Tom Louden

Personal Data

ADDRESS: Department of Physics, University of Warwick, Coventry, CV4 7AL PHONE: +447982866379 EMAIL: T.Louden@warwick.ac.uk

EDUCATION AND POSITIONS

April 2017-	Research Fellow, STFC consolidated grant University of Warwick, UK
JULY 2016	Research Assistant, University of Warwick, UK
January 2017	PhD in Physics, University of Warwick , UK Thesis: "The composition and Dynamics of Hot Jupiter atmospheres" Advisor: Peter WHEATLEY
July 2012	Master of Physics with Astrophysics, University of Exeter , UK <i>First class</i> Dissertation: "Modelling the radius anomaly in hot Jupiters" Advisor: Isabelle BARAFFE

SKILLS AND EXPERIENCE

- Experience in coding, primarily with Python, but also fluent in C and Fortran
- Reduction and interpretation of high and low resolution spectra of exoplanets
- Modelling exoplanet transmission spectra with radiative transfer codes
- Experienced with observations at professional observatories.
- Involved with the commissioning and characterising of telescopes and CCDs
- Precise astrometric matching and distortion correction
- Analysis of X-ray data from XMM-Newton
- Modelling the emission from stellar corona in UV and X-rays
- Bayesian statistics and its application to data: MCMC and Gausian processes

AWARDS AND GRANTS

- 2016 Kavli Summer of Astrophysics 6 week travel grant
- 2017 Winton Prize for best Astronomy Thesis
- 2017 Warwick University Prize for best Physics Thesis
- 2017 Royal Astronomical Society runner up for best Astronomy Thesis
- 2017 Springer Thesis prize
- 2018 Cloud academy 1 week travel grant

Telescope time awarded as PI

- NTT "Transmission spectroscopy of highly inflated exoplanets", 094.C-0890(B) 3n
- HARPS-N, "Searching for extreme weather on the highly eccentric hot Jupiter.", 15B/63 1n
- HARPS-N, "Spatially resolving the atmospheric circulation of a very Hot Jupiter.", 16B/073 2n
- HARPS, "Spatially resolving the atmospheric circulation of Hot Jupiters", 099.C-0898(A) 3n
- HARPS-N "Spatially resolving the atmospheric circulation of a Hot Jupiter", 17B/048 1.5n
- 3n HARPS, "Searching for TiO and spatially resolving extremely hot Jupiters" 0101.C-0889(A)
- 2n HARPS-N "Spatially resolving the atmospheric circulation of a hot Saturn" 2018B/042

TALKS

- "EChO targets from the Next Generation Transit Survey (NGTS)", ESA-ESTEC, NL 2013
- "NGTS Providing a sample of bright hot Neptunes", NAM, Portsmouth, UK 2014
- "What drives the evaporation of HD 209458b?" , UKExoM, Cambridge, UK 2014
- "High resolution transmission spectroscopy of HD 189733b", UKExoM, Warwick, UK 2015
- 2015 "Spectrally resolving the atmosphere of HD 189733b", 20 years of giant exoplanets, OHP, FR
- "A forecast for clouds and high winds" invited speaker at IOA, Cambridge, UK 2016
- "SPIDERMAN a fast code for mapping exoplanets" invited speaker at University of Exeter, UK 2016
- 2017
- "SPIDERMAN vs WASP-43b" AAS meeting, Austin, USA "SPIDERMAN vs WASP-43b" Transiting exoplants, Keele, UK 2017
- "Exoplanet atmospheres: the new frontier" invited speaker at ESO offices Vitacura, Chile 2017
- "Exoplanet atmospheres: the new frontier" invited speaker at PUC University, Chile 2017
- "Exoplanet atmospheres at high resolution" NEMESIS conference, Oxford, UK 2018
- "Weather on other Worlds" Invited speaker at Imperial College London, UK 2018

HOBBIES AND INTERESTS

READING:	Dystopia, Science Fiction and Classic Literature
TRAVEL:	Hiking and exploring local culture and art
Fitness:	Weight lifting, Rock climbing, running.

References

Prof. Peter Wheatley Department of Physics, University of Warwick, CV4 7AL P.J.Wheatley@warwick.ac.uk

PUBLICATIONS

- Spatially resolved eastward winds and rotation of HD 189733b Louden & Wheatley 2015, ApJL 814, L24
- An ultra-short period rocky super-Earth with a secondary eclipse and a Neptune-like companion around K2-141 Malavolta, Mayo, Louden, et. al. 2018 AJ 155, 107
- SPIDERMAN, a fast code for modelling phase curves and secondary eclipses Louden & Kreidberg 2018, MNRAS 477, 2613
- A precise optical transmission spectrum of the inflated exoplanet WASP-52b Louden et al 2017, MNRAS 470, 742
- Reconstructing the high energy irradiation of the evaporating hot Jupiter HD 209458b. Louden et al 2017. MNRAS, 464, 2396

- Strong XUV irradiation of the Earthsized exoplanets orbiting the ultracool dwarf TRAPPIST-1 Wheatley, Louden, et al. 2017, MNRAS, 465, 174
- Spatially resolved eastward winds and rotation of HD 189733b Louden & Wheatley 2015, ApJL 814, L24
- Rayleigh scattering in the transmission spectrum of HAT-P-18b Kirk, Wheatley, Louden, et. al, 2017, MNRAS, 468, 3907
- *Transmission spectroscopy of the inflated exoplanet WASP-52b, and evidence for a bright region on the stellar surface* Kirk, Wheatley, **Louden** et. al, 2016, MNRAS, 463, 2922
- NGTS-2b: An inflated hot-Jupiter transiting a bright F-dwarf Raynard et al 2018, MNRAS submitted
- A low-mass eclipsing binary within the fully convective zone from the NGTS Casewell et al 2018 MNRAS, submitted
- The Transiting Exoplanet Community Early Release Science Program for JWST Bean et. al. 2018 eprint arXiv:1803.04985
- Unmasking the hidden NGTS-3Ab: a hot Jupiter in an unresolved binary system Gunther et al 2018 MNRAS, 478, 4720
- Global Climate and Atmospheric Composition of the Ultra-Hot Jupiter WASP-103b from HST and Spitzer Phase Curve C Kreidberg et. al. 2018, AJ, 156, 17
- An Earth-sized exoplanet with a Mercury-like composition Santerne et al 2018, Nature Astronomy, Volume 2, p. 393-400
- Automatic vetting of planet candidates from ground-based surveys: Machine learning with NGTS Armstrong et al 2018, MNRAS 478 4225
- The Next Generation Transit Survey (NGTS) Wheatley et al 2017, MNRAS 475 4476
- NGTS-1b: A hot Jupiter transiting an M-dwarf Bayliss et al 2017, MNRAS 475 4467
- K2-110 b a massive mini-Neptune exoplanet Osborn et. al, 2017, A&A 604, A19 (2017)
- MOVES I. The evolving magnetic field of the planet-hosting star HD189733 Fares et. al, 2017, MNRAS, 471, 1246
- From dense hot Jupiter to low-density Neptune: The discovery of WASP-127b, WASP-136b and WASP-138b Lam et. al, 2017, A&A, 599, A3
- Single Transit Candidates from K2: Detection and Period Estimation Osborn et. al, 2016, MNRAS, 457, 2273
- WASP-135b: a highly irradiated, inflated hot Jupiter orbiting a G5V star Spake et. al, 2015, PASP 128(960)