

CURRICULUM VITAE – JAMES E. OWEN

PERSONAL INFORMATION	James Edward Owen Astrophysics Group, Blackett Laboratory, Imperial College London Prince Consort Rd, London, SW7 2BB, U.K. james.owen@imperial.ac.uk
EDUCATION	University of Cambridge - Ph.D. Astronomy - August 2011 University of Cambridge - M.Sci. Physics - June 2008 University of Cambridge - B.A. Natural Sciences - June 2007, MA since 04/2011
PROFESSIONAL EXPERIENCE	Royal Society University Research Fellow : July 2017 → Imperial College London NASA Hubble Fellow : November 2014 → June 2017 Member, Institute of Advanced Study, Princeton. CITA Post-doctoral Fellow : September 2011 → October 2014 Canadian Institute for Theoretical Astrophysics. Graduate Student : October 2008 → August 2011 Institute of Astronomy, University of Cambridge UROP Summer Student : Summer 2007 Mullard Radio Astronomy Observatory, University of Cambridge
AWARDS & PRIZES	Royal Society University Research Fellowship (awarded 2016, commenced 2017) NASA Hubble fellowship (awarded 2014) CITA fellowship (awarded 2011) Physics MSci Thesis Prize, University of Cambridge (Theory/Computational) 2008 UROP Summer Research Grant 2007, Supervisor: Dr. John Richer Churchill College Scholar, 2006 → 2009
SKILLS	Computational : Numerical Hydrodynamics using the ZEUS, PLUTO & ATHENA codes. Numerical Planetary evolution using the MESA code. Radiative Transfer using the MOCASSIN, HYPERION & HO-CHUNK codes. Professional : Referee: ApJ, MNRAS, RevMexAA, EPSL, Nature, Nature Communica- tions, Nature Astronomy, Science, PNAS & PASA. Proposal Reviews: NASA XRP (external - 2015, 2017), VENI fellowships (external, 2015-2016), STFC consolidated grants (external, 2015, 2017), NASA ATP (panel member, 2016, external, 2017), FONDECYT (external, 2016), DFG (external 2017). Invited review articles: review on transition discs (Published in PASA 2016); review on atmospheric escape and exoplanet evolution (To be published in Annual Reviews) Coordinator of Nordita program: ‘Photoevaporation of As- trophysical Systems’ held at Nordita, Stockholm, Sweden June 2-28 2013 ISIMA Fellow: Summer 2014, University of Toronto. Participant at the Kavli Summer Program in Astrophysics 2016, UCSC

Students supervised :

Mathias Hudoba de Badyn (University of British Columbia)
NRSEC undergraduate summer fellowship held at CITA (Summer 2012)
Project: 'Thermal Sweeping in the late stages of disc evolution'
Nikhil Mahajan (University of Toronto)
SURP summer student at University of Toronto (Summer 2013)
Project: 'Evaporation of *Kepler* planets'
Aaron Goldberg (McMaster University)
NRSEC undergraduate summer fellowship held at CITA (Summer 2014)
Project: 'Tracing Chondrule Formation'
Jean Teyssandier (Institut d'Astrophysique de Paris)
ISIMA PhD student (Summer 2014) Project: 'Torque on an exoplanet from an anisotropic evaporative wind'
Connor Robinson (Boston University), with Prof. C. Espaillat (2015→) Project: 'Time-dependent models of magnetically controlled stellar accretion'
Corentin Cadiou (Institut d'Astrophysique de Paris)
Kavli Summer Program in Astrophysics PhD student (Summer 2016) Project: 'Kepler planets - a tale of evaporation'

RECENT INVITED 'Kepler planets: a tale of evaporation'
TALKS & COLLOQUIA Astronomy Colloquium, The Ohio State University (March 2017) 'Sculpting Exoplanets through Evaporation'
AOPP Colloquium, University of Oxford (December 2016)
'Vorticities from low-mass planets'
Fellows at the Frontiers 2016, Northwestern University (September 2016)
- 'A review of disc evolution'
Planet Formation & Evolution 2016, Duisburg Germany (March 2016)
- 'Kepler planets: a tale of mass-loss'
Astrophysics Colloquium, University of Michigan (February 2016)
- 'Boil-off in forming exoplanets'
Protoplanetary disc dynamics, UCLAN Cyprus (June 2015)
- 'Models of accreting transition discs'
Lorentz Center, Leiden (March 2015)
- 'Evaporating Atmospheres Around Close-in Exoplanets'
AGU, San Francisco (December 2014)
- 'Protoplanetary disc evolution'
TAP Colloquium, University of Arizona (April 2014)
- 'Evolution of transition discs'
Astrophysics Seminar, Imperial College London (February 2014)
- 'Dynamics & Evolution of 'transition' discs'
University California, Santa Cruz (November 2013)
- 'Photoevaporation of discs'
Nordita, Stockholm (June 2013)
- 'The dispersal of protoplanetary discs'
Princeton University, Wunch (May 2013)
- 'Evaporation of discs and planets'
University of Nevada, Las Vegas, Astronomy & Physics Colloquia (November 2012)

HPC TIME AWARDED **XSEDE AST160001** PI: James Owen: 500K core hours for MHD studies of planet evaporation.

OBSERVING TIME AWARDED **VLA/14A-218** PI: Anna Scaife, CIs: James Owen, Barbara Ercolano: 18.08hrs on the VLA in configuration A to observe a sample of protoplanetary discs at radio wavelengths

VLA/14A-227 PI: Jeremy Lim; CI: James Owen: 6.8hrs on the VLA in configuration A to image the protoplanetary disc TW-Hydra at radio wavelengths.

VLA/15A-191 PI: Jeremy Lim; CI: James Owen: 7.19hrs on the VLA in configuration A to image protoplanetary discs at radio wavelengths.

ALMA 2015.1.00979.S PI: Ilaria Pascucci; CIs: James Owen, Uma Gorti, David Hollenbach, Luca Ricci, Nathaniel Hendler, Cathie Clarke: Cycle 3 Priority B Observations.

e-MERLIN CY3202 PI: Ilaria Pascucci; CIs: James Owen, Uma Gorti, David Hollenbach, Jane Greaves, Olja Panic, Cathie Clarke: Cycle-3 Priority A Observations.

HST-GO-14703 PI: Andrea Banzatti; CIs: James Owen, Ilaria Pascucci, Kevin France, Keri Hoadley: 20 Primary Orbits on Hubble.

TEACHING **2008→2011** Supervisor (tutor) for Part IB (second year) Mathematics for Churchill College, University of Cambridge.

2009→2011 Supervisor (tutor) for Part II (third year) Astrophysical Fluid Dynamics for The Cavendish Laboratory, University of Cambridge.

In this role I performed ~ 200 hours of face-to-face teaching in small groups.

Feb. 2016 Guest Lecturer for ‘New Discoveries in Astronomy’, ASTRO 210, University of Michigan.

2017→ Tutor for 3rd year comprehensive physics paper, Imperial College London

SELECTED PRESS Press for Blackman & Owen (2016):
[“A new way to determine the age of stars”](#)
 Press for Owen & Mohanty (2016):
[“Number of habitable planets could be limited by stifling atmospheres”](#)
 Press for Bolmont et al. (2016):
[“New exoplanet trio may have been dried out by fiery young star”](#)

REFERENCES **Professor Cathie Clarke** (Institute of Astronomy, University of Cambridge)
cclarke@ast.cam.ac.uk, +44 (0)1223 339087

Professor Norman Murray (Canadian Institute for Theoretical Astrophysics)
murray@cita.utoronto.ca, +1 416-978-1778

Professor Yanqin Wu (University of Toronto)
wu@astro.utoronto.ca, +1 416-946-5633

Professor Fred Adams (University of Michigan)
fca@umich.edu, +1 734-647-4320

Professor Jonathan Fortney (University of California, Santa Cruz)
jfortney@ucsc.edu, +1 831-459-1312

Dr Subhanjoy Mohnaty (Imperial College London)
s.mohanty@imperial.ac.uk, +44 20 7594 7553

PUBLICATIONS – JAMES E. OWEN

- PUBLICATIONS: **Owen, J. E.** & Wu, Y. (2017, *ApJ* 847 29)
PEER REVIEWED The evaporation valley in the Kepler planets
JOURNAL ARTICLES
- Espaillet, C. C.; Ribas, A.; McClure, M. K.; Hernandez, J.; **Owen, J. E.**; Avish, N.; Calvet, N.; Franco-Hernandez, R. (2017, *ApJ* 844 60)
An Incipient Debris Disk in the Chamaeleon I Cloud
- Owen, J. E.** & Lai, D. (2017, *MNRAS* 469 2834)
Generating large misalignments in gapped and binary discs
- Robinson, C. E.; **Owen, J. E.**; Espaillet, C. C.; Adams, F. C. (2017 *ApJ* 838 100)
Time Dependent Models of Magnetospheric Accretion onto Young Stars
- Owen, J. E.** & Kollmeier, J. A (2017, *MNRAS* 467 3379)
Dust traps as planetary birthsites: basics and vortex formation
- Bolmont, E.; Selsis, F.; **Owen, J. E.**; Ribas, I.; Raymond, S. N.; Lecote, J. (2017, *MNRAS* 464 3728)
Water loss from Earth-sized planets in the habitable zones of brown dwarfs: implications for the planets of TRAPPIST-1
- Ercolano, B. & **Owen, J. E.** (2016, *MNRAS* 460 3472)
Blueshifted [OI] lines from protoplanetary discs: the smoking gun of X-ray photo-evaporation
- Owen, J. E.** & Mohanty, S. (2016, *MNRAS*, 459 4088)
Habitability of Terrestrial-Mass Planets in the HZ of M-Dwarfs. I. H/He-Dominated Atmospheres
- Owen, J. E.** & Menou, K. (2016, *ApJ* 819 L14)
Disk-fed giant planet formation
- Owen, J. E.** & Morton, T. D. (2016, *ApJ* 819 L10)
The initial physical conditions of Kepler-36 b & c
- Blackman, E. G & **Owen, J. E.** (2016, *MNRAS* 458 1548)
Minimalist coupled evolution model for stellar x-ray activity, rotation, mass loss, and magnetic field
- Haworth, T. J.; Clarke, C. J.; **Owen, J. E.** (2016, *MNRAS* 457 1905)
Rapid radiative clearing of protoplanetary discs
- Owen, J. E.** (Invited Review, 2016, *PASA* 33 e005)
The origin and evolution of transition discs: successes, problems and open questions
- Owen, J. E.** & Adams, F. C. (2016, *MNRAS* 456 3053)
Hot Jupiter Breezes: Time-dependent Outflows from Extrasolar Planets

- Owen, J. E.;** Wu, Y. (2016 *ApJ* 817 107)
Atmospheres of low mass planets: the "boil-off"
- Owen, J. E.;** Alvarez, M. A. (2016 *ApJ* 816 34)
UV driven evaporation of close-in planets: energy-limited; recombination-limited and photon-limited flows
- Rosotti, G. P.; Ercolano, B.; **Owen, J. E.** (2015 *MNRAS* 454 2173)
The long-term evolution of photoevaporating transition discs with giant planets
- Goldberg, A. Z.; **Owen, J. E.;** Jacquet, E. (2015, *MNRAS* 452 4054)
Chondrule Transport in Protoplanetary Disks
- Ercolano, B.; Koepferl, C.; **Owen, J. E.;** Robitaille, T. (2015, *MNRAS* 452 3689)
Far-infrared signatures and inner hole sizes of protoplanetary discs undergoing inside-out dust dispersal
- Teyssandier, J.; **Owen, J. E.;** Adams, F. C.; Quillen, A. C. (2015, *MNRAS* 452 1743)
Torque on an exoplanet from an anisotropic evaporative wind
- Owen, J. E.;** Jacquet E. (2015, *MNRAS* 446 3285)
Astro & cosmo-chemical consequences of accretion bursts I: the D/H ratio of water
- Clarke, C. J.; **Owen, J. E.** (2015, *MNRAS* 446 2944)
Probing X-ray photoevaporative winds through their interaction with ionising radiation in cluster environments: the case for X-ray proplyds
- Owen, J. E.;** Armitage P. J. (2014, *MNRAS* 445 2800)
Importance of thermal diffusion in the gravomagnetic limit cycle
- Owen, J. E.;** Adams, F. C. (2014, *MNRAS* 444 3761)
Magnetically controlled mass-loss from extrasolar planets in close orbits
- Owen, J. E.** (2014, *ApJ* 790 L7)
Snow Lines as Probes of Turbulent Diffusion in Protoplanetary Disks
- Owen, J. E.** (2014, *ApJ* 789 59)
Accreting Planets as Dust Dams in 'Transition' Disks
- Ercolano, B.; Mayr, D.; **Owen, J. E.;** Rosotti, G.; Manara, C. (2014, *MNRAS* 439 256)
The Mdot-Mstar relation of pre-main sequence stars: a consequence of X-ray driven disc evolution
- Owen, J. E.;** Wu, Y.; (2013, *ApJ* 775 105)
Kepler planets: a tale of evaporation
- Owen, J. E.;** Hudoba de Badyn, M.; Clarke, C. J.; Robins, L; (2013, *MNRAS* 436 1430)

Characterising thermal sweeping: a rapid disc dispersal mechanism

Owen, J. E.; Scaife, A. M. M.; Ercolano B.; (2013, *MNRAS* 434 3378)
Testing protoplanetary disc dispersal with radio emission

Clarke, C. J.; **Owen, J. E.**; (2013, *MNRAS* 433 L69)
Evolutionary constraints on the planetary origin for transition discs

Rosotti, G. P.; Ercolano, B.; **Owen, J. E.**; Armitage, P. J.; (2013, *MNRAS* 430 1392)
The interplay between X-ray photoevaporation and planet formation

Owen, J. E.; Clarke, C. J.; (2012, *MNRAS* 426 L91)
Two populations of transition discs?

Owen, J. E.; Jackson, A. P.; (2012, *MNRAS* 425 2931)
Planetary evaporation by UV & X-rays radiation: basic hydrodynamics

Owen, J. E.; Clarke, C. J.; Ercolano B.; (2012, *MNRAS* 422 1880)
On the theory of disc photoevaporation

Pascucci, I.; Sterzik, M.; Alexander, R. D.; Alencar, S. H. P.; Gorti, U.; Hollenbach, D.; **Owen, J. E.**; Ercolano, B.; Edwards; (2011, *ApJ* 736 13)
The photoevaporative wind from the disk of TW Hya

Ercolano, B.; Bastian, N.; Spezzi, L. & **Owen, J. E.**; (2011, *MNRAS* 416 439)
On the lifetime of discs around late type stars

Owen, J. E.; Ercolano, B. & Clarke, C. J.; (2011, *MNRAS* 412 13)
Protoplanetary Disc Evolution and Dispersal: the implications of X-ray photoevaporation

Owen, J. E.; Ercolano, B. & Clarke, C. J.; (2011, *MNRAS* 411 1104)
The imprint of photoevaporation on edge on discs

Graves, S. F.; Richer, J. S.; Buckle, J. V.; Duarte-Cabral, A.; Fuller, G. A.; Hogerheijde, M. R.; **Owen, J. E.**; Brunt, C.; Butner, H. M.; Cavanagh, B.; Chrysostomou, A.; Curtis, E. I.; Davis, C. J.; Etxaluze, M.; Di Francesco, J.; Friberg, P.; Friesen, R. K.; Greaves, J. S.; Hatchell, J.; Johnstone, D.; Matthews, B.; Matthews, H.; Matzner, C. D.; Nutter, D.; Rawlings, J. M. C.; Roberts, J. F.; Sadavoy, S.; Simpson, R. J.; Tothill, N. F. H.; Tsamis, Y. G.; Viti, S.; Ward-Thompson, D.; White, G. J.; Wouterloot, J. G. A. & Yates, J.; (2010, *MNRAS* 409 1412)
The JCMT legacy survey of the Gould belt: a first look at Serpens with HARP

Ercolano, B. & **Owen, J. E.** (2010 *MNRAS* 406, 1553)
Theoretical spectra of photoevaporating protoplanetary discs: an atlas of atomic and low-ionization emission lines

Owen, J. E.; Ercolano, B.; Clarke, C. J. & Alexander, R. D. (2010, *MNRAS* 401, 1415) Radiation-hydrodynamic models of X-ray and EUV photoevaporating

protoplanetary discs

PUBLICATIONS:
CONTRIBUTIONS
& PROCEEDINGS

Adams, F.C.; **Owen, J. E.** (2014, proceedings of 'Cool Stars 18', arXiv:1409.6544)
Magnetically Controlled Outflows from Planets

Owen, J. E.; Ercolano, B.; Clarke, C. J. (2012, proceedings of 'The Labyrinth of
Star Formation', arXiv:1208.6243)
Radiative Transfer in Star Formation: Testing FLD & Hybrid Methods

Scaife, A. M. M.; **Owen, J. E.**; Ercolano, B.; Rumsey, C.; (2012, *The As-
tronomer's Telegram*, 4294)
Radio flare from FF Tau