Mullard Space Science Laboratory
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Tom Kimpson

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. First Class Hons.**, Durham University, UK.

Publications

Kimpson, T., Wu, K., Zane, S. (–). *Submitted: Assessing the Post-Keplerian framework in the strong-field regime.* Submitted to MNRAS

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

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

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

June – Sept 2016 **Research 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 & Posters

Talks:

July 2019 **Multimessenger astrophysics of Pulsar EMRBs**
22nd International Conference on General Relativity and Gravitation, Valencia

July 2019 **Pulsar Timing in Extreme Mass Ratio Binaries**
National Astronomy Meeting, Lancaster

May 2019 **Pulsars as probes of strong-field GR**
Science Possibilities Investigating Neutron Stars, London

Jan 2019 **General Relativistic Pulsar Timing**
Mullard Space Science Laboratory, UCL

March 2018 **Spatial dispersion in the strong-field: Implications for PSR timing**
INAF Cagliari, Italy

Posters:

June 2019 **Modelling in the gravitational strong field**
Computational Sciences in the 21st Century, London

Honours, Grants & Awards

2019 **PI Visiting Graduate Fellowship**
Perimeter Institute for Theoretical Physics

2019 **Royal Astronomical Society Grant**

2019 **MSSL Travel Award**

2019 **UCL Studentship Award**

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

May 2019 **Local Organizing Committee.**
SPINS-UK Conference, London

Jan 2018 – Present **Seminar Chair**
MSSL,UCL

Jan 2018 – Present **Journal Club Chair**
MSSL, UCL

Memberships	LISA Consortium, Royal Astronomical Society, SPINS-UK Consortium

Teaching

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

Computer skills

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

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.