3 run: probability of astrophysical origin, classification, and associated uncertainties. N. Andres, M. Assiduo et al; arXiv:2110.10997.
My contribution is related to the generation of injections with appropriate parameters distributions for a fiducial BBH population.
3. Relative calibration of the LIGO and Virgo detectors using astrophysical events from their third observing run. Alléné et al arXiv:2204.00337
N Andres et al 2022 <https://dx.doi.org/10.1088/13616382/ac482a>.
4. All-sky, all-frequency directional search for persistent gravitational-waves from Advanced LIGO's and Advanced Virgo's first three observing runs. Abbott et al; arXiv:2110.09834
5. Search for subsolar-mass binaries in the first half of Advanced LIGO and Virgo's third observing run. Abbott et al; arXiv:2109.12197
6. Search for continuous gravitational waves from 20 accreting millisecond X-ray pulsars in O3 LIGO data. Abbott et al; arXiv:2109.09255
7. Searches for Gravitational Waves from Known Pulsars at Two Harmonics in the Second and Third LIGO-Virgo Observing Runs. R. Abbott et al; arXiv:2111.13106
8. The population of merging compact binaries inferred using gravitational waves through GWTC-3. Abbott et al; arXiv:2111.03634
9. Search for Gravitational Waves Associated with Gamma-Ray Bursts Detected by Fermi and Swift During the LIGO-Virgo Run O3b. Abbott et al; arXiv:2111.03608
10. GWTC-3: Compact Binary Coalescences Observed by LIGO and Virgo During the Second Part of the Third Observing Run. R Abbott et al; arXiv:2111.03606
11. GWTC-2.1: Deep Extended Catalog of Compact Binary Coalescences Observed by LIGO and Virgo During the First Half of the Third Observing Run arXiv:2108.01045
12. All-sky search for long-duration gravitational-wave bursts in the third Advanced LIGO and Advanced Virgo run arXiv:2107.13796
13. All-sky search for short gravitational-wave bursts in the third Advanced LIGO and Advanced Virgo run arXiv:2107.03701
14. Calibration of Advanced Virgo and reconstruction of detector strain $h(t)$ during the Observing Run O3 arXiv:2107.03294
15. Constraints on dark photon dark matter using data from LIGO's and Virgo's third observing run arXiv:2105.13085

16. R. Abbott et al 2022 ApJ 932 133 <https://dx.doi.org/10.3847/1538-4357/ac6ad0>
17. R. Abbott et al Progress of Theoretical and Experimental Physics, Volume 2022, Issue 6, June 2022, 063F01, <https://doi.org/10.1093/ptep/ptac073>
18. F. Acernese et al 2022 Class. Quantum Grav. 39 045006 <https://dx.doi.org/10.1088/13616382/ac3c8e>
19. A. Amato et al 2022 <https://dx.doi.org/10.1103/PhysRevD.106.042003>
20. Virgo Detector Characterization and Data Quality: tools. Acernese F. et al 2022; arXiv:2210.15634
21. Search for gravitational-wave transients associated with magnetar bursts in Advanced LIGO and Advanced Virgo data from the third observing run. R Abbott et al; arXiv:2210.10931
22. Model-based cross-correlation search for gravitational waves from the low-mass X-ray binary Scorpius X-1 in LIGO O3 data. Abbott et al arXiv:2209.02863
23. Virgo Detector Characterization and Data Quality during the O3 run. Acernese et al; arXiv:2205.01555
24. Search for Gravitational Waves Associated with Fast Radio Bursts Detected by CHIME/FRB During the LIGO--Virgo Observing Run O3a. R Abbott et al; arXiv:2203.12038
25. The Virgo O3 run and the impact of the environment. Acernese F. et al; arXiv:2203.04014
26. First joint observation by the underground gravitational-wave detector, KAGRA, with GEO600. Abbott et al; arXiv:2203.01270
27. All-sky search for continuous gravitational waves from isolated neutron stars using Advanced LIGO and Advanced Virgo O3 data. Abbott et al; arXiv:2201.00697
28. Narrowband searches for continuous and long-duration transient gravitational waves from known pulsars in the LIGO-Virgo third observing run. Abbott et al; arXiv:2112.10990
29. Constraints on the cosmic expansion history from GWTC-3. Abbott et al; arXiv:2111.03604

PERSONAL SKILLS

Mature skills to carry out professional activities that require knowledge of physical methodologies and analysis

activities. Capability in international relations and adaptation in different cultural working contexts. Good competencies of coordination, collaboration and administration of working duties developed in activities in collaboration with academic Institutes.

The PhD in Research methods in Science and technology at University of Urbino is a multidisciplinary doctorate which embrace the main aspect of research methodologies in several scientific fields. In the contest of the P.hD program I had to pass examinations in scientific topics not strictly correlated to my field of research in Astroparticle Physics, listed in the table below.

Ecological Models	Statistics in Experimental Research	Data Analysis
Algorithmic Thinking	Optimization Methods	Critical Thinking and Science communication
Scientific Method: Foundations and Problems	Scientific Communication Strategies	Earth Climate System
Analytical Methods for rock forming minerals	General Relativity and Gravitational Waves: theory and experiment	Partial Differential Equations
Introduction to quantum computing	Modelling and analysis of cyber-physical systems	Neuroscienze, un viaggio nel cervello

Napoli 2018 Acquisition of 24 CFU at University Federico II of Naples, for teaching activity

Urbino 2022 Acquisition of the certificate 'English Writing for Academic Publications' at University Carlo Bo of Urbino

Mother Language ITALIAN

Others Language	Understanding		Speaking		Writing
	Listen	Read	Social	Oral production	
ENGLISH	B2	C1	C1	B2	C1

Livelli: A1 e A2: Utente base - B1 e B2: Utente autonomo - C1 e C2: Utente avanzato

Quadro Comune Europeo di Riferimento delle Lingue

	Understanding		Speaking		Writing
	Listen	Read	Social	Oral production	
FRENCH	A2	A2	A2	A2	A2

Livelli: A1 e A2: Utente base - B1 e B2: Utente autonomo - C1 e C2: Utente avanzato

Quadro Comune Europeo di Riferimento delle Lingue

	Understanding		Speaking		Writing
	Listen	Read	Social	Oral production	
SPANISH	A2	A2	A2	A2	A2

Livelli: A1 e A2: Utente base - B1 e B2: Utente autonomo - C1 e C2: Utente avanzato

Quadro Comune Europeo di Riferimento delle Lingue

- Digital Skills**
- Operating systems: Mac OS-X Unix/Linux, Windows.
 - Programming languages: C++, Python, ROOT.
 - Softwares: LATEX, Microsoft (Word, PowerPoint).
 - LIGO-VIRGO pipelines: PyGRB, PyCBC, MBTA.
 - Cluster HPC computing resources.
 - Smart Working apps: Microsoft Teams, Skype, Zoom, TeamSpeak, Slack, Google Meet., GoWebinar

Driving License B

ULTERIORI INFORMAZIONI

Dati personali Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali"