

Peter Raffai, PhD, Dr. habil.

Curriculum Vitae

CONTACT

Institute of Physics
Eotvos Lorand University
Pazmany P. s. 1/A
Budapest, 1117 - Hungary

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WORK EXPERIENCE

Eötvös Loránd University
Assistant Professor
Summer 2014 – Present

HUN-REN-ELTE
Extragalactic Astrophysics Research Group
Research Scientist
Fall 2023 – Present

MTA-ELTE EIRSA Lendület
Astrophysics Research Group
Research Scientist
Summer 2013 – Summer 2017

Eötvös Loránd University
Assistant Lecturer
Spring 2013 – Summer 2014

Columbia University
Postdoctoral Research Scientist
Fall 2011 – Spring 2013

Eötvös Loránd University
Assistant Lecturer
Spring 2010 – Fall 2011

EDUCATION & DEGREES

Eötvös Loránd University
Doctor Habilitatus
Fall 2023

Eötvös Loránd University
Ph.D. in astrophysics
Fall 2006 – Spring 2012

Eötvös Loránd University
B.Sc. and M.Sc. in physics
Fall 2001 – Spring 2006

AWARDS & GRANTS (since PhD)

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| Grant for Young Researchers in Higher Education, New National Excellence Program (ÚNKP) <i>(granted by the Hungarian Ministry of Human Capacities)</i> | September 2017 |
| Royal Astronomical Society Group Achievement Award ‘A’ <i>(as a member of the LIGO-Virgo Collaboration)</i> | June 2017 |
| Princess of Asturias Award for Technical and Scientific Research <i>(as a member of the LIGO-Virgo Collaboration)</i> | June 2017 |
| Academic Youth Award <i>(granted by the Hungarian Academy of Sciences)</i> | January 2017 |
| 2016 Gruber Foundation Cosmology Prize <i>(as a member of the LIGO-Virgo Collaboration)</i> | May 2016 |
| Special Breakthrough Prize in Fundamental Physics <i>(as a member of the LIGO-Virgo Collaboration)</i> | May 2016 |
| Albert Szent-Gyorgyi Award | December 2015 |
| János Bolyai Research Grant | Sept. 2014 – Aug. 2016 |
| Pál Erdős Grant for Young Researchers | March - July 2014 |

PROFESSIONAL ACTIVITIES

I was a delegated member of the LSC Council until Fall 2022, which is the governing body of the LIGO Scientific Collaboration. I was a member of the Burst Advisory Board of the LIGO-Virgo Collaboration until Summer 2021, which is a forum of delegated LVC members playing active roles in LVC’s burst search activities.

I am a referee for the following international scientific journals: *Physical Review D*, *Physical Review Letters*.

I was one of three members of the local organizing committee for the [LSC-Virgo Meeting held in Budapest](#), Hungary between September 19-24, 2009.

I was the co-founder of the [Eötvös Gravity Research Group \(EGRG\)](#) in 2007, which is the local group of the LIGO Scientific Collaboration in Hungary. I led the data analysis efforts of the group between 2007-2011 and 2013-2023.

TEACHING EXPERIENCE

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| Fall Semester Courses: | |
| Cosmology (Physics & Astronomy MSc; in English) | 2018- |
| Introduction to Astronomy (Physics Teacher BSc) | 2013- |

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| Cosmology (Physics MSc; in Hungarian) | 2010-2011, 2013-2018 |
| Introduction to Astrophysics (Physics BSc) | 2014-2015, 2018-2019 |

Spring Semester Courses:

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| Astrophysics (Physics BSc; in Hungarian) | 2023- |
| Gravitational-wave Astrophysics (Physics PhD; in English) | 2021- |
| Chapters in Astrophysics (Physics BSc; in Hungarian) | 2020-2022 |
| Gravitational-wave Astrophysics (Physics MSc; in English) | 2019-2020 |
| Gr.-wave Astrophysics (Physics MSc; in Hun.) | 2010-2011, 2013-2018 |
| Galactic Dynamics (Physics MSc) | 2013-2015 |

Seminars (Fall & Spring Semester):

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| Unsolved Probl. in Astrophys. (Physics BSc/MSc/PhD) | 2015-2020 |
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Laboratory Practices:

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| Experiments in Environmental Phys. (Environ. Sc. BSc) | 2013-2021 |
| Applied Methods in Physics (Physics BSc) | Fall 2013 |
| Nuclear Physics and Radiology (Physics MSc) | Fall 2007 |

Teaching Assistance:

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|---|-----------------------------|
| Theoretical Electrodynamics (Physics BSc) | Spring 2010-2011 |
| Theoretical Electrodynamics (Physics BSc) | Fall 2007, Fall 2010 |
| Astrophysics (Physics BSc) | Fall 2008 |
| Quantum Mechanics (Physics BSc) | Spring 2008 |
| Theoretical Mechanics (Physics BSc) | Fall 2006 |

STUDENTS ADVISED (EOTVOS U.)

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|---|--------------------|
| Dávid Attila Ködmön (BSc diploma, BME) <i>“The evolution of matter density fluctuations in coasting cosmologies”</i> (in English) | Spring 2024 |
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| Dominika Eleonóra Kis (BSc diploma, BME) <i>“United in diversity: The cosmology of inhomogeneous universes in view of the separate universe conjecture”</i> (in Hungarian) | Spring 2024 |
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| Andor Budai (PhD) <i>“Testing the non-stationarity of long gamma-ray burst jets with statistical methods”</i> (in Hungarian) Finished with ‘summa cum laude’ grade. | Spring 2024 |
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Adrienn Pataki (MSc diploma)

“Testing a universe with coasting evolution using type Ia supernovae” (in English) **Spring 2023**

Barbara Matécsa (MSc diploma)
“A method for detecting the cosmic dipole with gravitational waves” (in Hungarian) **Spring 2023**

Gergely Dályá (PhD)
“Multi-messenger astronomy and source parameter estimation with gravitational waves” (in English);
 Finished with ‘summa cum laude’ grade. **Spring 2022**

Mária Pálfi (MSc diploma):
“Comparative analysis of stellar-mass estimation methods and their applicability in multi-messenger astronomy” (in Hungarian) **Spring 2021**

Alexandra Karsai (BSc diploma)
“Does the FLRW-metric have an alternative in cosmology?” (in Hungarian) **Spring 2020**

Ramón Díaz (MSc diploma)
“GLADE+: An extended galaxy list for multimessenger searches in the advanced gravitational-wave detector era” (in English) **Spring 2020**

Gabriel Cardoso (MSc diploma)
“Mapping the velocity field of the local universe” (in English) **Spring 2020**

Alexandra Karsai (undergrad research)
“A variable timescale cosmology” (in Hungarian);
 Won 1st prize on the Conference of Scientific Students' Associations (TDK). **Fall 2019**

Mária Pálfi (BSc diploma)
“Galaxy catalog development for gravitational-wave observations” (in Hungarian) **Spring 2019**

Additional projects lead before 2019:

4 M.Sc. diploma, 7 B.Sc. diploma, 6 Conference of Scientific Student's Association (TDK) projects.

CONFERENCE PARTICIPATION (in the last 5 yrs)

As a member of the LIGO Scientific Collaboration (LSC) since 2007, I attended the regular meetings of the LSC 2 times per year (on average) until the end of 2023.

„Oktatás és tudományszerűsítés gravitációs hullámokkal”

Invited talk at the Teacher's Conference of Pázmány Péter Catholic University, Budapest, Hungary

5 Nov. 2021

„Eccentricity Distributions of Eccentric Binary Black Holes in Galactic Nuclei”

Talk at the 13th Edoardo Amaldi Conference, Valencia, Spain

9 July 2019

SEMINARS & OUTREACH TALKS (in the last 5 years)

“Volt-e a világegyetemnek kezdete?”

Európa Szabadegyetem
Hungarikum Liget, Lakitelek, Hungary

8 July 2023

“Gravitational-wave Astronomy with the LIGO-Virgo Detector Network”

Konkoly Observatory Seminar
Budapest, Hungary

17 June 2021

“Honnan jött mindez? - Beszélgetés az univerzum eredetéről”

Orbánhegyi Kollégium, Budapest, Hungary

27 Febr. 2020

„Oktatás és tudományszerűsítés gravitációs hullámokkal”

MTA Tantárgy-pedagógiai Kutatási Program
3. beszámolókonferenciája, Budapest, Hungary

16 Nov. 2019

„Csillagászat gravitációs hullámokkal”

Budapest Science Meetup, Budapest, Hungary

25 June 2020

“Students at the Academy” Event,
Hungarian Academy of Sciences, Budapest, Hungary

28 Nov. 2019

“Tudomány Mozaik” Science Fair, Palace of Wonders
Budapest, Hungary

19 Nov. 2019

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| KöMal Ankét, Budapest, Hungary | 28 Oct. 2019 |
| Eötvös 100 Commemorative Day, Hungarian Academy of Sciences, Budapest, Hungary | 8 April 2019 |
| Pannonhalmi Bencés Gimnázium, Pannonhalma | 8 March 2019 |
| Open Day, ELTE Faculty of Science, Budapest | 18 Jan. 2019 |

„A New Window to the Universe: Gravitational Waves”

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| Bolyai College Physics Seminar Budapest, Hungary | 3 November 2021 |
| Wigner Lecture Series, Budapest University of Technology Budapest, Hungary | 27 October 2020 |

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| SCIENCE | Number of publications: | 262 |
| METRICS | Number of refereed publications: | 238 |
| | Total sum of impact factors: | 1402.47 |
| | Number of citations (source: MTMT): | 74 916 |
| | Number of independent citations (source: MTMT): | 43 097 |
| | H-index from all citations (source: MTMT): | 96 |
| | H-index from independent citations (source: MTMT): | 63 |

PUBLICATIONS

1. Refereed publications:

[27] **Raffai, P.**, Pálfi, M., Dályá, G., and Gray, R.; "Constraints on coasting cosmological models from gravitational-wave standard sirens", *The Astrophysical Journal*, Vol. 961, Number 1, id. 17, pp. 26, 2024. Impact factor: 4.8*

[26] Gair, J. R., ..., **Raffai, P.**, et al. (+29 authors); "The Hitchhiker's Guide to the Galaxy Catalog Approach for Dark Siren Gravitational-wave Cosmology", *The Astronomical Journal*, Vol. 166, Issue 1, id. 22, pp. 15, 2023. Impact factor: 5.1

[25] Raza, N., McIver, J., Dályá, G., and **Raffai, P.**; "Prospects for reconstructing the gravitational-wave signals from core-collapse supernovae with Advanced LIGO-Virgo and the BayesWave algorithm", *Physical Review D*, Vol. 106, Issue 6, aid. 063014, 2022. Impact factor: 5.0

[24] Dályá, G., Díaz, R., Bouchet, F. R., Frei, Z., Jasche, J., Lavaux, G., Macas, R., Mukherjee, S., Pálfi, M., de Souza, R. S., Wandelt, B. D., Bilicki, M., and **Raffai, P.**; "GLADE+: an extended galaxy catalogue for multimessenger searches with advanced gravitational-wave detectors", *Monthly Notices of the Royal Astronomical Society*, Vol. 514, Issue 1, pp. 1403, 2022. Impact factor: 4.8

- [23] Mesterházy, I., **Raffai, P.**, Szalay, L., Bozó, L., and Ladányi, M.; "Estimation of Blooming Start with the Adaptation of the Unified Model for Three Apricot Cultivars (*Prunus armeniaca* L.) Based on Long-Term Observations in Hungary (1994–2020)", *Diversity*, Vol. 14, Issue 7, p. 560, 2022. Impact factor: 2.4
- [22] Budai, A., **Raffai, P.**, Borgulya, B., Dawes, B. A., and Szeifert, G.; "Statistical search for angular non-stationarities of long gamma-ray burst jets using Swift data", *Monthly Notices of the Royal Astronomical Society*, Vol. 509, Issue 4, p. 6179, 2022. Impact factor: 4.8
- [21] Dálya, G., **Raffai, P.**, and Bécsy, B.; „Bayesian reconstruction of gravitational-wave signals from binary black holes with nonzero eccentricities”, *Classical and Quantum Gravity*, Vol. 38, n. 6, 2021. Impact factor: 3.853
- [20] Bécsy, B., **Raffai, P.**, Gill, K., Littenberg, T., Millhouse, M., and Szczepanczyk, M.; "Interpreting gravitational-wave burst detections: constraining source properties without astrophysical models", *Classical and Quantum Gravity*, Vol. 37, n. 10, 2020. Impact factor: 3.528
- [19] Budai, A., **Raffai, P.**, Borgulya, B., Dawes, B. A., Szeifert, G., and Varga, V.; "A statistical method to detect non-stationarities of gamma-ray burst jets", *Monthly Notices of the Royal Astronomical Society*, Vol. 491, Issue 1, p. 1391, 2020. Impact factor: 5.287
- [18] Takátsy, J., Bécsy, B., and **Raffai, P.**; "Eccentricity distributions of eccentric binary black holes in galactic nuclei", *Monthly Notices of the Royal Astronomical Society*, Vol. 486, Issue 1, p. 570, 2019. Impact factor: 5.356
- [17] Fishbach, M., ..., **Raffai, P.**, et al. (+54 authors & The Virgo Collaboration); "A Standard Siren Measurement of the Hubble Constant from GW170817 without the Electromagnetic Counterpart", *The Astrophysical Journal Letters*, Vol. 871, Issue 1, aid. L13, 2019. Impact factor: 8.198
- [16] Dálya, G., Galgóczi, G., Dobos, L., Frei, Z., Heng, I. S., Macas, R., Messenger, C., **Raffai, P.**, and de Souza, R. S.; "GLADE: A Galaxy Catalogue for Multi-Messenger Searches in the Advanced Gravitational-Wave Detector Era", *Monthly Notices of the Royal Astronomical Society*, Vol. 479, Issue 2, p. 2374, 2018. Impact factor: 5.231 [+VizieR Online Data Catalog: GLADE v2.3 catalog (Dalya+, 2018), VII/281.]
- [15] Gondán, L., Kocsis, B., **Raffai, P.**, and Frei, Z.; "Eccentric Black Hole Gravitational-wave Capture Sources in Galactic Nuclei: Distribution of Binary Parameters", *The Astrophysical Journal*, Vol. 860, Issue 1, aid. 5, 2018. Impact factor: 5.580
- [14] Gondán, L., Kocsis, B., **Raffai, P.**, and Frei, Z.; "Accuracy of Estimating Highly Eccentric Binary Black Hole Parameters with Gravitational-wave Detections", *The Astrophysical Journal*, Vol. 855, Issue 1, aid. 34, 2018. Impact factor: 5.580
- [13] Bécsy, B., **Raffai, P.**, Cornish, N. J., et al. (+6 authors); "Parameter Estimation for Gravitational-wave Bursts with the BayesWave Pipeline", *The Astrophysical Journal*, Vol. 839, Number 1, 2017. Impact factor: 5.551
- [12] Szölgvény, Á., Dálya, G., Gondán, L., and **Raffai, P.**; "Target-based optimization of advanced gravitational-wave detector network operations", *Classical and Quantum Gravity*, Vol. 34, p. 7, 2017. Impact factor: 3.283

[11] **Raffai, P.**, Haiman, Z., and Frei, Z.; “A statistical method to search for recoiling supermassive black holes in active galactic nuclei”, *Monthly Notices of the Royal Astronomical Society*, Vol. 455, p. 484, 2016. Impact factor: 4.961

[10] Hu, Y., **Raffai, P.**, Gondán, L., et al. (+5 authors); „Global Optimization for Future Gravitational Wave Detectors' Sites”, *Classical and Quantum Gravity*, Vol. 32, p. 105010, 2015. Impact factor: 2.837

[9] **Raffai, P.**, Gondán, L., Heng, I. S., et al. (+4 authors); „Optimal networks of future gravitational-wave telescopes”, *Classical and Quantum Gravity*, Vol. 30, p. 155004, 2013. Impact factor: 3.103

[8] Murphy, D., Tse, M., **Raffai, P.**, et al. (+6 authors); „Detecting long-duration narrow-band gravitational wave transients associated with soft gamma repeater quasiperiodic oscillations”, *Physical Review D*, Vol. 87, Issue 10, p. 103008, 2013. Impact factor: 4.864

[7] Baret, B., Bartos, ..., **Raffai, P.**, et al. (+23 authors); „Multimessenger science reach and analysis method for common sources of gravitational waves and high-energy neutrinos”, *Physical Review D*, Vol. 35, Issue 10, p. 103004, 2012. Impact factor: 4.691

[6] **Raffai, P.**, Szeifert, G., Matone, L., et al. (+5 authors); „Opportunity to Test non-Newtonian Gravity Using Interferometric Sensors with Dynamic Gravity Field Generators”, *Physical Review D*, Vol. 84, Issue 8, p. 082002, 2011. Impact factor: 4.558

[5] Baret, B., Bartos, I., ..., **Raffai, P.**, et al. (+16 authors); „Bounding the time delay between high-energy neutrinos and gravitational-wave transients from gamma-ray bursts”, *Astroparticle Physics*, Vol. 35, Issue 1, p. 1-7, 2011. Impact factor: 3.216

[4] Thrane, E., Kandhasamy, S., ..., **Raffai, P.**, et al. (+10 authors); „Long gravitational-wave transients and associated detection strategies for a network of terrestrial interferometers”, *Physical Review D*, Vol. 83, Issue 8, p. 083004, 2011. Impact factor: 4.558

[3] **Raffai, P.**, Frei, Z., Márka, Z., et al. (+1 author); „How to find long narrow-band gravitational wave transients with unknown frequency evolution?”, *Classical and Quantum Gravity*, Vol. 24, p. S457-S468, 2007. Impact factor: 2.846

[2] Takamori, A., **Raffai, P.**, Márka, S., et al. (+9 authors); „Inverted Pendulum as Low Frequency Pre-Isolation for Advanced Gravitational Wave Detectors”, *Nuclear Instruments & Methods in Physics Research A*, Vol. 582, Issue 2, p. 683-692, 2007. Impact factor: 1.019

[1] Matone, L., **Raffai, P.**, Márka, S., et al. (+5 authors); „Benefits of Artificially Generated Gravity Gradients for Interferometric Gravitational Wave Detectors”, *Classical and Quantum Gravity*, Vol. 24, p. 2217-2229, 2007. Impact factor: 2.846

2. Refereed LSC publications I made notable contributions to:

[12] Abbott, R., ..., **Raffai, P.**, et al. (+1673 authors); “Constraints on the Cosmic Expansion History from GWTC-3”, *The Astrophysical Journal*, Vol. 949, Issue 2, id. 76, pp. 37, 2023. Impact factor: 4.8

[11] Abbott, R., ..., **Raffai, P.**, et al. (+1628 authors); “All-sky search for short gravitational-wave bursts in the third Advanced LIGO and Advanced Virgo run”, *Physical Review D*, Vol. 104, Issue 12, id. 122004, 2021. Impact factor: 5.407

[10] Abbott, B. P., ..., **Raffai, P.**, et al. (+1186 authors); “A Gravitational-wave Measurement of the Hubble Constant Following the Second Observing Run of Advanced LIGO and Virgo”, *The Astrophysical Journal*, Vol. 909, Issue 2, id. 218, 2021. Impact factor: 5.521

[9] Abbott, R., ..., **Raffai, P.**, et al. (+1252 authors); "GW190814: Gravitational Waves from the Coalescence of a 23 Solar Mass Black Hole with a 2.6 Solar Mass Compact Object", *The Astrophysical Journal Letters*, Vol. 896, Issue 2, id. L44, 2020. Impact factor: 7.413

[8] Abbott, B. P., ..., **Raffai, P.**, et al. (+1312 authors); “A gravitational-wave standard siren measurement of the Hubble constant”, *Nature*, doi:10.1038/nature24471, 2017. Impact factor: 41.577

[7] Abbott, B. P., ..., **Raffai, P.**, et al. (+3619 authors); “Multi-messenger Observations of a Binary Neutron Star Merger”, *The Astrophysical Journal Letters*, Vol. 848, aid. L12, 2017. Impact factor: 6.634

[6] Abbott, B. P., ..., **Raffai, P.**, et al. (+934 authors); “Search for Gravitational Waves Associated with Gamma-Ray Bursts During the First Advanced LIGO Observing Run and Implications for the Origin of GRB 150906B”, *The Astrophysical Journal*, Vol. 841, Number 2, 2017. Impact factor: 5.551

[5] Abbott, B. P., ..., **Raffai, P.**, et al. (+934 authors); “All-sky search for long-duration gravitational wave transients with initial LIGO”, *Physical Review D*, Vol. 93, Issue 4, id. 042005, 2016. Impact factor: 4.568

[4] Aasi, J., ..., **Raffai, P.**, et al. (+875 authors); “Search for long-lived gravitational-wave transients coincident with long gamma-ray bursts”, *Physical Review D*, Vol. 88, Issue 12, p. 122004, 2013. Impact factor: 4.864

[3] Evans, P. A., ..., **Raffai, P.**, et al. (+814 authors); “Swift Follow-up Observations of Candidate Gravitational-wave Transient Events”, *The Astrophysical Journal Supplement*, Vol. 203, Issue 2, p. 14, 2012. Impact factor: 16.238

[2] Abadie, J., ..., **Raffai, P.**, et al. (+813 authors); “Implementation and testing of the first prompt search for gravitational wave transients with electromagnetic counterparts”, *Astronomy & Astrophysics*, Vol. 539, p. A124, 2012. Impact factor: 5.084

[1] Abbott, B. P., ..., **Raffai, P.**, et al. (+664 authors); „Search for gravitational-wave bursts associated with gamma-ray bursts using data from LIGO Science Run 5 and Virgo Science Run 1“, *The Astrophysical Journal*, Vol. 715, p. 1438, 2010. Impact factor: 7.436

3. As member of the LIGO Scientific Collaboration (member since Fall 2007):

[199] Abbott, R., ..., **Raffai, P.**, et al. (+1665 authors); "Search for Gravitational-wave Transients Associated with Magnetar Bursts in Advanced LIGO and Advanced Virgo Data from the Third Observing Run", *The Astrophysical Journal*, Vol. 966, Issue 1, id. 137, pp. 32, 2024. Impact factor: 4.8*

- [198] Fletcher, C., ..., **Raffai, P.**, et al. (+1693 authors); "A Joint Fermi-GBM and Swift-BAT Analysis of Gravitational-wave Candidates from the Third Gravitational-wave Observing Run", *The Astrophysical Journal*, Vol. 964, Issue 2, id. 149, pp. 35, 2024. Impact factor: 4.8*
- [197] Abbott, R., ..., **Raffai, P.**, et al. (+1428 authors); "GWTC-2.1: Deep extended catalog of compact binary coalescences observed by LIGO and Virgo during the first half of the third observing run", *Physical Review D*, Vol. 109, Issue 2, aid. 022001, 2024. Impact factor: 4.6*
- [196] Abbott, R., ..., **Raffai, P.**, et al. (+1656 authors); "GWTC-3: Compact Binary Coalescences Observed by LIGO and Virgo during the Second Part of the Third Observing Run", *Physical Review X*, Vol. 13, Issue 4, aid. 041039, 2023. Impact factor: 11.6
- [195] Abbott, R., ..., **Raffai, P.**, et al. (+1654 authors); "Search for Gravitational Waves Associated with Fast Radio Bursts Detected by CHIME/FRB during the LIGO-Virgo Observing Run O3a", *The Astrophysical Journal*, Vol. 955, Issue 2, id. 155, pp. 26, 2023. Impact factor: 4.8
- [194] Abbott, R., ..., **Raffai, P.**, et al. (+1739 authors); "Open Data from the Third Observing Run of LIGO, Virgo, KAGRA, and GEO", *The Astrophysical Journal Supplement*, Vol. 267, Issue 2, id. 29, pp. 28, 2023. Impact factor: 8.6
- [193] Abbott, R., ..., **Raffai, P.**, et al. (+1697 authors); "Search for subsolar-mass black hole binaries in the second part of Advanced LIGO's and Advanced Virgo's third observing run", *Monthly Notices of the Royal Astronomical Society*, Vol. 524, Issue 4, p. 5984, 2023. Impact factor: 4.8
- [192] Abbott, R., ..., **Raffai, P.**, et al. (+1652 authors); "Population of Merging Compact Binaries Inferred Using Gravitational Waves through GWTC-3", *Physical Review X*, Vol. 13, Issue 1, aid. 011048, 2023. Impact factor: 11.6
- [191] Abbott, R., ..., **Raffai, P.**, et al. (+1690 authors); "Model-based Cross-correlation Search for Gravitational Waves from the Low-mass X-Ray Binary Scorpius X-1 in LIGO O3 Data", *The Astrophysical Journal Letters*, Vol. 941, Issue 2, id. L30, pp. 19, 2022. Impact factor: 7.9
- [190] Abbott, R., ..., **Raffai, P.**, et al. (+1667 authors); "All-sky search for continuous gravitational waves from isolated neutron stars using Advanced LIGO and Advanced Virgo O3 data", *Physical Review D*, Vol. 106, Issue 10, aid. 102008, 2022. Impact factor: 5.0
- [189] Abbott, R., ..., **Raffai, P.**, et al. (+1665 authors); "Search for gravitational waves from Scorpius X-1 with a hidden Markov model in O3 LIGO data", *Physical Review D*, Vol. 106, Issue 6, aid. 062002, 2022. Impact factor: 5.0
- [188] Abbott, R., ..., **Raffai, P.**, et al. (+1415 authors); "Search for Subsolar-Mass Binaries in the First Half of Advanced LIGO's and Advanced Virgo's Third Observing Run", *Physical Review Letters*, Vol. 129, Issue 6, aid. 061104, 2022. Impact factor: 8.6
- [187] Abbott, R., ..., **Raffai, P.**, et al. (+1665 authors); "Search for continuous gravitational wave emission from the Milky Way center in O3 LIGO-Virgo data", *Physical Review D*, Vol. 106, Issue 4, aid. 042003, 2022. Impact factor: 5.0
- [186] Abbott, R., ..., **Raffai, P.**, et al. (+1694 authors); "Searches for Gravitational Waves from Known Pulsars at Two Harmonics in the Second and Third LIGO-Virgo Observing Runs", *The Astrophysical Journal*, Vol. 935, Issue 1, id. 1, pp. 23, 2022. Impact factor: 4.9
- [185] Abbott, R., ..., **Raffai, P.**, et al. (+1625 authors); "All-sky, all-frequency directional search for persistent gravitational waves from Advanced LIGO's and Advanced Virgo's first three observing runs", *Physical Review D*, Vol. 105, Issue 12, aid. 122001, 2022. Impact factor: 5.0

- [184] Abbott, R., ..., **Raffai, P.**, et al. (+1667 authors); "First joint observation by the underground gravitational-wave detector KAGRA with GEO 600", *Progress of Theoretical and Experimental Physics*, Vol. 2022, Issue 6, id. 063F01, pp. 37, 2022. Impact factor: 7.492
- [183] Abbott, R., ..., **Raffai, P.**, et al. (+1657 authors); "Narrowband Searches for Continuous and Long-duration Transient Gravitational Waves from Known Pulsars in the LIGO-Virgo Third Observing Run", *The Astrophysical Journal*, Vol. 932, Issue 2, id. 133, pp. 27, 2022. Impact factor: 4.9
- [182] Abbott, R., ..., **Raffai, P.**, et al. (+1665 authors); "All-sky search for gravitational wave emission from scalar boson clouds around spinning black holes in LIGO O3 data", *Physical Review D*, Vol. 105, Issue 10, id. 102001, 2022. Impact factor: 5.0
- [181] Abbott, R., ..., **Raffai, P.**, et al. (+1410 authors); "Search of the early O3 LIGO data for continuous gravitational waves from the Cassiopeia A and Vela Jr. supernova remnants", *Physical Review D*, Vol. 105, Issue 8, id. 082005, 2022. Impact factor: 5.0
- [180] Abbott, R., ..., **Raffai, P.**, et al. (+1633 authors); "Search for Gravitational Waves Associated with Gamma-Ray Bursts Detected by Fermi and Swift during the LIGO-Virgo Run O3b", *The Astrophysical Journal*, Vol. 928, Issue 2, id. 186, pp. 20, 2022. Impact factor: 4.9
- [179] Abbott, R., ..., **Raffai, P.**, et al. (+1625 authors); "Constraints on dark photon dark matter using data from LIGO's and Virgo's third observing run", *Physical Review D*, Vol. 105, Issue 6, id. 063030, 2022. Impact factor: 5.0
- [178] Abbott, R., ..., **Raffai, P.**, et al. (+1629 authors); "Search for intermediate-mass black hole binaries in the third observing run of Advanced LIGO and Advanced Virgo", *Astronomy & Astrophysics*, Vol. 659, id. A84, pp. 25, 2022. Impact factor: 6.5
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