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Paolo Pani

Curriculum Vitae

*Updated on February 8, 2019. Latest version available on my personal webpage **(link)**.*

Personal information

Full Name **Paolo Pani**.
Place of Birth **Cagliari (Italy)**.
Date of Birth **March 9th, 1984**.
Nationality **Italy**.

Current position

Nov 2018– now **Associate Professor**, Sapienza University of Rome, Rome (IT).

Past positions

Nov 2015– Oct 2018 **Assistant Professor (tenure track)**, *(RTDb)*, Sapienza University of Rome, Rome (IT).

Jan 2015 - Oct 2015 **Marie Curie Intra-European Fellow**, *AstroGRAphy-2013-623439*, Sapienza University of Rome, Rome (IT).

Jan 2014–Dec 2014 **Research Scientist**, *5-year FCT Investigator Starting Grant position* ***(link)***, Instituto Superior Técnico, Lisbon (PT).

Jan 2013 - Jan 2014 **Visiting Researcher**, *Harvard-Smithsonian Center for Astrophysics*, Cambridge MA (USA).

Jun 2012 - Jan 2014 **Marie Curie Intra-European Fellow**, *aStronGR-2011-298297*, Instituto Superior Técnico, Lisbon (PT).

Jan 2011 - May 2012 **Postdoctoral researcher**, *CENTRA*, Instituto Superior Técnico, Lisbon (PT).

Education

2018 **National Scientific Habilitation**, *"Abilitazione scientifica Nazionale"*, for the position of Full Professor in Theoretical Physics ("settore 02/A2"), **(link)**.

2015 **National Scientific Habilitation**, *"Abilitazione scientifica Nazionale"*, for the position of Associate Professor in Theoretical Physics ("settore 02/A2"), **(link)**.

2007–2010 **Ph.D. Degree**, *Theoretical Astrophysics and High Energy Physics*, Università di Cagliari, Thesis title: *Applications of perturbation theory in black hole physics* **(link)**.
Advisor: Mariano Cadoni

2005–2007 **Master Degree**, *Particle Physics and Astrophysics*, Università di Cagliari, *110/110 cum laude*.
Thesis title: *Ergoregion instability of black hole mimickers*

2002–2005 **Bachelor Degree**, *Physics*, Università di Cagliari, *110/110 cum laude*.

Awards, Honors & Fellowships

2016 **SIGRAV Prize**, ***(link)***, Italian Society for Gravitation (SIGRAV).

2015 **"Outstanding Referee" award from American Physical Society** , ***(link)***.

2014-2016 **Marie Curie Intra-European Fellowship (contract AstroGRAphy-2013-623439S, 180K euro)**, *European Community*, (rating: 93.80, excellent).

2012-2014 **Marie Curie Intra-European Fellowship (contract aStronGR-2011-298297, 150K euro)**, *European Community*, (rating 91.30, excellent).

2011 **Honorable Mention for the Gravitational Wave International Committee Thesis Prize**, *GWIC*.

2011 **Fubini Prize (best Ph.D. thesis in theoretical physics)**, *INFN*.

2008-2010 **Ph.D. National Fellowship**, *Italy*.

2008 **Master & Back Fellowship**, *Regione Sardegna*.

2004-2005 **Best graduation prize**, *Università di Cagliari*.

Funding ID

Principal Investigator of the following ongoing projects:

2018 **FunGraW–792862 [H2020-MSCA-IF-2017]**, *Fundamental physics in the era of gravitational-wave astronomy*; 169K euro, funded by **European Union H2020**.
(supervisor of the Experienced Researcher Richard Brito)

2017 **DarkGRA–757480 [ERC-2017-StG]**, *Unveiling the dark universe with gravitational waves* ***(link)***; 1.34M euro, funded by **European Research Council**.

2017 **Fondi d'Ateneo**, *Gravitational waves as probes of fundamental physics*; 13.8K euro, funded by **Sapienza University of Rome**.

Principal Investigator of the following finished projects:

2017 **Workshop funded**, *New Frontiers in Gravitational-Wave Astrophysics* ***(link)***; 4K euro, funded by **Sapienza University of Rome**, Rome (Italy).

2014-2016 **FP7-PEOPLE-IEF (Marie Curie) AstroGRAphy-2013-623439S**, *Marie Curie Intra-European Fellowship*; 180K euro, funded by the European Community.
rating: 93.80, excellent

2014 **Workshop funded** , *Compact Objects as Astrophysical and Gravitational Probes*; 8K euro, funded by **the Lorentz Center**, Leiden (The Netherlands).
co-PI with Enrico Barausse, Tamara Bogdanovic, Vitor Cardoso, Elena Maria Rossi.

2014-2018 **IF/00293/2013**, *FCT Investigator Starting Grant **(link)**, "Gravity, Fundamental Physics and Astrophysics: The Missing Link"; 200K euro*, funded by the Portuguese Foundation for Science and Technology (FCT).
rating 9/9

2012-2014 **FP7-PEOPLE-IEF (Marie Curie) AstronGR-2011-298297**, *Marie Curie Intra-European Fellowship*; 150K euro, funded by the European Community.
rating: 91.30, excellent

2012-2014 **CERN/FP/123593/2011**, *"Strong curvature corrections to General Relativity: consequences for astro- and particle physics", 10K euro*, jointly funded by CERN and the Portuguese Foundation for Science and Technology (FCT).
rating: very good

I am collaborating (or have collaborated) within the following projects:

2016-2019 **Marie Skłodowska-Curie Research and Innovation Staff Exchange**, *(RISE) Action*, "Strong Gravity and High-Energy Physics" [H2020-MSCA-RISE-2015], 160K euro.
Team member

2012-2015 **MARIE CURIE-FP7-PEOPLE-2011-IRSES**, *International Research Staff Exchange Scheme (IRSES)*, *"Numerical Relativity and High Energy Physics"*, 160K euro.
Team member

2012 **Barcelona Supercomputing (BSC)**, *AECT-2012-3-0012*, *"Weighing light with supermassive black holes"*, 133 kCPU hours.

2011 **Barcelona Supercomputing (BSC)**, *AECT-2012-2-0005*, *"Black hole dynamics in alternative theories of gravity"*, 30 kCPU hours.

2011 **PRACE-DECI 7**, *"BlackHoles"*, 4.2 million CPU-hours.

2011 **Barcelona Supercomputing (BSC)**, *AECT-2011-2-0015*, *"Black hole dynamics in alternative theories of gravity"*, 100 kCPU hours.

2011 **HoloGrav Network**, *"Holographic methods for strongly coupled systems"*, Cagliari U., Italian node.

2010 **CENTRA, Lisbon. PTDC/FIS/098025/2008**, *"Numerical Relativity and the AdS/CFT correspondence"*.

2009 **CENTRA, Lisbon. PTDC/FIS/098032/2008**, *"Astrophysics and fundamental physics with gravitational wave detectors"*.

Experience

Lecturer of university courses

Spring 2018 **Lecturer of "Advanced Newtonian Gravity" [mini course for "Percorso d'Eccellenza"]**, *Department of Physics, Rome U. Sapienza*.

Fall 2017-now **Lecturer of "Quantum Field Theory for Astrophysics" [grad course]**, *Department of Physics, Rome U. Sapienza*.

Fall 2016-now **Lecturer of "Scientific Programming" [undergrad course]**, *Department of Physics, Rome U. Sapienza*.

Spring 2016-2017 **Lecturer of "Electromagnetism" [undergrad course]**, *Department of Geology, Rome U. Sapienza*.

2015 **Senior teaching associate for "Electromagnetism" [undergrad course]**, *Department of Physics, Rome U. Sapienza*.

Spring 2012 **"Module on Compact Objects"**, *Instituto Superior Técnico*.

Fall 2011 **"Minicourse on Cosmology"**, *Instituto Superior Técnico*.

Spring 2010 **Teaching assistant for "Electromagnetism"**, *Cagliari University*.

Fall 2009 **Teaching assistant for "Geometry for physicists"**, *Cagliari University*.

Lecturer at Schools

Aug 2018 **"ICTS Summer School on Gravitational-Wave Astronomy" (declined)**, *ICTS Bangalore (India)*.

Sep 2017 **"Probing Dark Matter with Black Hole Superradiance and Gravitational Waves"**, *9th Aegean Summer School, Sifnos (Greece)*.

Dec 2016 **"Black-hole Quasinormal Modes and Ringdown"**, *XII Avogadro Meetings at Perugia U. (Italy)*.

Sep 2016 **"Advanced course on Gravitational Waves"**, *Invisible16 School at SISSA*.

Sep 2016 **"Special Course on Gravitational Waves"**, *8th School of Astrophysics and Gravitation at Instituto Superior Técnico*.

Fall 2014 **"Advanced course on Gravitational Waves"**, *7th School of Astrophysics and Gravitation at Instituto Superior Técnico*.

Spring 2013 **"Advanced Methods in Black-Hole Perturbation Theory"**, *Invited lecturer at the NR/HEP2: Spring School*, **(link)**.

Fall 2012 **"Minicourse on Gravitational Waves"**, *6th School of Astrophysics and Gravitation at Instituto Superior Técnico*.

Training experience

2018-2021 **Advisor of Elisa Maggio**, *Sapienza University of Rome*, (PhD student).

2017-2020 **Advisor of Guilherme Raposo**, *Sapienza University of Rome*, (PhD student).

2017-2018 **Advisor of Adriano Testa, Adriana Foschi, Giuseppe Lingetti, Emanuele D'Angelo**, *Sapienza University of Rome*, (master student).

2016-2017 **Advisor of Giulia Ventagli, Giuseppe Ficarra (now moving to King's College London), Davide Guerra**, *Sapienza University of Rome*, (master student).

2015-2016 **Advisor of Laura Sberna**, *Sapienza University of Rome*, (master student, now PhD student at Perimeter Institute with Neil Turok).

2015-2016 **Advisor of Nicola Franchini**, *Sapienza University of Rome*, (master student, now PhD student at Nottingham University with Thomas Sotiriou).

2015-2016 **Advisor of Elisa Maggio**, *Sapienza University of Rome*, (master student, now PhD student at Sheffield University with Sam Dolan).

2014-2015 **Advisor of Gonçalo Guiomar**, *Instituto Superior Técnico*, (master student).

2011-2015 **Co-advisor of Richard Pires Brito**, *Instituto Superior Técnico*, (Ph.D. IDPASC fellow, now postdoc at AEI, Postdam with Alessandra Buonanno), PhD thesis awarded the Gulbenkian Foundation Prize and the Prémio Abreu Faro.

2012 **Co-advisor of Caio Filipe Bezerra Macedo**, *Universidade Federal de Belem do Pará*, (PhD student, now Faculty at Universidade de Parà), PhD thesis awarded two honorable mentions in CAPES Thesis Award and in the SBF Thesis Award.

2011-2012 **Co-advisor of João Rico**, *Instituto Superior Técnico*, (master student).

2012 **Co-tutor of Isabella Carucci**, *Instituto Superior Técnico*, (visiting master student, now PhD student at SISSA).

Institutional duties at Sapienza

since 2017 **Member of the PhD Board**, *Ph.D. in Astronomy, Astrophysics, Space Science*, **(link)**.

since 2017 **Co-Editor**, *News and Research section of the Department webpage*.

2016-2017 **Co-Editor of the Scientific Report**, *Department of Physics Sapienza University of Rome*, **(link)**.

Major research collaborations and membership of scientific societies

2018-now **Full Member of the LISA Consortium**.

2018-now **Coordinator of the subpackage WP 1.3 "Beyond-GR effects on massive black hole binaries"**, *in LISA Work Packages Group 1: Waveforms*, LISA Consortium.

2018-now **Theorist Responsible for subgroup "Exotic Compact Objects"**, *Working Group on Extreme Gravity, 3G Science Team*.

2017-now **Topic Leader for "Black hole perturbation theory and fundamental physics"**, *COST Action CA16104 "Gravitational waves, black holes and fundamental physics"*.

2016-now **Member of the eXTP Science Team**.

2016-now **Member of the Theia Consortium**.

2016-2019 **Member of the Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE) Action**, *"Strong Gravity and High-Energy Physics" [H2020-MSCA-RISE-2015]*.

2016–now **Member of the Italian Society of Gravitation**, *SIGRAV*.

2007–now **INFN Associated**, *Istituto Nazionale di Fisica Nucleare*, (Italian National Institute of Nuclear Physics).

Computer skills

Programming	Fortran, C, C++, HTML, php	Other software	Latex, Office
O.S.	Linux, Windows-family	Scientific SW	Mathematica
Administration	Small networks	Others	Electronic hardware assembling

Languages

Italian	**Native**
English	**Good**
Spanish	**Basic**
Portuguese	**Basic**

Workshop and meeting organization

22 Feb -19 **On the crest of a wave: a four-decade long scientific journey in honor of Valeria Ferrari (link)**, *Sapienza University of Rome (Italy)*, Organizing Committee.

12-14 Nov '18 **Fundamental Physics with LISA (link)**, *Galileo Galilei Institute (Florence, IT)*, Organizing Committee.

14-25 Aug '17 **CERN TH Initiative – Dark Sectors 2017 – Probing the dark sector and general relativity at all scales (link)**, *CERN*, Organizing Committee.

19-22 Jun '17 **New Frontiers in Gravitational-Wave Astrophysics (link)**, *Sapienza U. of Rome*, Organizing Committee .

18-19 Dec '15 **GR 100 years**, *IST-Lisbon*, Organizing Committee & Co-chairman **(link)**.

4-7 Jul '15 **IVth NRHEP Network Meeting**, *Sapienza University of Rome*, Local Organizing Committee **(link)**.

2-6 Feb '15 **Compact Objects as Astrophysical and Gravitational Probes**, *Lorentz Center, Leiden (The Netherlands)*, Organizing Committee **(link)**.

15-18 Jul '13 **Mons Meeting 2013** , *Mons (Belgium)*, Organizing Committee **(link)**.

5-8 Mar '13 **Strong Gravity Beyond GR**, *Lisbon (Portugal)*, Organizer **(link)**.

17-18 Dec '12 **V Black Hole Workshop**, *Lisbon (Portugal)*, Local Organizing Committee **(link)**.

Conferences & Seminars

Chairing

12-18 Jul '15 **14th Marcel Grossmann Meeting on General Relativity (MG14)**, *Rome (Italy)*, Parallel Section BH4: Gravitational Fields with Sources, Regular Black Holes and Quasiblack Holes (chair together with José P. S. Lemos) **(link)**.

1-7 Jul '12 **13th Marcel Grossmann Meeting on General Relativity (MG13)**, *Stockholm (Sweden)*, Parallel Section AT3: Gravitational Fields with Sources, Regular Black Holes and Quasiblack Holes (chair together with José P. S. Lemos) **(link)**.

Conferences, Workshops and Meetings

July '19 **GR22 Conference**, *Valencia (Spain)*, (invited plenary speaker).

03-05 Apr '19 **Solvay Workshop on "The Dark Side of Black Holes"**, *Brusselles (Belgium)*, (invited speaker).

19 March '19 **DPG meeting on "Extreme gravity meets extreme matter: compact objects as laboratories for fundamental physics"**, *Munich (Germany)*, (invited speaker).

18-22 Jun '18 **PACTS 2018**, *Tallinn (Estonia)*, (invited speaker).

03-09 Jun '18 **Numerical Relativity beyond General Relativity**, *Benasque (Spain)*, (invited speaker).

28-30 May '18 **Gravitational waves in modified gravity**, *ETH (Zurich)*, (invited speaker).

07-09 May '18 **Sacklet Conference: Gravitational Wave Astrophysics**, *Harvard (USA)*, (invited speaker).

12-13 Apr '18 **COST Meeting "Neutron Stars in Lisbon"**, *IST (Lisbon, PT)*, (invited moderator).

21-23 Jan '18 **Gravity@Malta**, *Valletta (Malta)*, (invited speaker).

08-10 Nov '17 **Quantum Black Holes in the Sky?**, *Perimeter Institute (Canada)*, (invited speaker).

12-15 Sep '17 **EREP 2017 (Spanish-Portuguese Relativity Meeting)**, *Malaga (Spain)*, (invited speaker).

03-07 Jul '17 **Strong Gravity Universe**, *Azores (PT)*, (invited moderator).

01-06 Jul '17 **International Science Journalism School "Unveiling the Universe: when Science hits the News"**, *Erice (IT)*, (invited speaker).

24-28 Apr '17 **Progress on Old and New Themes in cosmology (PONT)**, *Avignone, France*, (invited).

11-17 Mar '17 **Quantum Vacuum and Gravitation: Testing General Relativity in Cosmology**, *MITP, Frankfurt, Germany*, (invited).

12-15 Dec '16 **GW161212: The Universe through gravitational waves Workshop**, *Simons Center for Geometry and Physics, Stony Brook, NY*, (invited).

12-16 Sep '16 **Conference of the Italian Society for Gravitation**, *Cefalù (Italy)*, (invited).

19-21 Jul '16 **Unifying Tests of General Relativity**, *Caltech (USA)*, (invited).

10-15 Jul '16 **GR21**, *Columbia U. (USA)*, (talk at the Special Gravitational-Wave Highlight Session).

9-12 Jun '15 **One Hundred Years of Strong Gravity**, *IST-Lisbon*, (invited).

1-5 Jun '15 **International Conference on Black Holes**, *Fields Institute (Canada)*, (invited).

19-29 May '15 **Focus Week on Perturbation methods in General Relativity** , *Fields Institute (Canada)*, (invited).

18-20 May '15 **Workshop on (Non-)Universal Properties of Neutron Stars**, *ZARM, Bremen University*.

17-18 Nov '14 **Workshop on Modern aspects of gravity and cosmology**, *LPT Orsay (France)*, (invited).

6-10 Jan '14 **Testing General Relativity with Present and Future Astrophysical Observations**, *Oxford MS (USA)*, (invited).

08-13 Jul '13 **GR20/Amaldi10 Conference**, *Warsaw (Poland)*, (invited contribution to a parallel session).

6-9 Nov '12 **Axion Cosmophysics Workshop**, *KEK, Tsukuba (Japan)*, (invited speaker).

09-13 Jul '12 **I NRHEP Meeting**, *Aveiro (Portugal)*.

15-17 Feb '12 **II Iberian Gravitational Wave Meeting**, *Barcelona (Spain)*.

19-21 Dec '11 **IV Workshop on Black Holes**, *Aveiro U. (Portugal)*.

29 Aug-3 Sep '11 **Numerical Relativity and High Energy Physics**, *Madeira Island (Portugal)*, (invited).

16-19 Nov, '10 **Strings & QCD**, *University of Cagliari, Cagliari (Italy)*, (invited).

21-22 Dec, '09 **II Workshop on Black Holes**, *Instituto Superior Técnico, Lisbon (Portugal)*.

13-19 Sep, '09 **First Mediterranean Meeting on Classical and Quantum Gravity**, *Kolimbari (Greece)*, (plenary section).

24-30 Aug, '08 **Black Holes in General Relativity and String Theory**, *Veli Losinji (Croatia)*.

Selected invited seminars

28 May '18 **Groningen U. (Amsterdam)**.

29 Jan '18 **GRAPPA (Amsterdam)**.

23 Aug '17 **CERN TH Colloquium**.

26 Jan '17 **Barcelona University**.

03 Feb '16 **CERN Theory Division**.

24 Nov '15 **Fudan University, Shangai (China)**.

12 Jan '15 **Albert Einstein Institute, Potsdam (Germany)**.

7 Oct '14 **SISSA, Trieste (Italy)**.

17 Apr '14 **Perimeter Institute, Waterloo, ON (Canada)**.

2 Apr '14 **Nottingham U., Nottingham (UK)**.

12 Dec '13 **Institut Astrophysique de Paris, Paris (France)**.

20 Nov '13 **University of Maryland, College Park, MD (USA)**.

9 May '13 **Perimeter Institute, Waterloo, ON (Canada)**.

3 Dec '12 **Southern Methodist University (SMU), Dallas, TX (USA)**, *(online seminar)*.

15 Nov '12 **Kinki University, Osaka (Japan)**.

6-9 Nov '12 **Axion Cosmophysics Workshop, KEK, Tsukuba (Japan)**.

21 May '12 **SISSA, Trieste (Italy)**.

2 Nov '11 **Cagliari University (Italy)**.

10 Oct '11 **Aveiro University (Portugal)**.

14 Sep '11 **Seminar for the INFN Fubini prize ceremony**, *Rome "La Sapienza"*.

22 Jun, '11 **Universidade Federal de Belem do Pará, Belem (Brazil)**.

Editorial and advisory positions

Since 2017 **Member of the International Coordinating Committee**, *Marcel Grossmann Meeting*.

Since 2016 **Member of the CQG Advisory Panel**, *Classical and Quantum Gravity*, **(link)**.

2015 **Black holes and fundamental fields**, *Focus Issue in Classical and Quantum Gravity (2015)*, Editors: Paolo Pani and Helvi Witek, **(link)**.

Publications

An up-to-date list of my publications can be found on the INSPIRE database **(link)**.

Highlights

2018 **PRL Editors' Suggestion (link)**, *"Probing Planckian corrections at the horizon scale with LISA binaries" by Andrea Maselli, Paolo Pani, Vitor Cardoso, Tiziano Abdelsalhin, Leonardo Gualtieri, Valeria Ferrari*, Phys. Rev. Lett. 120, 081101 (2018).

2017 **PRD Editors' Suggestion (link)**, *"Testing strong-field gravity with tidal Love numbers" by Vitor Cardoso, Edgardo Franzin, Andrea Maselli, Paolo Pani, Guilherme Raposo*, Phys. Rev. D 95, 084014 (2017).

2016 **PRL Editors' Suggestion and Cover (link)**, *"Is the gravitational ringdown a probe of the event horizon?" by Vitor Cardoso, Edgardo Franzin, Paolo Pani*, Phys. Rev. Lett. 116, 171101 (2016).

2015 **IOPSelect (link)**, *"Tensor-multi-scalar theories: relativistic stars and 3+1 decomposition" by Michael Horbatsch, Hector Okada da Silva, Davide Gerosa, Paolo Pani, Emanuele Berti, Leonardo Gualtieri, Ulrich Sperhake*, Class. Quantum Grav. 32 204001 2015, (selected by the Editors of IOP for its breakthrough character).

2013 **CQG Highlights of 2012-2013 (link)**, *"Tidal acceleration of black holes and superradiance" by Vitor Cardoso and Paolo Pani*, Class. Quantum Grav. 30 045011 2013.

2012 **Synopsis in "Physics - spotlighting exceptional research" (link)**, *"Black hole bombs and photon mass bounds" by Paolo Pani, Vitor Cardoso, Leonardo Gualtieri, Emanuele Berti, Akihiro Ishibashi*, Phys. Rev. Lett. 109, 131102 2012.

Monographs

gr-qc/1501.06570 **[1] Richard Brito, Vitor Cardoso, Paolo Pani**, *"Superradiance"*, (Springer-Verlag's "Lecture Notes in Physics" - Volume 906 2015), ISBN: 978-3-319-18999-4 (Print) 978-3-319-19000-6 (Online).

Reviews

gr-qc/1501.07274 **[57] Emanuele Berti, Enrico Barausse, Vitor Cardoso, Leonardo Gualtieri, Paolo Pani, Ulrich Sperhake, Leo Stein et al.**, *"Testing General Relativity with Present and Future Astrophysical Observations "*, (Topical Review in Classical and Quantum Gravity, Volume 32, Number 24), 2015.

gr-qc/1806.05195 **[91] Leor Barack et al.**, *"Black holes, gravitational waves and fundamental physics: a roadmap"*, White Paper of the COST Action GWverse (CQG in press), 2019.

Submitted and online papers

astro-ph/1902.02695 **[95] Andrea Caputo, Laura Sberna, Miguel Frias, Diego Blas, Paolo Pani, Lijing Shao, Wenming Yan**, *"Constraints on millicharged dark matter and axion-like particles from timing of radio waves"*, (submitted), (2019).

gr-qc/1811.07917 **[93] Guilherme Raposo, Paolo Pani, Miguel Bezares, Carlos Palenzuela, Vitor Cardoso**, *"Anisotropic stars as ultracompact objects in General Relativity"*, (submitted), (2018).

gr-qc/1811.03689 **[92] Andrea Maselli, Paolo Pani, Vitor Cardoso, Tiziano Abdelsalhin, Leonardo Gualtieri, Valeria Ferrari**, *"From micro to macro and back: probing near-horizon quantum structures with gravitational waves"*, (submitted), (2018).

gr-qc/1810.05177 **[94] Giuseppe Ficarra, Paolo Pani, Helvi Witek**, *"Impact of multiple modes on the black-hole superradiant instability "*, (submitted), (2018).

gr-qc/1810.05177 **[91] Helvi Witek, Leonardo Gualtieri, Paolo Pani, Thomas P. Sotiriou**, *"Black holes and binary mergers in scalar Gauss-Bonnet gravity: scalar field dynamics"*, (submitted), (2018).

gr-qc/1807.08840 **[89] Elisa Maggio, Vitor Cardoso, Sam Dolan, Paolo Pani**, *"Ergoregion instability of exotic compact objects: electromagnetic and gravitational perturbations and the role of absorption"*, (submitted), (2018).

gr-qc/1707.03021 **Vitor Cardoso, Paolo Pani**, *"The observational evidence for horizons: from echoes to precision gravitational-wave physics"*, online, (2017).

Refereed papers

gr-qc/1806.05195 **[91] Leor Barack et al.**, *"Black holes, gravitational waves and fundamental physics: a roadmap"*, White Paper of the COST Action GWverse (CQG in press), 2019.

astro-ph/1812.04022 **[90] De Rosa et al.**, *"Accretion in Strong Field Gravity with eXTP"*, Sci. China-Phys. Mech. Astron. 62, 029504, (2019).

gr-qc/1810.01094 **[89] Paolo Pani, Leonardo Gualtieri, Tiziano Abdelsalhin, Xisco Jimenez-Forteza**, *"Magnetic tidal Love numbers clarified"*, Phys.Rev. D98 124023, (2018).

gr-qc/1807.08016 **[88] Xisco Jimenez-Forteza, Tiziano Abdelsalhin, Paolo Pani, Leonardo Gualtieri**, *"Impact of high-order tidal terms on binary neutron-star waveforms"*, Phys.Rev. D98 124014, (2018).

gr-qc/1805.01487 **[87] Tiziano Abdelsalhin, Leonardo Gualtieri, Paolo Pani**, *"Post-Newtonian spin-tidal couplings for compact binaries"*, Phys.Rev. D98 104046, (2018).

gr-qc/1805.08229 **[86] Enrico Barausse, Richard Brito, Irina Dvorkin, Vitor Cardoso, Paolo Pani**, *"The stochastic gravitational-wave background in the absence of horizons"*, (CQG Letter 35 20LT01, (2018).

gr-qc/1806.04253 **[85] Adriano Testa, Paolo Pani**, *"An analytical template for gravitational-wave echoes: signal characterization and prospects of detection with current and future interferometers "*, Phys.Rev. D98 044018, (2018).

gr-qc/1804.01444 **[84] Paolo Pani, Valeria Ferrari**, *"On gravitational-wave echoes from neutron-star binary coalescences"*, Class. Quantum Grav. 35 15LT01, (2018).

gr-qc/1801.01420 **[83] Vitor Cardoso, Oscar J. C. Dias, Gavin S. Hartnett, Matthew Middleton, Paolo Pani, Jorge E. Santos**, *"Constraining the mass of dark photons and axion-like particles through black-hole superradiance "*, JCAP 1803 043, (2018).

gr-qc/1703.10612 **[82] Andrea Maselli, Paolo Pani, Vitor Cardoso, Tiziano Abdelsalhin, Leonardo Gualtieri, Valeria Ferrari**, *"Probing Planckian corrections at the horizon scale with LISA binaries"*, Phys. Rev. Lett. 120, 081101, Editors' Suggestion, (2018).

gr-qc/1708.06371 **[81] Laura Sberna, Paolo Pani**, *"On Bouncing and Nonsingular Solutions in Einstein-scalar-Gauss-Bonnet Cosmology"*, Phys.Rev. D96 124022 , (2017).

gr-qc/ 1703.03696 **[80] Carlos Palenzuela, Paolo Pani, Miguel Bezares, Vitor Cardoso, Luis Lehner, Steven Liebling**, *"Gravitational Wave Signatures of Highly Compact Boson Star Binaries"*, Phys.Rev. D96 104058 , (2017).

gr-qc/ 1703.03696 **[79] Elisa Maggio, Paolo Pani, Valeria Ferrari**, *"Exotic Compact Objects and How to Quench their Ergoregion Instability "*, (accepted in PRD), (2017).

gr-qc/ 1703.10612 **[78] Richard Brito, Shrobana Ghosh, Enrico Barausse, Emanuele Berti, Vitor Cardoso, Irina Dvorkin, Antoine Klein, Paolo Pani**, *"Stochastic and resolvable gravitational waves from ultralight bosons"*, Phys. Rev. Lett. 119, 131101, (2017).

gr-qc/ 1709.01525 **[77] Vitor Cardoso, Paolo Pani**, *"Tests for the existence of black holes through gravitational wave echoes"*, Nature Astronomy 1, 586–591, (2017).

gr-qc/ 1706.06311 **[76] Richard Brito, Shrobana Ghosh, Enrico Barausse, Emanuele Berti, Vitor Cardoso, Irina Dvorkin, Antoine Klein, Paolo Pani**, *"Gravitational wave searches for ultralight bosons with LIGO and LISA"*, Phys. Rev. D 96, 064050, (2017).

gr-qc/ 1704.06151 **[75] Vitor Cardoso, Paolo Pani, Tien-Tien Yu**, *"Superradiance in rotating stars and pulsar-timing constraints on dark photons "*, Phys. Rev. D 95, 124056, (2017).

astro-ph/ 1612.00038 **[74] Nicola Franchini, Paolo Pani, Andrea Maselli, Leonardo Gualtieri, Carlos H R Herdeiro, Eugen Radu, Valeria Ferrari.**, *"Constraining Black Holes with Light Boson Hair and Boson Stars using Quasi Periodic Oscillations"*, Phys.Rev. D95, 124025, (2016).

gr-qc/ 1703.01472 **[73] Andrea Maselli, Paolo Pani, Roberto Cotesta, Leonardo Gualtieri, Valeria Ferrari, Luigi Stella.**, *"Geodesic models of quasi-periodic-oscillations as probes of quadratic gravity"*, The Astrophysical Journal, Volume 843, Number 1, (2017).

gr-qc/ 1701.01116 **[72] Vitor Cardoso, Edgardo Franzin, Andrea Maselli, Paolo Pani, Guilherme Raposo**, *"Testing strong-field gravity with tidal Love numbers "*, Phys. Rev. D 95, 084014 (Editors' Suggestion), (2017).

gr-qc/ 1609.01286 **[71] Jose Luis Blázquez-Salcedo, Caio F. B. Macedo, Vitor Cardoso, Valeria Ferrari, Leonardo Gualtieri, Fech Scen Khoo, Jutta Kunz, Paolo Pani**, *"Perturbed black holes in Einstein-dilaton-Gauss-Bonnet gravity: stability, ringdown, and gravitational-wave emission"*, Phys. Rev. D 94, 104024, (2016).

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Scientific Adviser activity

Referee for international journals

In 2015 I was distinguished with the "Outstanding Referee" award from American Physical Society **(link)**. I am referee for the following international journals:

since 2018 **Scientific Reports, Communications Physics (Nature Research publishing), Journal of High Energy Physics, Reviews in Mathematical Physics**.

since 2018 **Modern Physics Letters A**.

since 2017 **Journal of Mathematical Physics, Physics of the Dark Universe**.

since 2016 **Proceedings of the Royal Society A**.

since 2015 **EPL, EPJ-Plus, Astrophysics and Space Science**.

since 2014 **The Astrophysical Journal, Journal of Cosmology and Astroparticle Physics, Foundations of Physics, PASA, Physica Scripta, Computer Physics Communications, Canadian Journal of Physics, Galaxies**.

since 2013 **International Journal of Modern Physics D, European Physical Journal C**.

since 2012 **Physical Review Letters, Central European Journal of Physics**.

since 2011 **Classical and Quantum Gravity, Physics Letters B**.

since 2010 **General Relativity and Gravitation, Advances in High Energy Physics**.

since 2009 **Physical Review D**.

Scientific Adviser for Scientific Institutions and Science Foundations

since 2019 **National Science Foundation (NSF),Netherlands Organisation for Scientific Research (NWO, the Dutch Research Council)**.

since 2018 **REPRISE MIUR**, *Register of expert peer reviewers for Italian scientific evaluation*.

since 2017 **Royal Society**.

since 2017 **Research Grants Council of Hong Kong**.

since 2016 **Czech Science Foundation**.

Press coverage & Outreach

Interviews, media and press coverage

Dec, 2018 **COST Action**, *Outreach Movie*, *"NewCompStar: Exploring fundamental physics with compact stars"* **(link)**.

Oct, 2018 **RAI Scuola**, *TV Show*, *"Vita da Ricercatore"* **(link)**.

Jun 26, 2018 **Redazione ANSA**, *'Onde gravitazionali, forse l'origine nei buchi dello spaziotempo"* **(link)**.

Jun 20, 2018 **Daniel Cossins**, *NewScientist*, *'The space-time echoes that point to a new theory of reality"* **(link)**.

Oct 3, 2017 **University of Mississippi**, *Phys.org*, *"Gravitational wave detectors could shed light on dark matter"* **(link)**.

Dec 22, 2016 **Attilio Ferrari**, *La Stampa*, *"La prossima odissea sarà nel "fireball" la sfera di fuoco del buco nero"* **(link)**.

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May 9, 2016 **David Larousserie**, *Le Monde*, *"Trous de ver ou trous noirs?"* **(link)**.

May 5, 2016 **Luca Fraioli**, *Repubblica*, *"Buchi neri o "gravastar"? La scienza si divide sulle onde gravitazionali"* **(link)**.

May 4, 2016 **Jacob Aron**, *NewScientist*, *"Was gravitational wave signal from a gravastar, not black holes?"* **(link)**.

May 2, 2016 **Bob Yirka**, *Phys.org*, *"Simulations suggest other phenomenon besides black holes merging could produce gravity waves"* **(link)**.

Apr 29, 2016 **Tushna Commissariat**, *Physics World*, *"Are wormholes or 'gravastars' mimicking gravitational-wave signals from black holes?"* **(link)**.

Apr 27, 2016 **Michael Schirber**, *Synopsis in Physics*, *"Did Black Hole "Mimickers" Produce LIGO Signal?"* **(link)**.

Apr 27, 2016 **Marco Malaspina**, *Media INAF - Italian Institute for Astrophysics*, *"Can we "hear" the shape of a black hole?"* **(link)**.

Mar 2, 2016 **Paolo Pani and Helvi Witek**, *CQG+*, *Black-hole laboratories in the era of gravitational-wave astronomy* **(link)**.

Feb 23, 2016 **Stefano Capretti**, *AstronomiAmo*, Gravitational Waves: the music of spacetime (in Italian) **(link)**.

Jan 19, 2016 **Stefano Capretti**, *AstronomiAmo*, Video interview (in Italian) **(link)**.

Dec 22, 2015 **Anil Ananthswamy**, *NewScientist*, *"Dark matter's true face could be unmasked by pairs of dead stars"* **(link)**.

Oct 14, 2015 **Claire Fullarton**, *CQG+*, *"Gravity and scalar fields: live long and prosper?"* **(link)**.

Jun 11, 2015 **Claire Fullarton**, *CQG+*, *"Black-hole superradiance and the hunt for dark matter"* **(link)**.

Feb 12, 2014 **Teresa Firmino**, *Público*, *"Pode estar descansado: não vamos ser devorados por um buraco negro"* **(link)**.

Feb 5, 2014 **Marcus Chown**, *NewScientist*, *"Black hole bombs: Are they dark matter in disguise?"* **(link)**.

Jan 17, 2014 **Eugenie Samuel Reich**, *Nature News*, *"Search for primordial black holes called off"* **(link)**.

Oct 3, 2013 **Teresa Firmino**, *Público*, *"Afinal, os buracos negros sempre poderão ter algum cabelo"* **(link)**.

Oct 1, 2013 **Victoria Jaggard**, *NewScientist*, *"Hairy black hole could show gaps in Einstein's theory"* **(link)**.

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Sep 5, 2013 **Michael D. Lemonick**, *Time*, *"The Mystery of Dark Matter Clarified—a Little"* **(link)**.

Sep 27, 2012 **Michael Schirber**, *Synopsis in "Physics – spotlighting exceptional research"*, *"Black Holes Weigh the Possibility of a Massive Photon"* **(link)**.

Sep 25, 2012 **Edwin Smith**, *Phys.org*, *"Researchers study black holes to measure photon mass"* **(link)**.

Sep 20, 2012 **Virgílio Azevedo**, *Expresso*, *"Cientistas usam buracos negros para pesar a luz"* **(link)**.

Sep 15, 2012 **Lisa Grossman**, *NewScientist*, *"Heavy photons are too light to be behind dark matter"* **(link)**.

Jan 1, 2012 **Nicolau Ferreira**, *Publico*, *"Dez exemplos que mostram a qualidade da ciência nacional em 2011 "* **(link)**.

Dec 16, 2011 **Marco Galliani**, *INAF*, *"Galleggiando sulle onde (gravitazionali) "* **(link)**.

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Sep 13, 2011 **Edwin Cartlidge**, *Physics World*, *"Sun puts relativity to the test"* **(link)**.

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Jun 26, 2011 **Fabio Manca**, *L'unione sarda*, *"L'astrofisico cagliaritano che confuta le tesi di Einstein"* **(link)**.

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Link to the English version: `https://www.dropbox.com/s/kv4f88li1gdjft2/GWs.pdf?dl=0`;
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Public lectures

May 2018 **Pint of Science**, *Alla ricerca dell'eco di un buco nero* ***(link)*** , Rome.

May 2018 **I Mille Nomi di Fermi**, *La scoperta del secolo: le onde gravitazionali* ***(link)*** , Sapienza .

Sep 2017 **Notte dei Ricercatori 2017**, *La Teoria della Gravitazione di Albert Einstein*, Sapienza.

Feb 2017 **Piano Lauree Scientifiche**, *Onde Gravitazionali* ***(link)*** , Sapienza.

Dec 2016 **Public lectures**, *Viaggio ai confini dello spaziotempo: Big Bang, buchi neri e onde gravitazionali nella teoria di Einstein* ***(link)***, Rome.

Apr 2016 **High School**, *The First Detection of Gravitational Waves (in Italian)*, Liceo Scientifico "Federico Enriques".

Feb 2016 **Web lecture**, *Gravitational Waves: the music of spacetime (in Italian)* ***(link)***, Associazione AstronomiAmo.