

Tom Kimpson

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Education

PhD. Theoretical Astrophysics, University College London, UK 2016–Present

- Thesis: *Multimessenger astrophysics of pulsars in EMRI/IMRI systems.*

- Supervisors: Prof. K. Wu, Prof. S. Zane

MPhys. Physics, First-class Honours, Durham University, UK 2012–2016

- Thesis advisors: Prof. P. Chadwick, Dr. A. Brown

Research Interests

Multimessenger pulsar astronomy, strong-field general relativity and gravitational wave astrophysics. Recent work has explored the detection of pulsar-black hole binaries, and the use of these systems for tests of fundamental physics and astrophysics.

Publications

Kimpson, T., Yang, H. (–). *Waveforms from Hierarchical Triples for LISA*, In prep.

Kimpson, T., Wu, K., Zane, S. (2020). *Radio Timing in an MSP-E/IMRB System*, Submitted to A&A

Kimpson, T., Wu, K., Zane, S. (2020). *Orbital spin dynamics of a millisecond pulsar around a massive black hole with an general mass quadrupole*, Accepted for publication in MNRAS arxiv.org/abs/2007.05219

Kimpson, T., Wu, K., Zane, S. (2020). *Gravitational Burst Radiation from Pulsars in the Galactic centre and stellar clusters*, MNRAS [doi:10.1093/mnras/staa1259](https://doi.org/10.1093/mnras/staa1259)

Barausse et al. including **Kimpson, T.**, (2019). *Prospects for Fundamental Physics with LISA* arxiv.org/abs/2001.09793

Kimpson, T., Wu, K., Zane, S. (2019). *Pulsar timing in extreme mass ratio binaries: a general relativistic approach*, MNRAS [doi:10.1093/mnras/stz845](https://doi.org/10.1093/mnras/stz845)

Kimpson, T., Wu, K., Zane, S. (2019). *Spatial Dispersion of light rays propagating through a plasma in Kerr spacetime*. MNRAS [doi:10.1093/mnras/stz138](https://doi.org/10.1093/mnras/stz138)

Kimpson, T., Spera, M., Mapelli, M., Ziosi, B., (2016). *Hierarchical black hole triples in young star clusters: impact of Kozai-Lidov resonance on mergers*. MNRAS [doi:10.1093/mnras/stw2085](https://doi.org/10.1093/mnras/stw2085)

Additional Research Experience

Visiting Graduate Fellow, Perimeter Institute for Theoretical Physics, Canada Oct. 2019 – March 2020

Research Scientist, Pace (*machine learning start-up*), London June 2016 – Sept. 2016

Summer Research Intern, INAF Padova & Padova University, Italy June 2015 – Sept. 2015

Honours, Grants & Awards

Visiting Graduate Fellowship, Perimeter Institute for Theoretical Physics 2019

Royal Astronomical Society Travel Grant 2019

MSSL Travel Award 2019

UCL Studentship Award 2019

STSM Grant, PHAROS COST Action 2019

Finalist, UCL Research Images as Art 2018

STFC PhD Studentship, Science and Technology Facilities Council 2016

Erasmus+ Grant, Erasmus+ & the European Commission 2015

Talks

<i>Fundamental Physics with MSP-BH Systems</i> , Perimeter Institute Strong Gravity Meeting	Jan. 2020
<i>Multimessenger astrophysics of Pulsar Binaries</i> , GR22, Valencia	July 2019
<i>Pulsar Timing in Extreme Mass Ratio Binaries</i> , National Astronomy Meeting, Lancaster	July 2019
<i>Modelling in the gravitational strong field</i> (Poster), Computational Sciences in the 21st Century, London	June 2019
<i>Pulsars as probes of strong-field GR</i> , Gravitational Waves @ UCL	June 2019
<i>Strong-field pulsar timing</i> , SPINS-UK, London	May 2019
<i>General Relativistic Pulsar Timing</i> , Mullard Space Science Laboratory, UCL, London	Jan 2019
<i>Spatial dispersion in the strong-field: Implications for PSR timing</i> , INAF Cagliari, Italy	March 2018

Teaching

Aimi Kusudo, Visiting Undergraduate, UCL, Primary Supervisor	Sept 2018
Adam Moon, Nuffield Research Student, UCL, Secondary Supervisor	June - Sept 2018
Teaching Assistant, High Energy Astrophysics, UCL	Winter Term 2017,2018

Service and Memberships

Local Organizing Committee, SPINS-UK Conference, London	May 2019
LISA Consortium	Sept 2018
SPINS-UK Consortium	May 2018
Seminar Chair, Mullard Space Science Laboratory, UCL	Jan. 2018-Sept 2019
Journal Club Chair, Mullard Space Science Laboratory, UCL	Jan. 2018-Sept 2019

Computing Skills

Programming Languages: Python, Fortran, Mathematica, Bash, SQL
Tools: OpenMP, GNU Parallel, Git, TEMPO, L^AT_EX, Linux

Additional Conference and Courses

LISA Consortium Conference, Marseille	Nov 2018
SPINS-UK Conference, Norwich	May 2018
ICE Gravitational Wave Summer School, Barcelona	July 2018
The Gravitational Wave Binary Black Hole and Neutron Star Opportunity for Astronomy, London	May 2018
Scientific Visit, INAF Cagliari	May 2018
The Promises of Gravitational-Wave Astronomy, London	Sept. 2017
Green Bank Telescope Observer Training Workshop, West Virginia	March. 2017