JAMES MATTHEWS
Astrophysicist

PERSONAL INFORMATION

Born in Reading, UK 27 January 1990

email jm8go8@soton.ac.uk

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GOAL

RESEARCH INTERESTS

Understanding the physics and observational signatures of accretion discs and their associated winds and jets. Developing state-of-the-art Monte Carlo radiative transfer and hydrodynamical methods to complement observations. Testing unification models and understanding the connection between outflows and galaxy evolution.

EDUCATION

2012-present The University of Southampton

PhD Astrophysics (ongoing)

Thesis: *Disc Winds Matter: Modelling Accretion Disc Winds On All Scales*
Supervisor: Prof. Christian Knigge. Expected finish May 2016.

2011-2012 Harvard-Smithsonian Center for Astrophysics

Research Year Abroad

Thesis: *Searching For Nearby Planets During Predicted Microlensing Events*
Supervisor: Dr. Rosanne Di Stefano. *Mark: 84%*

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2008-2012 The University of Southampton

MPhys Astrophysics with Year Abroad

· *First Class Honours (average 78%)*

2001-2008 Chew Valley School

Secondary School

· *3 A-levels grade A (Maths, Physics, Chemistry), 2 AS levels grade A, 10 GCSEs (9 A*, 1 A) including English Language.*

PUBLICATIONS

2016 *'Testing Quasar Unification: Clumpy Wind Models and Radiative Transfer'*, **Matthews, J.H.**, Knigge, C., Long, K. S., Sim, S. A., Higginbottom, N., Mangham, S. W., MNRAS, 458, 293

2016 *'The Optical-UV Emissivity of Quasars: Dependence on Black Hole Mass, Luminosity and Radio Loudness'*, Shankar, F., Calderone, G., Knigge, C., **Matthews, J.H.** et al., ApJ Letters, 818, 1

2015 *'The Impact of Accretion Disc Winds on the Optical Spectra of Cataclysmic Variables'*, **Matthews, J.H.**, Knigge, C., Long, K. S., Sim, S. A., Higginbottom, N., MNRAS, 450, 3331

2014 *'Line-driven Disk Winds in Active Galactic Nuclei: The Critical Importance of Ionization and Radiative Transfer'*, Higginbottom, N., Proga, D., Knigge, C., Long, K. S., **Matthews, J.H.**, Sim, S. A., ApJ, 789, 19

2013 '*A Simple Disc Wind Model for Broad Absorption Line Quasars*', Higginbottom, N., Knigge, C., Long, K. S., **Matthews, J.H.**, Sim, S. A., MNRAS, 436, 1390

2013 *'Nearby planetary systems as lenses during predicted close passges to background stars'*, Di Stefano, R., **Matthews, J.H.**, Lepine, S., ApJ, 771, 79

COMPUTER SKILLS

· Fluent use of Python, Fortran and C applied to complex numerical simulations, database manipulation and data visualisation.

· Extensive experience of large scale Monte Carlo simulations utilising big atomic datasets.

· Responsible for MPI parallelisation, unit testing, version control and Travis CI integration of a large scale project ($\sim 40,000$ lines of C code) during PhD. Especially fluent with git and Github integration.

· Familiar with Windows, Mac OSX and Linux. Some limited experience using BASH and IDL.

OTHER INFORMATION

Awards

2008 · University of Southampton 4-year Academic Scholarship

2013 · RAS Grant, '*Support for a Short Academic Stay at Colombia University*'

Work Experience / Responsibilities

2013-2015 · Journal Club Organiser

2016- · Running Student Pizza Seminar

2012- · Teaching Assistant & Demonstrator, Undergraduate Courses

2012- · Public Engagement Demonstrator, Southampton Astrodome

2011 · Summer Intern, Oxford Instruments Plasma Technology

Presentations

2015 · '*Modelling The Spectra of Quasars: Clumpy Winds and Unification*', TORUS 2015, Winchester

2015 · '*The Impact of Accretion Disc Winds on the Optical Spectra of Cataclysmic Variables*', Invited Talk, The Golden Age of Cataclysmic Variables, Palermo

2015 · '*Modelling The Spectra of Quasars: Clumpy Winds and X-ray Properties*', The Extremes of Black Hole Accretion, ESAC, Madrid

2015 · '*Modelling The Spectra of Quasars: Clumpy Winds and X-ray Properties*', Black Hole Accretion and AGN Feedback, Shanghai

2014 · '*The Search for Alien Life*', Public Talk, Southampton

2014 · '*The Impact of Accretion Disc Winds on the Optical Spectra of Cataclysmic Variables*', Cataclysmic Variables and Compact Binaries, Columbia University, NY

2014 · '*Modelling The Spectra of Quasars*', AGN Disc Winds Meeting, Durham, UK

2012 · '*Searching For Nearby Planets During Predicted Microlensing Events*', Masters Thesis Talk, Harvard-Smithsonian CfA, Boston, MA

2012 · '*Searching For Nearby Planets During Predicted Microlensing Events*', Exoplanet Lunch, Harvard-Smithsonian CfA, Boston, MA

Interests

Piano · Guitar · Sport and Fitness · Public Engagement · Travel

November 17, 2016