

Luke J. M. Davies

ICRAR FELLOW (WAVES PROJECT SCIENTIST)

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Work History

University of Western Australia

Perth, Australia

ICRAR FELLOW

Oct 2016 - PRESENT

- Wide Area VISTA Extragalactic Survey (WAVES) Project Scientist
- 3yr appointment

University of Western Australia

Perth, Australia

JOHN STOCKER FELLOW

Oct 2013 - Oct 2016

- Exploring star-formation and environment in GAMA
- 3yr appointment

University of Bristol

Bristol, UK

POST-DOCTORAL RESEARCH ASSISTANT

Jun 2011 - Oct 2013

- Exploring the early evolution of galaxies
- 3yr appointment

University of Portsmouth

Portsmouth, UK

EARLY STAGE RESEARCHER

Oct 2010 - Apr 2011

- Galaxy evolution in the dark energy survey
- 6 month fixed term contract

Education

University of Bristol

Bristol, United Kingdom

PHD IN ASTROPHYSICS

Oct 2007 - May 2011

- Thesis topic: Multi-wavelength studies of early star-forming galaxies
- Supervisor: Prof. Malcolm Bremer

University of Bristol

Bristol, United Kingdom

MSci IN PHYSICS WITH ASTROPHYSICS

Oct 2003 - Jul 2007

- 2nd class honours degree (2:1)

Cwmcarn High School

Cwmcarn, Wales, UK

A-LEVELS

Sep 2000 - Jul 2002

- Maths (A), Physics (A), Biology (A)

Academic Experience

POSITIONS HELD

- Principle Investigator for the Deep Extragalactic Visible Legacy Survey (devilsurvey.org)
- Project scientist for the Wide Area Vista Survey (WAVES) - Deep program (wavesurvey.org)
- Chair of the 4MOST Infrastructure Working Group - Extragalactic Pipeline (4most.eu)
- Member of the 4MOST Operations Development Group
- Member of the 4MOST-Consortium science schedule development team
- Deputy Lead of the ASKAP-EMU Key Science Project: Cosmic star formation history ([emu site](http://emu.site))
- Member of the MSE-high-z/cosmology working group (mse.cfht.hawaii.edu)
- Lead author of MSE Science Reference Observation on IGM mapping
- Co-author of two other MSE Science Reference Observations
- Member of the Galaxy And Mass Assembly survey (gama-survey.org)
- Associate member of the SAMI galaxy survey (sami-survey.org)
- Member of the CHILES survey (chiles.astro.columbia.edu)
- Member of the HECTOR survey target selection working group
- Member of the ASKAP-DINGO survey team (dingo-survey.org)
- Member of the GLASS survey team ([GLASS site](http://GLASS.site))

- ICRAR-UWA PhD selection committee
- Multiple ICRAR/UWA interview panels
- LOC & SOC chair of 'ICRARcon' annual conference. ~120 attendees.
- LOC & SOC chair of GAMA 2017 team meeting. ~60 attendees.
- Founder and organiser of the Bristol, Exeter, Cardiff student seminars (BECs)
- Referee for a number of high impact journals.

SELECTED GRANTS, OBSERVING TIME AND INVITED TALKS

May 2018	Invited Talk , AAO workshop: Observational Techniques in Astronomy	<i>Sydney, Australia</i>
Apr 2018	Invited Talk , Mock Durham Conference	<i>Durham, UK</i>
Sep 2017	Grant , ARC Discovery Project - Dark-matter halo's and galaxy evolution (AU\$390,877)	<i>Australia</i>
Dec 2017	Invited Talk , Hunstead Workshop on Galaxian Processes	<i>Sydney, Australia</i>
Sep 2017	Grant , Department of Industry, Innovation and Science - Galaxy Explorer Forensics (AU\$350,000)	<i>Australia</i>
Jun 2017	Observing Time , ATAC - DEVILS (90 nights, equivalent to AU\$1000,000 in AAT operational costs)	<i>Australia</i>
Jun 2017	Invited Talk , Southern Cross Meeting 2017	<i>Sydney, Australia</i>
May 2017	Invited Talk , OzSKA 3 Meeting	<i>Sydney, Australia</i>
Feb 2017	Invited Talk , HECTOR Science Workshop	<i>Sydney, Australia</i>
Apr 2016	Invited Talk , eRosita Science Workshop	<i>Ringberg, Germany</i>
Jul 2015	Invited Talk , MSE Team Meeting	<i>Hawaii, U.S.A.</i>
Jun 2015	Invited Talk , Harley Wood Winter School	<i>Rottneet, Australia</i>
Apr 2015	Invited Talk , HECTOR Science Workshop	<i>Sydney, Australia</i>
Sep 2014	Grant , UWA Research Collaboration Award (AU\$5847)	<i>Perth, Australia</i>
Sep 2013	Grant , UWA Research Collaboration Award (AU\$5000)	<i>Perth, Australia</i>
Feb 2013	Grant , John Stocker Fellowship - 'Star-formation in the most typical environment?' (AU\$360,000)	<i>Australia</i>
Mar 2013	Observing Time , Australia Telescope Compact Array TAC (6 nights)	<i>Australia</i>

TEACHING

2016 -	PhD selection panel , ICRAR/UWA PhD scholarship applications	<i>UWA, Australia</i>
2015 -	PhD student supervision , 1 completed (S. Andrews), 3 current (S. Koushan, A. Hashemi, M. Bravo)	<i>UWA, Australia</i>
2014 -	Masters level student supervision , Numerous students	<i>UWA, Australia</i>
2011-13	Level 1E physics course tutor , Advanced pre-degree physics course	<i>UOB, UK</i>
2011-12	Masters level lecture series , The Properties of High Redshift Galaxies	<i>UOB, UK</i>
2007-10	Laboratory Demonstrator , Both physics and astronomy undergraduate courses	<i>UOB, UK</i>

ONLINE ASTRONOMY TOOLS

- **VISTA-view**, VISTA telescope image cutout server (in user testing)
- **AstroMap**, Survey sky layout plotting tool (astromap.icrar.org)
- **SpecFit**, Spectral analysis and redshifting tool (specfit.icrar.org)
- **SpecGen**, Spectral simulator tool (specgen.icrar.org)
- **GAMA-PSI**, GAMA image cutout server (cutout.icrar.org)

Education & Outreach

PRESENTING

Jul 2017	Neil DeGrasse Tyson Event , Hosted promotion company Think Inc's (thinkinc.org.au) evening with Dr Neil DeGrasse Tyson to an audience of ~2000 people (See here)	<i>Perth, Australia</i>
Aug 2017	Perth Observatory's Winter Lecture , Invited Talk for Perth Observatory titled 'Cosmic Fossil Hunting'	<i>Perth, Australia</i>
Aug 2016	Brian Greene Event , Presented at promotion company Think Inc's (thinkinc.org.au) evening with Prof Brian Greene to an audience of ~500 people. (See here)	<i>Perth, Australia</i>
Jan 2016	Perth Observatory's Summer Lecture , Invited Talk for Perth Observatory titled 'Amazing Cosmos'	<i>Perth, Australia</i>

- Aug 2015 **Melbourne Astrofest**, Invited Talk at Melbourne Astrofest/Festival of Light titled 'Amazing Cosmos' *Melbourne, Australia*
- Nov 2014 **Techtrails - Women in Technology WA**, Spoke at Techtrails workshop organised by Women in Technology WA (WitWA) *Perth, Australia*
- 2014 - **School, Societies and Events**, I present ~fortnightly at local high schools, astronomy clubs and public events promoting astronomy topics to a broad range of audiences from primary school children to active amateur astronomers and undergraduate STEM students. *Perth, Australia*
- 2014 - **Astro Morning Tea**, Organiser and presenter of ICRAR Astro Morning Tea - a weekly round-up of interesting science news aimed at promoting discussion of a broad range science topics. *Perth, Australia*

MEDIA

- Oct 2017 **Neutron-Star Mergers**, Co-produced a short video describing the recent neutron-star neutron-star merger for Australia's Science Channel which has received ~ 17, 000 views in the first two days ([Story link](#)) *Perth, Australia*
- 2017 - **Astro Morning Tea**, Write and co-present a series of online vod-casts giving a fortnightly round up of science news stories, which are published online by Australia's Science Channel ([AMT](#)). *Perth, Australia*
- Sep 2017 **TV Show Concept**, Currently involved in pitching a 10 episode series on Australian astronomy to a national Channel 7 broadcaster (to date secured investment of ~AU\$100,000 towards production of the series) *Perth, Australia*
- Oct 2016 **How Big is the Universe?**, Article published in 'All About Space' magazine's 'Space Mysteries' ([spaceanswers.com](#)). *Perth, Australia*
- Jul 2015 **The Universe is Dying**, Made online Video to support press release 'The Universe is Dying', which was viewed 60,000 times in one week, reposted on many sites including: CNN, NY Post and Huffington Post. Live TV interviews with the BBC and ABC ([See here](#)). *Perth, Australia*
- Jun 2015 **Cosmic Giant vs Galactic Dwarfs**, Press release story 'Cosmic Giant vs Galactic Dwarfs' published on multiple world-wide news sites and in print in the West Australian ([See here](#)). *Perth, Australia*
- Jun 2015 **Galactic Giants Stunt the Little Guy**, Article published in 'COSMOS' magazine ([Cosmos](#)). *Perth, Australia*
- Dec 2014 **ScienceSnippets - EM Spectrum**, Wrote and presented 'ScienceSnippets' educational video on the electromagnetic spectrum ([EM Spectrum](#)). *Perth, Australia*
- Mar 2014 **AstroFest 2014**, Presented public outreach video from 'Astrofest 2014', interviewing members of the public about astronomy and answering their astronomy related questions. *Perth, Australia*
- Aug 2012 **Physics World Videos**, Presented short outreach videos for Physics World Magazine. Two short videos describing Dark Matter and Dark Energy in less than 90s to a general science audience ([Dark Matter](#)). *Bristol, UK*

CITIZEN SCIENCE

- Aug 2017 **Galaxy Explorer Forensics**, Department of Industry and Innovation AU\$350,000 funding for citizen science project to explore galaxies. Due to release late 2018. *Perth, Australia*
- Aug 2015 **Galaxy Explorer**, Citizen science project run by the ABC for national science week ([galaxyexplorer.net.au](#)). *Perth, Australia*

Publications

SUMMARY

- 62 published papers, 10 (+1) first author, h-index=19, first author h-index=8, 1045 citations, 142 first author citations, manuscripts have been published by Monthly Notices of the Royal Astronomical Society (impact factor 5.107) and The Astrophysical Journal (impact factor 5.993). [ADS link](#)

FIRST AUTHOR PAPERS

Deep Extragalactic Visible Legacy Survey (DEVILS): Motivation, Design and Target Catalogue

submitted MNRAS

DAVIES, L. J. M., ROBOTHAM, A. S. G., DRIVER, S. P., ET AL.

2018

- DEVILS science motivation, survey design and target selection
- Overview of preliminary 2017B observations

- Galaxy And Mass Assembly: the 1.4 GHz SFR indicator, SFR-M_{*} relation and predictions for ASKAP-GAMA** *MNRAS*, 466, 2312
- DAVIES, L. J. M., HUYNH, M. T.; HOPKINS, A. M., ET AL. 2017
- Derivation of calibrators for 1.4 GHz SFRs and comparisons to existing SFR indicators in GAMA
 - Predictions for the observability of GAMA-like sources with ASKAP
- GAMA/H-ATLAS: a meta-analysis of SFR indicators - comprehensive measures of the SFR-M_{*} relation and cosmic star formation history at $z < 0.4$** *MNRAS*, 461, 458
- DAVIES, L. J. M., DRIVER, S. P., ROBOTHAM, A. S. G., ET AL. 2016
- Derivation of calibrators for multiple SFRs indicators in GAMA
 - Evolution of cosmic star-formation
- Galaxy And Mass Assembly (GAMA): growing up in a bad neighbourhood - how do low-mass galaxies become passive?** *MNRAS*, 455, 4013
- DAVIES, L. J. M., ROBOTHAM, A. S. G., DRIVER, S. P., ET AL. 2016
- Passive Fractions of galaxies at low masses as a function of environment
 - Simple model of interaction quenching in satellites
- Galaxy And Mass Assembly (GAMA): the effect of close interactions on star formation in galaxies** *MNRAS*, 452, 616
- DAVIES, L. J. M., ROBOTHAM, A. S. G., DRIVER, S. P., ET AL. 2015
- The effect of interactions on galaxies as a function of stellar mass and pair-mass ratio
 - Star-formation in interactions compared to SFR indicator timescales
- Galaxy And Mass Assembly (GAMA): curation and reanalysis of 16.6k redshifts in the G10/COSMOS region** *MNRAS*, 447, 1014
- DAVIES, L. J. M., DRIVER, S. P., ROBOTHAM, A. S. G., ET AL. 2015
- Re-analysis of spectroscopic sample in COSMOS region
 - Defined sample for numerous future papers
- Identifying clustering at high redshift through actively star-forming galaxies** *MNRAS*, 438, 2732
- DAVIES, L. J. M., BREMER, M. N., STANWAY, E. R., ET AL. 2014
- Using clustering of photometrically star-forming galaxies to identify clustering at high redshift.
 - Produced sample of potential high redshift proto-clusters
- Detecting massive galaxies at high redshift using the Dark Energy Survey** *MNRAS*, 434, 296
- DAVIES, L. J. M., MARASTON, C., THOMAS, D., ET AL. 2013
- Using colour selections to predict the possible identification of massive high redshift galaxies in DES
- The detection of FIR emission from high-redshift star-forming galaxies in the ECDF-S** *MNRAS*, 433, 2588
- DAVIES, L. J. M., BREMER, M. N., STANWAY, E. R., ET AL. 2013
- Using colour selection and stacking to explore FIR emission from high-z galaxies
 - First robust detections of FIR emission from 'typical' galaxies at this epoch
- Limits on dust emission from $z \sim 5$ LBGs and their local environments** *MNRAS*, 425, 153
- DAVIES, L. J. M., BREMER, M. N., STANWAY, E. R., ET AL. 2012
- Using colour selection and stacking to explore FIR emission from over-densities of galaxies at $z \sim 5$
- Limits on the molecular gas content of $z \sim 5$ LBGs** *MNRAS*, L122
- DAVIES, L. J. M., BREMER, M. N., STANWAY, E. R., ET AL. 2010
- Using colour selection and stacking to explore molecular gas emission from over-densities of galaxies at $z \sim 5$