

Peter Raffai

Curriculum Vitae

CONTACT

Institute of Physics
Eotvos Lorand University
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OUTLINE

I currently work as an assistant professor at Eotvos University, Budapest. Since 2007, I have been a member of the [LIGO Scientific Collaboration \(LSC\)](#), which is a worldwide community of scientists working in various fields of gravitational-wave physics.

My research interests include gravitational-wave astrophysics, multi-messenger astronomy, compact objects, gamma-ray bursts, and various aspects of signal and image processing.

My professional skills range from scientific theory and computer programming to machine shop practice and building electronics.

I have learned teamwork and scientific management skills by leading the data analysis efforts of the [LSC group at Eotvos University](#), Hungary, since 2007.

I have been demonstrating my active commitment to scientific outreach by giving public lectures, popularizing science through media appearances, and mentoring students at many academic levels.

WORK EXPERIENCE

Eötvös Loránd University
Assistant Professor
Summer 2014 – Present

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

Eötvös Loránd University Spring 2013 – Summer 2014
Assistant Lecturer

Columbia University Fall 2011 – Spring 2013
Postdoctoral Research Scientist

Eötvös Loránd University Spring 2010 – Fall 2011
Assistant Lecturer

EDUCATION

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

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

TRAINING PROGRAMS

Visiting scientist at the LIGO Hanford and Livingston sites **May 2012**

Visiting scientist at the LIGO Hanford site **January 2012**

Trained expert in the [LVC LUMIN program](#) **August 2010**

Visiting scientist at Columbia University **July 2010**

Science monitoring expert at the LIGO Livingston site **June 2010**

Science monitoring expert at the LIGO Livingston site **September 2009**

Visiting student at Columbia University **January-March 2007**

Visiting student at Columbia University **June-August 2006**

Visiting student at California Institute of Technology **June-July 2004**

AWARDS & GRANTS (since PhD)

Grant for Young Researchers in Higher Education,
New National Excellence Program (ÚNKP)
(granted by the Hungarian Ministry of Human Capacities) **September 2017**

Royal Astronomical Society
Group Achievement Award ‘A’
(as a member of the LIGO-Virgo Collaboration) **June 2017**

Princess of Asturias Award for
Technical and Scientific Research
(as a member of the LIGO-Virgo Collaboration) **June 2017**

Academic Youth Award
(granted by the Hungarian Academy of Sciences) **January 2017**

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| 2016 Gruber Foundation Cosmology Prize (as a member of the LIGO-Virgo Collaboration) | May 2016 |
| Special Breakthrough Prize in Fundamental Physics (as a member of the LIGO-Virgo Collaboration) | May 2016 |
| Albert Szent-Gyorgyi Award | December 2015 |
| János Bolyai Research Grant | September 2014 - August 2016 |
| Pál Erdős Grant for Young Researchers | March - July 2014 |

PROFESSIONAL ACTIVITIES

I am member of the Burst Advisory Board of the LIGO-Virgo Collaboration, which is a forum of delegated LVC members playing active roles in LVC's burst search activities. The board discusses long-term plans and strategies for the Burst Working Group through telecons held on an average of 1/month basis.

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 I have been leading it again since 2013.

I was the founder of the [Bolyai Intellectual Forum](#) at Bolyai College, Budapest, Hungary, and I was the lead organizer of its weekly discussion panels between 2005-2009.

I was the co-founder and lead organizer of the Astro Pizza Lunch seminar lectures held in English at Eötvös Loránd University between 2007-2011.

TEACHING EXPERIENCE

Fall Semester Courses:

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|---|-------------------------|
| Introduction to Astronomy (Physics+X Teacher BSc) | 2013- |
| Cosmology (Physics MSc/PhD) | 2010-2011, 2013- |
| Introduction to Astrophysics (Physics BSc) | 2014-2015 |

Spring Semester Courses:

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|---|-------------------------|
| Gravitational-wave Astrophysics (Physics MSc/PhD) | 2010-2011, 2013- |
| Galactic Dynamics (Physics MSc/PhD) | 2013-2015 |

Seminars (Fall & Spring Semester):

Unsolved Probl. in Astrophys. (Physics BSc/MSc/PhD) **Spring 2015-**

Laboratory Practices:

Experiments in Environmental Phys. (Environ. Sc. BSc) **Spring 2013-**

Applied Methods in Physics (Physics BSc) **Fall 2013**

Nuclear Physics and Radiology (Physics MSc) **Fall 2007**

Teaching Assistance:

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.)

Gergely Dalya (MSc diploma):

“Development of a galaxy catalog and its application in identifying host galaxies of electromagnetic and GW transients” (in Hungarian) **Spring 2017**

Daniel Erdei (MSc diploma):

“Mapping the local universe with Pan-STARRS and GLADE catalogs” (in Hungarian) **Spring 2017**

Andor Budai (MSc diploma):

“Statistical method to test the movement of the gamma-ray burst jets” (in Hungarian) **Spring 2017**

Janos Takatsy (BSc diploma):

“Opportunity to test globular cluster models with future detections of gravitational waves from eccentric binary black holes” (in Hungarian) **Spring 2017**

Gergely Dalya & Gabor Galgoczi (undergrad research):

“Construction of a galaxy catalog and its application in identifying hosts for EM transients of GW transients”

(in Hungarian); Won 1st prize on the Conference of Scientific Students'

Associations (TDK) and 2nd prize on the XXXIII. National Conference of Scientific Students' Associations (OTDK). **Fall 2015 – Summer 2017**

Bence Becsy (BSc diploma):

“Extracting astrophysical information from detections of gravitational-wave bursts”
(in Hungarian)

Spring 2016

Janos Takatsy (undergrad research):

“Testing globular cluster models with gravitational-wave detections of eccentric binary black holes”

(in Hungarian); Won 3rd prize on Conference of Scientific Students' Associations (TDK) and a special prize on the XXXIII. National Conference of Scientific Students' Associations (OTDK).

Fall 2015 – Summer 2017

Bence Becsy (undergrad research):

“Dynamical interactions between pulsars and their companions in binary systems”

(in Hungarian); Won 3rd prize on Conference of Scientific Students' Associations (TDK).

Fall 2014

Akos Szolgyen (BSc diploma):

“Optimal networks of detectors in gravitational-wave astronomy” (in Hungarian)

Spring 2014

Zoltan Tajkov (BSc diploma):

“The physics of highly eccentric binaries”
(in Hungarian)

Spring 2014

Balazs Banto (BSc diploma):

“The $h_{\mu\nu}$ - $h(t)$ transfer function of interferometric gravitational-wave detectors” (in Hungarian)

Fall 2013

Orsolya Kovacs (BSc diploma):

“Multimessenger astronomy using gravitational-wave and X-ray detectors” (in Hungarian)

Fall 2012

Gabor Angler (BSc diploma):

“Analyzing interferometric gravitational-wave detector data in time-frequency space”

(in Hungarian)

Spring 2010

Daniel Barta (undergrad research):

“Investigations on the propagation and dispersion of gravitational waves within interstellar matter” (in Hungarian); Won 1st prize on National Conference of Scientific Students' Associations (OTDK).

Spring 2008

David Cseh & Jozsef Varga (undergrad research): *“The ‘old photon’ problem – Calibrating inteferometric gravitational-wave detectors using light pressure”* (in Hungarian);

Won 4th prize on National Conference of Scientific Students' Associations (OTDK).

Spring 2008

ADDITIONAL SKILLS

Expert level programming in **Matlab** and **C/C++**.

Basic level programming in **Java**, **R**, and **Netlogo**.

Expert level language skills in **English**.

Intermediate level language skills in **German**.

I have completed a non-degree program of **Physics Machine Shop Class** training at Columbia University (lathe, milling machine, band saw, drilling machine, sander).

I have completed the following non-degree online courses on [Coursera](#):

Statistics (Princeton University)

Social Network Analysis (University of Michigan)

Astronomy (Duke University)

Galaxies and Cosmology (Caltech)

CONFERENCE PARTICIPATION

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

„Extracting astrophysical information from gravitational-wave transient detections”

Invited talk at the Balaton Summer School in Physics,

- Siófok, Hungary **19 July 2017**
- „Optimizations for Future Gravitational-wave Detectors' Sites”*
- Talk at the 8th Einstein Telescope Symposium,
Birmingham, UK **28 March 2017**
- „A statistical method for detecting gravitational recoils of supermassive black holes in active galactic nuclei”*
- Talk at the “New Frontiers in Black Hole Astrophysics” IAU Symposium 324, Ljubljana, Slovenia **Sept. 2016**
- „Optimization of Future Gravitational-Wave Detector Networks”*
- Invited talk at the “The New Detectors for Gravitational-Wave Astronomy” Workshop at KITPC, Beijing China **April 2015**
- „Optimal Network Configurations for Future Gravitational-Wave Detectors”*
- Talk at the 10th Amaldi Conference on Gravitational Waves
Warsaw, Poland **July 2013**
- „A Tool for Finding Optimal Networks of Future Gravitational-wave Detectors”*
- Talk at the Beijing Gravitational Waves Workshop
Beijing, China **June 2013**
- „Search for long gravitational-wave transients from gamma-ray bursts during LIGO S5 and S6 runs”*
- Poster; Gravitational-wave Physics & Astronomy Workshop
Milwaukee, USA **January 2011**
- „Searching for narrowband gravitational-wave signals with the IM Pipeline”*
- Talk at the „From Planets to Galaxies” Workshop
Budapest, Hungary **July 2010**
- „A spectrum comparison tool for LIGO PEM channel data”*
- Poster at the LSC-Virgo Meeting
Arcadia, USA **March 2010**

„An X-ray source catalog for joint LIGO-Virgo-Swift observations”

Poster at the LSC-Virgo Meeting
Arcadia, USA

March 2010

„An Infrasound Monitoring Device for the LIGO PEM System”

Poster at the LSC-Virgo Meeting
Arcadia, USA

March 2010

„A 2D Cross-correlational Veto Method for Incoherent Gravitational Wave Data Analysis Pipelines”

Poster at the LSC-Virgo Meeting
Arcadia, USA

March 2010

„Compact binary waveform recovery from the cross-correlated data of two detectors by matched filtering with spinning templates”

Poster; 14th Gravitational Wave Data Analysis Workshop
Rome, Italy

January 2010

„Time-frequency methods for long duration burst searches”

Talk at the LSC-Virgo Meeting
Budapest, Hungary

September 2009

„Searching for poorly modeled signals with limited duration in gravitational wave detector data”

Talk at the 5th Workshop of Young Researchers in Astronomy and Astrophysics
Budapest, Hungary

September 2009

„Einstein’s Symphony – the Gravitational Waves”

Talk at the Balaton Summer School in Physics
Balatongyörök, Hungary

July 2009

„Recovering spinning waveforms with spinning templates”

Poster at the 8th Edoardo Amaldi Conference
New York, USA

June 2009

„Overview on the student research activity of the Eötvös Gravity Research Group”

Talk at the 3rd VESF School on Gravitational Waves

Cascina, Italy **May 2008**

„Einstein szimfóniája – a gravitációs hullámok”

Talk at the Bolyai Conference
Budapest, Hungary

April 2008

„Nem-newtoni gravitációs perturbációk dinamikai mérése interferometrikus gravitációshullám-detektorokkal”

Talk at the Annual Meeting of Hungarian Physicists
Eger, Hungary

August 2007

„New Astrophysics and Search Techniques in Gravitational-Wave Observation”

Talk at Astroparticle Physics: Current Issues
Budapest, Hungary

June 2007

„Search Method for Quasi-Monochromatic Gravitational Wave Signals in Time-Frequency Space”

Poster; 11th Gravitational Wave Data Analysis Workshop
Potsdam, Germany

December 2006

„Yukawa-típusú Gravitációs Perturbációk Dinamikai Mérése Interferometrikus Gravitációshullám-detektorok Segítségével”

Talk at the Theoretical Physics Summer School
Gyöngyöstarján, Hungary

August 2006

„Yukawa-like Potential Tests Using Dynamic Gravity Gradients in Interferometric Gravitational Wave Detectors”

Talk at the 11th Marcell Grossmann Meeting
Berlin, Germany

July 2006

SEMINARS & OUTREACH TALKS

„Csillagászat gravitációs hullámokkal”

Invited outreach talk in the „From Atoms to Stars”
lecture series, Eötvös Loránd University
Budapest, Hungary

6 April 2017

*„Új ablak a világegyetemre:
csillagászat gravitációs hullámokkal”*

Invited outreach talk in the „Modern physics made plain”
lecture series, Eötvös Loránd University
Budapest, Hungary

17 Nov. 2016

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| Invited outreach talk at ELTE KCSSK's Kultúr7 event Budapest, Hungary | 15 Nov. 2016 |
| Invited outreach talk at the Öveges József National Physics Competition Tata, Hungary | 12 Nov. 2016 |
| Invited talk at the "Egy kis esti fizika" lecture series Pécs, Hungary | 9 Nov. 2016 |
| Invited outreach talk at Leówey Klára Secondary School Pécs, Hungary | 9 Nov. 2016 |
| Invited outreach talk at the Hungarian Office for Mining and Geology Budapest, Hungary | 18 Oct. 2016 |
| Invited outreach talk at Pazmany Peter Catholic University Faculty of Information Technology and Bionics Budapest, Hungary | 28 Sept. 2016 |
| Invited outreach talk at the 5th Eötvös Summer School Budapest, Hungary | 26 July 2016 |
| Invited outreach talk at Számalk Training Center Budapest, Hungary | 16 June 2016 |
| <i>„Hosszú tranziensek keresése és többcsatornás csillagászat gravitációshullám-detektorokkal – az ELTE részvétele a LIGO projektben”</i> | |
| Seminar talk at the Hungarian Academy of Sciences Budapest, Hungary | 5 May 2016 |
| <i>„Új ablak a világegyetemre: csillagászat gravitációshullám-detektorokkal”</i> | |
| Invited outreach talk at the XXVI. Schwartz Memorial Physics Competition Oradea, Romania | 15 Oct. 2016 |
| “Jeges Tea” Event organized by the Association of Hungarian Physics Students Pécs, Hungary | 3 May 2016 |
| Seminar talk for participants of the Sandor Mikola National Physics Competition Pécs, Hungary | 3 May 2016 |
| Karoly Simonyi Conference, Budapest University of Technology and Economics | |

- Budapest, Hungary **20 April 2016**
- „A világegyetem zenéje: csillagászat gravitációs hullámokkal”*
 “A Fizika Mindenkié” Event
 Budapest, Hungary **15 April 2016**
- Seminar talk for teachers at the Leo Szilard
 National Physics Competition
 Paks, Hungary **9 April 2016**
- „A New Window to the Universe: Gravitational Waves”*
 Milestone Institute Budapest
 Budapest, Hungary **31 March 2016**
- „Új ablak a világegyetemre: gravitációs hullámok”*
 Budapest Science Meetup
 Budapest, Hungary **10 March 2016**
- „Hogyan építsünk időgépet?”*
 Researcher’s Night Event
 Budapest, Hungary **25 September 2015**
- „A New Window to the Universe: Gravitational Waves”*
 Balaton Summer School in Physics
 Balatonalmádi, Hungary **24 July 2015**
- „Gravitációshullám-asztrófizika:
 Úton egy új tudományterület felé”*
 ELTE Hungarian Summer Univ. in the Carpathian Basin
 Budapest, Hungary **9 July 2015**
- „The Science of Interstellar”*
 Screening and public lecture in Hungarian on the movie
Interstellar organized by *Premier MoziMagazin* magazine.
 Budapest, Hungary **22 January 2015**
- „Hogyan építsünk időgépet?”*
 “Tanulni érdemes!” event for primary school students, TVT
 Pécs, Hungary **28 Nov. 2014**
- „Kozmikus dallam a múltból – Hogyan fedezte fel a
 BICEP2 gravitációs hullámok nyomát?”*
 Budapest Science Meetup

- Budapest, Hungary **10 April 2014**
- „Gravitációshullám-asztrófizika: útban egy új tudományterület születése felé”*
- Wigner Seminar Series, Budapest Univ. of Technology
Budapest, Hungary **13 March 2014**
- „Gravitációshullám-asztrófizika: lépések egy új tudományterület felé”*
- Ortvay Seminar Series, Eötvös University
Budapest, Hungary **24 February 2014**
- „A gravitációshullám-asztrófizika alapjai”*
- “Gravitációs Hullám Nap” event, Eötvös University
Budapest, Hungary **23 July 2013**
- „Magyar részvétel a LIGO Kollaborációban”*
- “Gravitációs Hullám Nap” event, Eötvös University
Budapest, Hungary **23 July 2013**
- „Magyar részvétel a LIGO-projektben: Budapest-Szeged-Debrecen”*
- National Conference of Scientific Students’
Associations Workshop (TDK Hétvége), Eötvös
University
Budapest, Hungary **4 May 2013**
- „Optimal Networks of Future Gravitational-Wave Telescopes”*
- Astronomy Seminar, Columbia University
New York, USA **12 October 2012**
- „LIGO participation in Hungary: The Budapest-Szeged-Debrecen Collaboration”*
- KöMaL Ankét, Eötvös University
Budapest, Hungary **7 November 2010**
- „LIGO participation in Hungary: The Budapest-Szeged-Debrecen Collaboration”*
- ASPERA Hungarian National Day, NKTH Office
Budapest, Hungary **15 October 2010**

„Tudományos Műszakfelügyelet a LIGO livingstoni állomásán”

Seminar talk, Eötvös University
Budapest, Hungary

December 2009

„Gravitációs hullám kitörések keresése idő-frekvencia térben”

Bolyai Physics Seminar, Bolyai College
Budapest, Hungary

September 2009

„Time-frequency methods in gravitational wave burst searches”

Astro Pizza Lunch, Eötvös University
Budapest, Hungary

September 2009

„Search techniques for narrow-band burst signals in gravitational wave detector data”

Seminar talk, KFKI-RMKI
Budapest, Hungary

April 2009

„Einstein szimfóniája: a gravitációs hullámok”

Invited talk at the “Egy kis esti fizika” lecture series
Pécs, Hungary

January 2009

„Gravitációs hullámok”

Bolyai Physics Seminar, Bolyai College
Budapest, Hungary

October 2007

„Gravitációs Hullámok”

Invited talk at the National Conference of Scientific Students’
Associations Workshop (TDK Hétvége)
Pécs, Hungary

October 2007

SCIENCE METRICS

| | |
|---|----------------|
| Number of publications: | 133 |
| Number of refereed publications: | 118 |
| Total sum of impact factors: | 724.366 |
| Number of citations (source: MTMT): | 10 990 |
| Number of independent citations (source: MTMT): | 4451 |
| H-index from all citations (source: MTMT): | 46 |
| H-index from independent citations (source: MTMT): | 25 |

PUBLICATIONS

1. Refereed publications:

[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: 5.533*

[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: 3.119*

[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. LSC publications I made notable contributions to:

[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: 5.533*

[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):

[99] Albert, A., ... **Raffai, P.**, et al. (+1415 authors); “Search for high-energy neutrinos from gravitational wave event GW151226 and candidate LVT151012 with ANTARES and IceCube”, *Physical Review D*, Vol. 96, Issue 2, id.022005, 2017. Impact factor: 4.568*

- [98] Martynov, D.V., ... **Raffai, P.**, et al. (+201 authors); "Quantum correlation measurements in interferometric gravitational-wave detectors", *Physical Review A*, Vol. 95, Issue 4, id. 043831, 2017. Impact factor: 2.925*
- [97] Abbott, B. P., ... **Raffai, P.**, et al. (+954 authors); "Search for intermediate mass black hole binaries in the first observing run of Advanced LIGO", *Physical Review D*, Vol. 96, Issue 2, id. 022001, 2017. Impact factor: 4.568*
- [96] Abbott, B. P., ... **Raffai, P.**, et al. (+954 authors); "Search for gravitational waves from Scorpius X-1 in the first Advanced LIGO observing run with a hidden Markov model", *Physical Review D*, Vol. 95, Issue 12, id. 122003, 2017. Impact factor: 4.568*
- [95] Abbott, B. P., ... **Raffai, P.**, et al. (+954 authors); "GW170104: Observation of a 50-Solar-Mass Binary Black Hole Coalescence at Redshift 0.2", *Physical Review Letters*, Vol. 118, Issue 22, id. 221101, 2017. Impact factor: 8.462*
- [94] Abbott, B. P., ... **Raffai, P.**, et al. (+954 authors); "Search for continuous gravitational waves from neutron stars in globular cluster NGC 6544", *Physical Review D*, Vol. 95, Issue 8, id. 082005, 2017. Impact factor: 4.568*
- [93] Abbott, B. P., ... **Raffai, P.**, et al. (+1000 authors); "Effects of waveform model systematics on the interpretation of GW150914", *Classical and Quantum Gravity*, Vol. 34, Issue 10, id. 104002, 2017. Impact factor: 3.119*
- [92] Blair, C., ... **Raffai, P.**, et al. (+202 authors); "First Demonstration of Electrostatic Damping of Parametric Instability at Advanced LIGO", *Physical Review Letters*, Vol. 118, Issue 15, id.151102, 2017. Impact factor: 8.462*
- [91] Abbott, B. P., ... **Raffai, P.**, et al. (+721 authors); "Calibration of the Advanced LIGO detectors for the discovery of the binary black-hole merger GW150914", *Physical Review D*, Vol. 95, Issue 6, id. 062003, 2017. Impact factor: 4.568*
- [90] Abbott, B. P., ... **Raffai, P.**, et al. (+1004 authors); "First Search for Gravitational Waves from Known Pulsars with Advanced LIGO", *The Astrophysical Journal*, Vol. 839, Issue 1, id. 12, 2017. Impact factor: 5.533*
- [89] Abbott, B. P., ... **Raffai, P.**, et al., "Upper Limits on the Stochastic Gravitational-Wave Background from Advanced LIGO's First Observing Run", *Physical Review Letters*, Vol. 118, Issue 12, id. 121101, 2017. Impact factor: 8.462*
- [88] Abbott, B. P., ... **Raffai, P.**, et al., "Directional Limits on Persistent Gravitational Waves from Advanced LIGO's First Observing Run", *Physical Review Letters*, Vol. 118, Issue 12, id. 121102, 2017. Impact factor: 8.462*
- [87] Abbott, B. P., ... **Raffai, P.**, et al., "Exploring the Sensitivity of Next Generation Gravitational Wave Detectors", *Classical and Quantum Gravity*, Vol. 34, Issue 4, id. 044001, 2017. Impact factor: 3.119*

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