

Tom Kimpson

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EDUCATION

- 2016 – PRESENT **PhD Candidate**
Theoretical Astrophysics
Mullard Space Science Laboratory, UCL
- 2012 – 2016 **MPhys (Hons.)**
FIRST CLASS HONOURS
Physics and Astronomy
Durham University

PUBLICATIONS

- Kimpson, T.**, Wu, K., Zane, S. (–). The Post-Keplerian approximation in the strong-field regime *In prep.*
- Kimpson, T.**, Wu, K., Zane, S. (2018). General Relativistic Pulsar Timing. *Submitted MNRAS*
- Kimpson, T.**, Wu, K., Zane, S. (2018). Spatial Dispersion of light rays propagating through cold plasma in Kerr spacetime. *Submitted MNRAS*
- 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 EXPERIENCE

JUNE – SEPTEMBER 2016 (INTERNSHIP)
Pace
Researcher
Early-hire at start-up using machine learning methods for dynamic pricing and revenue optimization in the SME market-space. Independently researched and implemented Bayesian machine learning and reinforcement learning algorithms, including Multi-armed bandit and Q-learning methods.

JUNE – SEPTEMBER 2015 (INTERNSHIP)
INAF Padova & Padova University
Research Associate
Research within the Formation and Dynamics of Stars group investigating the merger of compact objects and the implications for gravitational wave emission. – Use of leading N-body code to simulate the formation and evolution of triple systems. – Calculation of increase in black hole merger rate due to Kozai-Lidov oscillations.

Additional Experience

- JUNE 2018 ICE Gravitational Wave Summer School
MARCH 2018 INAF Cagliari Scientific Visit
JUNE 2017 Green Bank Observatory Training Workshop

PRESENTATIONS

- INAF CAGLIARI Extreme Mass Ratio Pulsar-Black Hole Binaries.
March 2018

DOCTORAL RESEARCH

“On the detection and timing of Extreme Mass Ratio Binaries as probes of Strong-field GR”

My primary research involves theoretical work on Extreme Mass Ratio Pulsar-Black hole binaries. Such systems may exist and the centre of Galaxies or Globular Clusters and provide an ideal testing ground for general relativity in the strong-field regime.

In particular my research is concerned with the time-frequency signal from a PSR in a relativistic orbit around a massive black hole. Such work is essential to both inform the detection of such systems, and to provide a theoretical framework which can then be compared with observations for tests of GR.

GRANTS & AWARDS

- 2018 **PHAROS Grant**
European Cooperation in Science and Technology
- 2016 **STFC PhD Studentship**
Science and Technologies Facilities Council
- 2015 **Erasmus+ Grant**
Erasmus+ & European Commission

COMPUTER SKILLS

- LANGUAGES Python, Fortran, Mathematica
- SCIENTIFIC TOOLS OpenMP, GNU Parallel, Git, Fermi Science Tools, TEMPO, L^AT_EX

ACADEMIC SERVICE

- CHAIR MSSL Seminar series
2018 - present
- CHAIR MSSL Journal Club
2017 - 2019
- FULL MEMBER LISA Consortium
- MEMBER Royal Astronomical Society

TEACHING

- POSTGRADUATE MARKER UCL High Energy Astrophysics
2017, 2018
- PRIMARY SUPERVISOR Aimi Kusudo. KSU Japan.
September 2018
- SECONDARY SUPERVISOR Adam Moon. Nuffield Student
Summer 2018