

# Tom Kimpson

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## Education

- **Ph.D. Candidate, Theoretical Astrophysics** **London, UK**  
*Mullard Space Science Laboratory, University College London*  
2016 – Present
  - Thesis: *On the detection and timing of Extreme Mass Ratio Pulsar-Black Hole binaries as probes of fundamental physics.*
  - Supervisor: Professor K. Wu
- **MPhys (Hons.), Physics and Astronomy (1<sup>st</sup> Class)** **Durham, UK**  
*Durham University*  
2012 – 2016
  - Thesis: *Very High Energy Gamma Rays from Gamma Ray Bursts*
  - Supervisor: Professor P. Chadwick

## Publications

- *Spatial Dispersion of light rays propagating through cold plasma in Kerr spacetime.*  
T. Kimpson, K. Wu, S. Zane. CQG. In prep.
- *Hierarchical black hole triples in young star clusters: impact of Kozai-Lidov resonance on mergers.*  
T. Kimpson, M. Spera, M. Mapelli, B. Ziosi. MNRAS. doi: 10.1093/mnras/stw2085

## Scientific Talks

- **Extreme Mass Ratio Pulsar-Black Hole Binaries.** Colloquium at INAF Cagliari *March 2018*

## Grants, Scholarships and Awards

- **PHAROS Grant.** European Cooperation in Science and Technology *March 2018*
- **STFC PhD Studentship.** Science and Technologies Facilities Council *2016 – 2019*
- **Erasmus+ Grant.** Erasmus+ & European Commission *June 2015*

## Research Visits

- **INAF Cagliari, Italy** *March 2018*  
*Short-term scientific visit*
  - Tuition in theoretical concepts relating to the detection and timing of radio pulsars.
  - Use of pulsar timing software and data analysis tools e.g. Tempo2
  - Exposure to the use of pulsar timing arrays for the detection of nanohertz gravitational waves.
- **INAF Padova & Padova University, Italy** *June – September 2015*  
*Summer internship*
  - 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.

## Other Employment

- **Data Scientist** **Prix, London**  
*Summer internship* *June – September 2016*
  - 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.

## Professional Activities, Outreach, and Service

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- **Chair.** MSSL Astrophysics Journal Club *Jan 2018 - present*
- **Organizer.** MSSL Astrophysics Seminar series *Jan 2018 - present*
- **Postgraduate Teaching Assistant.** UCL High Energy Astrophysics Masters course *Winter Term, 2017*

## Skills

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- **Computer Skills:** Python, Fortran, Mathematica, Bash.
- **Other scientific tools:**  $\text{\LaTeX}$ , OpenMP, GNU Parallel, Git, Fermi Science Tools, Tempo2.

## Scientific Workshops and Professional Development

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- **Postgraduate Teaching Workshop.** UCL *September 2017*
- **Green Bank Telescope Training Workshop.** Green Bank, West Virginia, USA *May 2017*