

Marios Kalomenopoulos

Curriculum Vitae

Nevada Center for Astrophysics
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Research Interests

GWs Astrophysics (population properties of binary Black Holes), **GWs Cosmology** (Dark Sirens technique for cosmological constraints, GWs propagation in cosmological simulations, GWs & FRB associations), **GWs & modified gravity** (effects of large-scale structure in modified gravity analyses, cosmological applications of a massive graviton), **Cosmology & Galaxy formation** (formation of the first supermassive BHs).

Professional Experience

2023 - **Postdoctoral Researcher**, *University of Nevada, Las Vegas*, Multimessenger Astrophysics, with emphasis on GWs.

Educational Background

2018 - 2023 **PhD degree**, *University of Edinburgh*, Astrophysics/Cosmology
○ Gravitational Waves as a Probe for Cosmology and Non-Standard Physics.
2016 - 2017 **MSc degree**, *University of Edinburgh*, Theoretical Physics, *Distinction*
2009 - 2015 **Undergraduate degree**, *University of Athens*, Physics, 8.43/10

Extra Research Experience

Feb. 2023 - **Visiting Researcher**, *Institute of Theoretical Physics*, Frankfurt
May 2023 Project, under the supervision of L. Rezzolla:
○ Gravitational waves from gas collapse to the first black holes.
Oct. 2021 - **Research Placement**, *Alan Turing Institute*, London
May 2022 Project, under the supervision of D. Ritabrata:
○ Bayesian modelling of extreme weather events.
2017 - 2018 **Research Assistant**, *University of St. Andrews*
Project, under the supervision of K. Horne:
○ Strong gravitational lensing effects in Supernovae observations.
2015 - 2016 **Student Placement**, *Democritos (Athens) & CERN*
Project, under the supervision of G. Savvidy:
○ Accretion discs.
○ Random Number Generators based on physical systems (MIXMAX).

Publications

- [1] **R. Langroudi-Zayeni, **Kalomenopoulos, M.**, and S. Khochfar. Long-wavelength GWs from strongly-lensed, repeated FRBs: Time Delays & Simulation Statistics. 2025. In prep.
- [2] **Kalomenopoulos, M.**, S. Arai, and S. Khochfar. GWs propagation effects through the inhomogeneous universe. 2025. In prep.
- [3] J. Zhuge, **Kalomenopoulos, M.**, C. J. Haster, and B. Zhang. Cosmology with FRBs and GWs associations without redshift information. 2025. In prep.
- [4] R. Barbieri, **Kalomenopoulos, M.**, J. Gair, and S. Khochfar. Facing incompleteness: the impact of galaxy clustering on the measurement of the Hubble constant. 2025. In prep.
- [5] **Kalomenopoulos, M.**, R. Barbieri, S. Khochfar, J. Gair, and R. McGibbon. Clustering Effects on the Dark Siren determination of H_0 : A simulation study. 2025. To be submitted.
- [6] **Kalomenopoulos, M.**, C. J. Haster, and T. Callister. Investigating BBH populations with gaussianised correlations. 2025. To be submitted.
- [7] M. Johnston, **Kalomenopoulos, M.**, and C. J. Haster. An analysis and cosmological study of the propagation of gravitational radiation under a graviton of nonzero mass. 2025. To be submitted.
- [8] **J. Regan, **Kalomenopoulos, M.**, and K. Kosmo O’Neil. Hawking Radiation from non-evaporating primordial black holes cannot enable the formation of direct collapse black holes. *Open Journal of Astrophysics (submitted)*, 2024. [arXiv:2411.09081](#).
- [9] *E. Batziou, S. S. Boula, **Kalomenopoulos, M.**, D. Kantzas, A. Spanakis-Misirlis, and V. Spanakis-Misirlis. 2-minute science: A Science Communication Project for Astrophysics. *ICRC2021 Proceedings*, 2021. [arXiv:2108.03036](#).
- [10] **Kalomenopoulos, M.**, S. Khochfar, J. Gair, and A. Shun. Mapping the Inhomogeneous Universe with Standard Sirens: Degeneracy between Inhomogeneity and Modified Gravity Theories. *MNRAS*, March 2021. [arXiv:2007.15020](#).
- [11] A. Görlich, **Kalomenopoulos, M.**, K. Savvidy, and G. Savvidy. Distribution of Periodic Trajectories of Anosov C-system. *Int. J. Mod. Phys.*, Aug 2016. [arXiv:1608.03496](#).

* = Alphabetical Order, ** = Supervising student

Seminars/Conferences (top 5)

- April 2024 **American Physical Society**, Sacramento, **Presentation:** *Solving the binary black holes formation mystery with Gaussianised correlations*
- March 2024 **University Nevada Reno**, Reno, **Invited Seminar:** *Astrophysics and Cosmology with GWs*
- Feb. 2024 **Nevada Centre for Astrophysics**, Las Vegas, **Presentation:** *Solving the binary black holes formation mystery with Gaussianised correlations*
- Sep. 2022 **Tensions in Cosmology**, Corfu, **Presentation:** *Clustering effects on GWs Dark Sirens determination of H_0*
- July 2021 **15th Hellenic Astronomical Conference**, Online, **Presentation:** *Clustering effects on GWs Dark Sirens determination of H_0*

Scholarships, Grants, Fellowships

- Mar. 2025 **Travel Grant**, American Physical Society, 800\$
- Apr. 2025 **Education/Outreach Grant**, APS Forum on Outreach and Engaging the Public (FOEP), 2000\$, with Rachel Lanngin (UNLV)
- Apr. 2024 **Travel Grant**, American Physical Society, 300\$
- Nov. 2022 **Travel Grant**, Royal Astronomical Society, 800£
- Aug. 2020 **Travel Grant**, Royal Astronomical Society, 100£
- 2018 - 2022 **UK CDT PhD Studentship**, University of Edinburgh, PhD in Astrophysics & Cosmology
- 2016 - 2017 **Highly Skilled Workforce Scholarship**, University of Edinburgh, MSc in Theoretical Physics

Public Outreach

- April 2021 **Astronomy Public Talk**, *The Discovery of Gravitational Waves*, Royal Observatory, Edinburgh
- Dec. 2020- **Editorial Board and Author in “2’science”**, Greek website, supported by the Hellenic Astronomical Society, for public outreach around Astrophysics
- Sept. 2020 **Royal Observatory (Virtual) Open Days**, Edinburgh
- May - July 2020 **Outreach to School Students in the UK**, “*I’m a scientist*”
- March 2020 **Astronomy Public Talk**, *Ancient Greek Astronomers Vs Flat Earthers*, Royal Observatory, Edinburgh
- July 2019 **Panel Discussion**, *Hidden Figures*, Filmhouse, Edinburgh
- Sept. 2018 **Royal Observatory Open Days**, Edinburgh

Teaching experience

- Nov. 2023 - **Student Supervision**, *Jonathan Regan, Undergraduate Student, University Nevada Reno*, **Project Title:** Direct Collapse Black Holes through Hawking Radiation of Primordial Black Holes
- Aug. 2024
- May - July 2021 **Student Supervision**, *Roxana Zayeni, MSc Student, ENSTA Paris*, **Project Title:** Lensed FRBs as probes for GWs
- 2017 - 2023 **Teaching assistant (Q&A workshops, Problem tutorials, Marking) in the following courses:**
- *Fourier Analysis and Statistics, Introductory Dynamics, Dynamics and Vector Calculus, Introductory Fields and Waves, General Relativity, Linear Algebra and Multivariable Calculus, Physics of Fields and Matter, Astrophysics (Computer Lab), Introductory Astrophysics, Cosmology, The Discovery of the Higgs Boson (MOOC)*
- Feb. 2020 **PLANCKS UK Preliminaries (Edinburgh)**, Organisation Committee: [Exam Lead](#)

Community Service and Other Background

Referee

2023- **PRL, MNRAS**

Professional Organisations

- Jun. 2024 - **International Astronomical Union**, *Junior Member*
- Sep. 2023 - **LIGO Scientific Collaboration**
- Dec. 2023 - **American Physical Society**, *Early Career Member*
- Jan. 2021 - **European Astronomical Society**, *Ordinary Member*
- Jan. 2021 - **Hellenic Astronomical Society**, *Ordinary Member*
- March 2020 - **Royal Astronomical Society**, *Early Career Fellow*

Meetings Lead

- 2019 - 2020, **Organiser of the “PhD Cosmology Reading Group” at the Royal Observatory of Edinburgh, 2021-2022 (co-organiser)**
- 2019 - 2021 **Organiser of the “TMOCS” Group Meetings (Theoretical Modelling of Cosmic Structures) at the Royal Observatory of Edinburgh**
- 2021 - 2022 **Organiser of [Hel.A.S. NextGen Series](#) (online seminars of young researchers of Hel.A.S.)**