Tom Kimpson

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Education

2016–Present **PhD., Theoretical Astrophysics**, *Mullard Space Science Laboratory, University College London*, UK.
Thesis: Multimessenger astrophysics of pulsars in EMRI/IMRI systems
Supervisors: Prof. Kinwah Wu, Prof. Silvia Zane

2012–2016 **MPhys., Physics and Astronomy**, *Durham University*, UK, .
First Class Honours.
Supervisor: Prof. Paula Chadwick.

Publications

Kimpson, T., Wu, K., Zane, S. (–). *The Post-Keplerian approximation in the strong-field regime.* In prep.

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

Kimpson, T., Wu, K., Zane, S. (2019). *Spatial Dispersion of light rays propagating through cold plasma in Kerr spacetime.* MNRAS doi: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

Research Interests

Multimessenger astrophysics and strong-field General Relativity. Recent work has examined the use of Extreme Mass Ratio Pulsar-Black hole binaries for tests of fundamental physics and astrophysics, and dynamical effects in triple systems with implications for gravitational wave emission. Other interests include gravitational astrophysics of Extreme Mass Ratio Inspirals and pulsar orbital parameterization in strong-field environments.

Additional Research Experience

March 2018 **Scientific Visit**, INAF Cagliari, Italy.

June – Sept 2016 **Reseach Scientist**, Pace, London.
Early-hire at start-up using machine learning methods for dynamic pricing and revenue optimization. Independently researched and implemented Bayesian machine learning and reinforcement learning algorithms.

June – Sept 2015 **Research Associate**, INAF Padova & Padova University, Italy.
Research within the Formation and Dynamics of Stars group investigating the formation and evolution of triple systems, the merger of compact objects, the effects of Kozai-Lidov oscillations on the merger rate and the implications for gravitational wave emission.

Talks

July 2019	22nd International Conference on General Relativity and Gravitation, Valencia **Multimessenger astrophysics of Pulsar EMRBs.** Abstract accepted.
July 2019	National Astronomy Meeting, Lancaster **Pulsar Timing in Extreme Mass Ratio Binaries.** Abstract accepted.
June 2019	Computational Sciences in the 21st Century, London **Modelling in the gravitational strong field.** Abstract accepted.
June 2019	UCL Gravitational Waves Workshop, London **GR and Multimessenger astronomy**. Abstract accepted.
May 2019	Science Possibilities Investigating Neutron Stars, London **Strong-field pulsar timing**
Jan 2019	Mullard Space Science Labotatory, UCL **General Relativistic Pulsar Timing.**
March 2018	INAF Cagliari, Italy **Spatial dispersion in the strong-field: implications for PSR timing**

Honours, Grants & Awards

2019	Royal Astronomical Society Grant
2019	MSSL Travel Award (declined)
2019	UCL Studentship Award *Competitive application for additional PhD funding*
2018	PHAROS Grant *European Cooperation in Science and Technology*
2018	Finalist *UCL Research Images as Art*
2016	STFC PhD Studentship *Science and Technology Facilities Council*
2015	Erasmus+ Grant *Erasmus+ & European Commission*

Service and Memberships

Full Member	LISA Consortium
Fellow	Royal Astronomical Society
Full Member	SPINS-UK Consortium
May 2019	**Local Organizing Committee.** SPINS-UK Conference, London
Jan 2018 – Present	**Seminar Organizer** MSSL,UCL
Jan 2018 – Present	**Journal Club Organizer** MSSL, UCL

Teaching

Sept 2018	**Primary Supervisor**, *Aimi Kusudo*, Visiting Undergradaute.
June – Sept 2018	**Secondary Supervisor**, *Adam Moon*, Nuffield Research Student.
Sept 2017 – Present	**Teaching Assistant**, *High Energy Astrophysics, UCL*.

Additional Conferences and Courses

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

Computer skills

Languages	FORTRAN, PYTHON, Mathematica
Scientific Tools	OpenMP, GNU Parallel, Git, TEMPO, LaTeX