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Alexis M. S. Smith

Curriculum Vitae

Research Interests

Detection and characterisation of transiting exoplanetary systems
Exoplanet atmosphere observations
Stellar variability and star-planet interaction revealed in long-baseline photometry

Employment

2012– **Postdoctoral Researcher**, *Nicolaus Copernicus Astronomical Center, Warsaw, Poland.*
2009–2012 **Research Associate**, *Astrophysics Group, Keele University, UK.*
2005–2009 **Tutor and laboratory demonstrator**, *University of St Andrews, UK.*

Education

2009 **Ph.D. Astrophysics**, *University of St Andrews, UK.*
Thesis: *Searching for transiting extra-solar planets at optical and radio wavelengths*
Supervisor: Prof. Andrew Collier Cameron
2005 **M.Sci. Physics (Upper Second Class Honours)**, *University of Durham, UK.*
2001 'A'-levels, Caistor Grammar School, Lincolnshire, UK:
Physics (A), Mathematics (A), Further Mathematics (A), Chemistry (B), Gen. Stud. (A)
1999 11 GCSEs (Grades A* & A), Caistor Grammar School, Lincolnshire, UK

Observing Experience

2011 8.2-m VLT, ESO Paranal: Near-IR photometry
2010 – 2014 2.5-m INT, ING, La Palma: Optical photometry
2007 0.8-m IAC-80, IAC, La Palma: Optical photometry
2007 – 2009 100-m GBT, NRAO, WV: Radio continuum (307 - 347 MHz & 27 - 37 GHz)
2005 – 2009 0.94-m JGT, St Andrews: Optical photometry

Telescope Time Awards (selected, recent)

- 2015 PI, *Constraining the atmospheric properties of hot Jupiters*, 1.4-m Infrared Survey Facility, SAAO, South Africa (14 nights)
- 2014 PI, *The bulk characterisation of two new exoplanets via transit photometry*, I/2014B/12, 2.5-m Isaac Newton Telescope, ING, La Palma (2 nights)
- 2014 PI, *WASP-106: characterising a newly-discovered warm Jupiter in a 9.2-day orbit*, I/2014A/09, 2.5-m Isaac Newton Telescope, ING, La Palma (1 night)
- 2013 PI, *The bulk characterisation of three new exoplanets via transit photometry*, I/2013B/04, 2.5-m Isaac Newton Telescope, ING, La Palma (2 nights)
- 2013 PI, *Constraining the atmospheric properties of two highly-irradiated exoplanets*, 13BO63, 3.6-m Canada France Hawaii Telescope, Mauna Kea (2 nights)
- 2010 PI, *Probing the temperature structure and composition of the atmosphere of the hottest planet*, 4.2-m William Herschel Telescope, ING, La Palma (1 night DDT)
- 2010 PI, *ULTRACAM photometry of the secondary eclipse of the very hot Jupiter WASP-19 b*, 085.C-0926, 3.6-m New Technology Telescope, ESO, La Silla (2 nights)

- 2014 Co-I, *Testing spin-orbit alignment in the weak tidal regime*, 14B066, 3.6-m Telescopio Nazionale Galileo, La Palma (1 night)
- 2013 Co-I, *The NIR spectrum of a hot Jupiter atmosphere from differential IFU spectroscopy*, 093.C-0810, 8.2-m Very Large Telescope, ESO, Paranal (1 night)
- 2013 Co-I, *Testing spin-orbit alignment for a diverse sample of giant planets*, 3.6-m Telescopio Nazionale Galileo, La Palma (4 nights)
- 2012 Co-I, *The first complete UV to NIR spectrum of an exoplanet atmosphere*, 091.C-0588, Very Large Telescope, ESO, Paranal (1.4 nights)
- 2012 Co-I, *Full-orbit atmospheric characterisation of a gas giant transiting an M dwarf*, 90159, Spitzer Space Telescope (30 hours)
- 2012 Co-I, *Understanding Other Worlds with Spitzer: From Hot Jupiters to Super-Earths*, 90072, Spitzer Space Telescope (300 hours)
- 2012 Co-I, *Direct detection of the chromosphere of an active star through transit photometry*, P14, William Herschel Telescope, ING, La Palma (3 nights)
- 2012 Co-I, *The NIR spectrum of a hot Jupiter atmosphere from differential IFU spectroscopy*, 090.C-0881, Very Large Telescope, ESO, Paranal (1 night)

Grants Awarded

- May 2013 PI of Polish National Science Centre (NCN) "OPUS" research grant. Awarded 260,300 zł. (\approx €63,000, £53,000) for 2 year research project on planet atmospheres.
- March 2013 RAS grant to attend National Astronomy Meeting, St Andrews, UK
- January 2013 IAU grant to attend IAU Symposium 299, Victoria, BC, Canada
- May 2011 Financial assistance to attend *Exploring Strange New Worlds*, Flagstaff, AZ, USA
- July 2010 Financial assistance to attend *Sagan Exoplanet Summer Workshop*, Pasadena, CA, USA
- September 2005 PPARC / STFC PhD studentship bursary (full funding)

Professional Service and Memberships

Fellow of the Royal Astronomical Society (FRAS)
Full member of the Institute of Physics (MInstP)
Referee for *The Astrophysical Journal* and *Astronomy & Astrophysics*
External expert reviewer for the OPTICON telescope time allocation committee
Member, *Cool Stars XV* Local Organising Committee

Computer Skills

OS	Linux, Mac OS X, Windows
Programming	Fortran, IDL, Shell scripting, PGPLOT, Gnuplot, some Python
Astronomical	Starlink, IRAF
Web design	HTML, some basic PHP
Presentation	L ^A T _E X, Office, Keynote, Prezi, GIMP

Teaching and Student Supervision

- 2014 Supervised Masters student Kaustubh Hakim's summer internship, he has since commenced Ph.D. studies elsewhere.
- 2013 – 2014 Supervised Masters student Michał Marcinkiewicz's summer internship, and continued to supervise him in an on-going research project.
- 2013 – 2011 – 2012 Partial supervision / employment of two Ph.D. students under my NCN research grant. Unofficial co-supervisor to Ph.D. student Deepak Mahtani.
- 2005 – 2009 Tutor and laboratory demonstrator for undergraduate physics and astronomy courses. Telescope operator for undergraduate observing projects.

Public Outreach

- 2005 – 2012 Participated in and led a range of outreach activities whilst at Keele and St Andrews, including an adult education lecture; demonstrating the observatory's telescopes to the visiting public and to primary school children; demonstrating a sample lab exercise to secondary school pupils; lecturing to the University's astronomy society; and travelling to Mumbai and Edinburgh with an exhibition on exoplanets.

Referees

The names and contact details of referees are available on request.

List of publications

First author refereed publications

10. **Smith, A. M. S.**, 'The properties of XO-5b and WASP-82b redetermined using new high-precision transit photometry and global data analyses', 2015, *Acta Astron.* in press, arXiv:1412.0451.
9. **Smith, A. M. S.**, *et al.*, 'WASP-104b and WASP-106b: two transiting hot Jupiters in 1.75-day and 9.3-day orbits', 2014, *A&A*, **570** A64.
8. **Smith, A. M. S.**, & the WASP Consortium, 'The SuperWASP exoplanet transit survey', 2014, *CoSka*, **43** 500.
7. **Smith, A. M. S.**, *et al.*, 'WASP-71b: a bloated hot Jupiter in a 2.9-day, prograde orbit around an evolved F8 star', 2013, *A&A*, **552** A120.
6. **Smith, A. M. S.**, *et al.*, 'Thermal emission from WASP-24b at 3.6 and 4.5 μm ', 2012, *A&A* **545** A93.
5. **Smith, A. M. S.**, *et al.*, 'WASP-36b: A new transiting planet around a metal-poor G-dwarf, and an investigation into analyses based on a single transit light curve', 2012, *AJ* **143** 81.
4. **Smith, A. M. S.**, *et al.*, 'Thermal emission from WASP-33b, the hottest known planet', 2011, *MNRAS* **416** 2096.
3. **Smith, A. M. S.**, *et al.*, 'A SuperWASP search for additional transiting planets in 24 known systems', 2009, *MNRAS* **398** 1827.
2. **Smith, A. M. S.**, *et al.*, 'Secondary radio eclipse of the transiting planet HD 189733b: an upper limit at 307 - 347 MHz', 2009, *MNRAS* **395** 333.
1. **Smith, A. M. S.**, *et al.*, 'The impact of correlated noise on SuperWASP detection rates for transiting extrasolar planets', 2006, *MNRAS* **373** 1151.

Non-first author refereed publications

47. Hellier, C., *et al.* (incl. **Smith, A. M. S.**), 'Three WASP-South transiting exoplanets: WASP-74b, WASP-83b & WASP-89b', 2014, submitted to *AJ*, arXiv:1410.6358.
46. Anderson, D. R., *et al.* (incl. **Smith, A. M. S.**), 'Six newly-discovered hot Jupiters transiting F/G stars: WASP-87b, WASP-108b, WASP-109b, WASP-110b, WASP-111b & WASP-112b', 2014, submitted to *MNRAS*, arXiv:1410.3449.
45. Anderson, D. R., *et al.* (incl. **Smith, A. M. S.**), 'The well-aligned orbit of WASP-84b: Evidence for disc migration', 2015, *ApJL*, 800, L9.
44. Neveu-VanMalle, M., *et al.* (incl. **Smith, A. M. S.**), 'WASP-94 A & B planets: Hot-Jupiter cousins in a twin star system', 2014, *A&A*, **572** A49.
43. Lendl, M., *et al.* (incl. **Smith, A. M. S.**), 'WASP-117b: a 10-day-period Saturn in an eccentric and misaligned orbit', 2014, *A&A*, **568** A81.
42. Anderson, D. R., *et al.* (incl. **Smith, A. M. S.**), 'WASP-20b and WASP-28b: a hot Saturn and a hot Jupiter in near-aligned orbits around solar-type stars', submitted to *A&A*, arXiv:1402.1482.
41. Anderson, D. R., *et al.* (incl. **Smith, A. M. S.**), 'Three newly-discovered sub-Jupiter-mass planets: WASP-69b & WASP-84b transit active K dwarfs and WASP-70Ab transits the evolved primary of a G4+K3 binary', 2014, *MNRAS*, **445** 1114.

40. West, R. G., *et al.* (incl. **Smith, A. M. S.**), 'Three irradiated and bloated hot Jupiters: WASP-76b, WASP-82b & WASP-90b', submitted to A&A, arXiv:1310.5607.
39. Smalley, B., *et al.* (incl. **Smith, A. M. S.**), 'Eclipsing Am binary systems in the SuperWASP survey', 2014, A&A, **564** A69.
38. Hellier, C., *et al.* (incl. **Smith, A. M. S.**), 'Transiting hot Jupiters from WASP-South, Euler and TRAPPIST: WASP-95b to WASP-101b', 2014, MNRAS, **440** 1982.
37. Holdsworth, D. L., *et al.* (incl. **Smith, A. M. S.**), 'High frequency A-type pulsators discovered using SuperWASP', 2014, MNRAS, **439** 2078.
36. Delrez, L., *et al.* (incl. **Smith, A. M. S.**), 'Transiting planets from WASP-South, Euler and TRAPPIST: WASP-68 b, WASP-73 b and WASP-88 b, three hot Jupiters transiting evolved solar-type stars', 2014, A&A, **563**, A143.
35. Gillon, M., *et al.* (incl. **Smith, A. M. S.**), 'WASP-103b: a new planet at the edge of tidal disruption', 2014, A&A, **562** L3.
34. Blecic, J., *et al.* (incl. **Smith, A. M. S.**), 'Spitzer observations of the thermal emission from WASP-43b', 2014, ApJ, **781** 116.
33. Mahtani, D. P., *et al.* (incl. **Smith, A. M. S.**), 'Warm Spitzer Occultation Photometry of WASP-26b at $3.6\mu\text{m}$ and $4.5\mu\text{m}$ ', 2013, MNRAS, **432** 693.
32. Gillon, M., *et al.* (incl. **Smith, A. M. S.**), 'WASP-64b and WASP-72b: two new transiting highly irradiated giant planets', 2013, A&A **552** A82.
31. Anderson, D. R., **Smith, A. M. S.**, *et al.*, 'Thermal emission at 3.6–8 micron from WASP-19b: a hot Jupiter without a stratosphere orbiting an active star', 2013, MNRAS **430** 3422.
30. Triaud, A. H. M. J., *et al.* (incl. **Smith, A. M. S.**), 'WASP-80b: a gas giant transiting a cool dwarf', 2013, A&A **551** A80.
29. Maxted, P. F. L., *et al.* (incl. **Smith, A. M. S.**), 'WASP-77 Ab: A transiting hot Jupiter planet in a wide binary system', 2013, PASP **125** 48.
28. Faedi, F., *et al.* (incl. **Smith, A. M. S.**), 'WASP-54b, WASP-56b and WASP-57b: Three new sub-Jupiter mass planets from SuperWASP', 2013, A&A **551** A73.
27. Enoch, B., *et al.* (incl. **Smith, A. M. S.**), 'Transit algorithm performance using real WASP data', 2012, A&A **548** A48.
26. Smalley, B., *et al.* (incl. **Smith, A. M. S.**), 'WASP-78b and WASP-79b: Two highly-bloated hot Jupiter-mass exoplanets orbiting F-type stars in Eridanus', 2012, A&A **547** A61.
25. Lendl, M., *et al.* (incl. **Smith, A. M. S.**), 'WASP-42 b and WASP-49 b: two new transiting Saturns', 2012, A&A **544** A72.
24. Hellier, C., *et al.* (incl. **Smith, A. M. S.**), 'Seven transiting hot-Jupiters from WASP-South, Euler and TRAPPIST: WASP-47b, WASP-55b, WASP-61b, WASP-62b, WASP-63b, WASP-66b & WASP-67b', 2012, MNRAS **426** 739.
23. Deming, D., *et al.* (incl. **Smith, A. M. S.**), 'Infrared eclipses of the strongly irradiated planet WASP-33b, and oscillations of its host star', 2012, ApJ **754** 106.
22. Anderson, D. R., *et al.* (incl. **Smith, A. M. S.**), 'WASP-44b, WASP-45b and WASP-46b: three short-period, transiting extrasolar planets', 2012, MNRAS **422** 1988.
21. Gillon, M., *et al.* (incl. **Smith, A. M. S.**), 'WASP-50b: a hot Jupiter transiting a moderately active solar-type star', 2011, A&A **533** A88.
20. Smalley, B., Kurtz, D. W., **Smith, A. M. S.**, *et al.*, 'SuperWASP observations of pulsating Am stars', 2011, A&A **535** A3.

19. Enoch, B., *et al.* (incl. **Smith, A. M. S.**), 'WASP-35b, WASP-48b, and HAT-P-30b/WASP-51b: Two new planets and an independent discovery of a HAT planet', 2011, *AJ* **142** 86.
18. Hellier, C., *et al.* (incl. **Smith, A. M. S.**), 'WASP-43b: The closest-orbiting hot Jupiter', 2011, *A&A*, **535** L7.
17. Anderson, D. R., **Smith, A. M. S.**, *et al.*, 'Thermal emission at 4.5 and 8 micron of WASP-17b, an extremely large planet in a slightly eccentric orbit', 2011, *MNRAS* **416** 2108.
16. Anderson, D. R., *et al.* (incl. **Smith, A. M. S.**), 'WASP-40b: independent discovery of the 0.6-M_{Jup} transiting exoplanet HAT-P-27b', 2011, *PASP* **123** 555.
15. Anderson, D. R., *et al.* (incl. **Smith, A. M. S.**), 'WASP-31b: a low-density planet transiting a late-F-type star', 2011, *A&A* **531** A60.
14. Faedi, F., *et al.* (incl. **Smith, A. M. S.**), 'WASP-39b: a highly inflated Saturn-mass planet orbiting a late G-type star', 2011, *A&A* **531** A40.
13. Maxted, P. F. L., *et al.* (incl. **Smith, A. M. S.**), 'WASP-41b: A transiting hot Jupiter planet orbiting a magnetically-active G8 star', 2011, *PASP* **123** 547.
12. Simpson, E. K., *et al.* (incl. **Smith, A. M. S.**), 'Independent Discovery of the Transiting Exoplanet HAT-P-14b', 2011, *AJ* **141** 161.
11. Smalley, B., *et al.* (incl. **Smith, A. M. S.**), 'WASP-34b: a near-grazing transiting sub-Jupiter-mass exoplanet in a hierarchical triple system', 2011, *A&A* **526** A130.
10. Anderson, D. R., *et al.* (incl. **Smith, A. M. S.**), 'WASP-30b: a 61 M_J brown dwarf transiting a V=12, F8 star', 2011, *ApJL* **726** L19.
9. Simpson, E., *et al.* (incl. **Smith, A. M. S.**), 'WASP-37b: a 1.7 M_J exoplanet transiting a metal-poor star', 2011, *AJ* **141** 8.
8. Elkin, V., *et al.* (incl. **Smith, A. M. S.**), 'The discovery of rapid oscillations in the magnetic Ap stars HD69013 and HD96237', 2011, *MNRAS* **411** 978.
7. Wheatley, P. J., *et al.* (incl. **Smith, A. M. S.**), 'The thermal emission of the exoplanets WASP-1b and WASP-2b', 2010, arXiv:1004.0836.
6. Smalley, B., *et al.* (incl. **Smith, A. M. S.**), 'WASP-26b: A 1-Jupiter-mass planet around an early-G-type star', 2010, *A&A* **520** A56.
5. Bouchy, F., *et al.* (incl. **Smith, A. M. S.**), 'WASP-21b: a hot-Saturn exoplanet transiting a thick disc star', 2010, *A&A* **519** A98.
4. West, R. G., *et al.* (incl. **Smith, A. M. S.**), 'The sub-Jupiter mass transiting exoplanet WASP-11 b', 2009, *A&A*, **502** 395.
3. Christian, D. J., *et al.* (incl. **Smith, A. M. S.**), 'WASP-10b: a 3 M_J , eccentric transiting gas-giant planet', 2009, *MNRAS* **392** 1585.
2. Joshi, Y. C., *et al.* (incl. **Smith, A. M. S.**), 'WASP-14b: A 7.7 M_J , transiting exoplanet in an eccentric orbit', 2009, *MNRAS* **392** 1532.
1. Pollacco, D. *et al.* (incl. **Smith, A. M. S.**), 'WASP-3b: a strongly irradiated transiting gas-giant planet', 2008, *MNRAS* **385** 1576.

Conferences and Presentations

- April 2014 Exoplanet UK Community Meeting, Cambridge, UK
- September 2013 Observing techniques, instrumentation and science for metre-class telescopes, Tatranská Lomnica, Slovakia: *The SuperWASP exoplanet transit survey* (invited talk)
- July 2013 UK National Astronomy Meeting 2013, St Andrews, UK: *Occultation photometry of hot Jupiters* (poster)
- June 2013 IAU Symposium 299 'Exploring the formation and evolution of planetary systems', Victoria, Canada
- March 2013 Characterising exoplanets: detection, formation, interiors, atmospheres and habitability, The Royal Society, London, UK
- June 2012 Transiting Planets in the House of the Sun, Maui, HI, USA: *Probing planetary atmospheres with occultation measurements* (talk)
- March 2012 UK-Germany National Astronomy Meeting 2012, Manchester, UK: *Probing the atmospheric structure of hot Jupiters* (poster)
- September 2011 Extreme Solar Systems II, Jackson Hole, WY, USA: *Characterising the WASP Planets with Infrared Occultation Measurements: Latest Results* (poster)
- May 2011 Exploring Strange New Worlds, Flagstaff, AZ, USA: *Characterising the WASP Planets with Infrared Occultation Measurements* (poster)
- September 2010 ExoClimes, Exeter, UK
- July 2010 Sagan Exoplanet Summer Workshop, Pasadena, CA, USA: *WASP-36 b: a New Transiting Planet* (poster)
- January 2010 The detection of extra-terrestrial life and the consequences for science and society, The Royal Society, London, UK
- April 2009 Edinburgh International Science Festival, Edinburgh, UK: *Is there anybody out there? Searching for new worlds* (exhibition)
- January 2009 Techfest, Mumbai, India: *Is there anybody out there? Searching for new worlds* (exhibition)
- July 2008 Cool Stars XV, St Andrews, UK: *A new upper limit to the radio flux from the transiting planet HD 189733b* (talk) & *Radio cyclotron emission from extra-solar planets* (poster)
- May 2008 IAU Symposium 253 'Transiting Planets', Cambridge, MA, USA: *Radio cyclotron emission from extra-solar planets* (poster)
- May - June 2007 SUPA/SUSSP Exoplanets Summer School, Sol Mor Ostaig, Skye, UK: *The impact of correlated noise on SuperWASP detection rates for transiting exoplanets* (talk)
- September 2006 Transiting Extrasolar Planets Workshop, Heidelberg, Germany: *The colour of noise in SuperWASP data and the implications for finding extra-solar planets* (talk)
- April 2006 National Astronomy Meeting, Leicester, UK: *Analysis of noise on photometric SuperWASP data and the implications for finding extrasolar planets* (poster)