

CHRISTOPHER CLARK

CURRICULUM VITÆ (JANUARY 2019)

CONTACT INFORMATION

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ACADEMIC HISTORY

- 2018–PRESENT | **Postdoctoral Fellow** | SPACE TELESCOPE SCIENCE INSTITUTE
Performing a resolved exploration of the variation in dust properties within nearby galaxies, incorporating all-sky surveys to constrain emission missed by previous investigations.
SUPERVISOR: DR JULIA ROMAN-DUVAL | (+1)410-338-4351 | duval@stsci.edu
- 2014–2018 | **Postdoctoral Research Associate** | CARDIFF UNIVERSITY
Part of the EU DustPedia project. Responsible for reducing *Herschel* data, assembling ancillary data, and performing multiwavelength photometry, to construct a database with fluxes and imagery of 875 galaxies in 42 UV-submm bands. Then used this dataset to study the nature and evolution of dust in low-z galaxies, whilst also conducting independent research.
SUPERVISOR: PROF JONATHAN DAVIES | (+44)2920 875255 | Jonathan.Davies@astro.cf.ac.uk
- 2011–2015 | **PhD Astronomy** | CARDIFF UNIVERSITY
Thesis: *The Origins and Evolution of Cosmic Dust in Galaxies with the Herschel Space Observatory*
PhD with two main projects. Firstly, using *Herschel* data to determine if recent type-Ia and type-II Milky Way supernovæ manufactured significant quantities of dust. Secondly, exploiting *Herschel*-ATLAS to perform the first blind, dust-selected, volume-limited survey of local galaxies. [Thesis Link](#) |
SUPERVISOR: PROF HALEY GOMEZ | (+44)2920 874058 | Haley.Gomez@astro.cf.ac.uk
- 2011 | **Research Assistant** | CARDIFF UNIVERSITY
Employed to continue 4th-year undergraduate project work for publication.
- 2007–2011 | **MPhys Astrophysics 2:1** | CARDIFF UNIVERSITY
4th-year project: *Searching with Herschel for Dust Created by Kepler's Supernova*
3rd-year project: *Stacking Submillimetre-Undetected Elliptical Galaxies in BLAST Observations*
- 2003–2007 | **A-Levels & GCSEs** | HELSTON SCHOOL
Attained 4 A-Levels (Maths, Physics, History, and Theology) and 11 GCSEs (including 9 A/A*)

TEACHING

- 2014–2016 | **Project student supervision**
Primary supervisor of a Master's student, co-supervisor of three 3rd-year undergraduates
- 2015–2017 | **Undergraduate teaching** | *Computational Skills for Problem Solving*
In charge of teaching weekly 1st-year Python class

GRANTS & AWARDS

2017	€2 100 EUROPEAN RESEARCH COUNCIL Travel funds to attend summer school in astrostatistics
2016	£12 205 DATA INNOVATION RESEARCH INSTITUTE Seedcorn Fund <i>Astronomical Oncology – Astronomical Image Analysis Techniques for Cancer Microscopy</i>
2013	£400 CARDIFF UNIVERSITY Bessie Jones Prize for Most Outstanding Research Student
2013	€550 EUROPEAN SPACE AGENCY Competitive ESA conference sponsorship
2007	£4 000 INSTITUTE OF PHYSICS IoP Undergraduate Bursary

SUCCESSFUL TELESCOPE PROPOSALS

IRAM 30 M (NIKA-2)	PRINCIPAL INVESTIGATOR Pilot study for nearby galaxy observations with NIKA-2, mapping continuum emission of IC 342 at 1.2 & 2 mm
JCMT (ALL INSTRUMENTS)	Co-I NESS survey of Galactic evolved stars
JCMT (SCUBA-2/HARP-B)	Co-I HASHTAG program mapping dust and gas across M31
JCMT (SCUBA-2/RxA)	EXECUTIVE TEAM OF LARGE PROGRAM JINGLE statistical 850 μm & $^{12}\text{CO}(2-1)$ local-Universe survey of gas and dust
IRAM 30 M (NIKA-2)	EXECUTIVE TEAM OF LARGE PROGRAM IMEGIN 1.2 & 2.0 mm survey of nearby galaxies with new instrument
ALMA	Co-I CO and dust observations of BADGR galaxies
JCMT (HARP-B)	Co-I MALATANG survey of dense HCN & HCO ⁺ in nearby galaxies
JCMT (SCUBA-2)	Co-I 850 μm photometry of local galaxies containing very cold dust
IRAM 30 M (EMIR)	Co-I $^{12}\text{CO}(1-0)$ spectroscopy of local galaxies with low dust-to-gas ratios
VLA	Co-I H _i mapping of immature gas-dominated nearby galaxies

OBSERVING EXPERIENCE

JCMT (SCUBA-2/HARP-B)	450 μm , 850 μm , and $^{12}\text{CO}(3-2)$ mapping of M 31 for HASHTAG large program 5 NIGHTS AT TELESCOPE (2017)
IRAM 30 M (NIKA-2)	1.2 & 2.0 mm continuum observations of M 99 for NIKA2 science verification 5 NIGHTS AT TELESCOPE (2016-2017)
JCMT (RxA)	$^{12}\text{CO}(2-1)$ spectroscopy of low-redshift galaxies for the JINGLE large program 5 NIGHTS AT TELESCOPE (2016)
JCMT (SCUBA-2)	850 μm observations of local galaxies containing very cold dust 8 NIGHTS AT TELESCOPE (2014)
MOPRA 22 M	$^{12}\text{CO}(1-0)$ spectroscopy of dusty galaxies in the Fornax Cluster 7 NIGHTS AT TELESCOPE (2012)

PROGRAMMING SKILLS

PYTHON	Primary language Highly capable; especially proficient in statistical methods, image processing, data visualisation, and general observational astronomical use. Also teach Python in 1 st -year undergraduate course.
IDL	Secondary language Adept in general numerical and astronomical applications.
R	Versed in data-analysis and statistical use.
FORTRAN90	Undergraduate-level ability in basic use.
L ^A T _E X	Competent in the creation of high-quality scientific and academic documents.
GIT	Version control for all code development, made freely available on GitHub.

[GitHub Link](#) |

SCHOLARLY PRESENTATIONS

- 2018 **Talk** | *The First Maps of κ_d in Nearby Galaxies*
COSMIC DUST: ORIGIN, APPLICATIONS & IMPLICATIONS | COPENHAGEN
- 2018 **Symposium Organiser** | *The ISM as a Window onto Galaxy Evolution*
EUROPEAN WEEK OF SPACE SCIENCE 2018 | LIVERPOOL
- 2017 **Seminar** | *The Guilty Secrets of Dust in Nearby Galaxies*
EAST ASIAN OBSERVATORY | HILO
- 2016 **Poster** | *DustPedia: A Definitive Study of Dust in the Local Universe*
RAS SPECIALIST MEETING: MULTIWAVELENGTH EXTRAGALACTIC SURVEYS | LONDON
- 2015 **Talk & Local Organising Committee** | *Truths for a PhD in Astronomy*
SCIENCE & TECHNOLOGY FACILITIES COUNCIL SUMMER SCHOOL IN ASTRONOMY | CARDIFF
- 2015 **Talk** | *Young, Blue, and Cold - Blind Surveys of Nearby Galaxies with Herschel-ATLAS*
RAS NATIONAL ASTRONOMICAL MEETING | LLANDUDNO
- 2015 **Talk** | *Young, Blue, and Cold - Blind Surveys of Nearby Galaxies with Herschel-ATLAS*
GAS, DUST, AND STAR-FORMATION IN GALAXIES FROM THE LOCAL TO FAR UNIVERSE | CRETE
- 2013 **Poster** | *Herschel-ATLAS: A Blind Local Universe Survey Reveals Cold Immature Galaxies*
THE LIFE CYCLE OF DUST IN THE UNIVERSE | TAIPEI
- 2013 **Talk** | *A Blind Survey of the Local Dusty Universe with Herschel-ATLAS*
THE UNIVERSE EXPLORED BY HERSCHEL | NOORDWIJK
- 2013 **Talk** | *A Blind Survey of the Local Dusty Universe with Herschel-ATLAS*
RAS NATIONAL ASTRONOMY MEETING | ST ANDREWS
- 2013 **Talk** | *Dust in Historical Supernova Remnants with Herschel*
RAS NATIONAL ASTRONOMY MEETING | ST ANDREWS
- 2012 **Poster** | *Dusty Stars in Herschel-ATLAS*
RAS SPECIALIST MEETING: ORIGINS OF DUST IN THE HERSCHEL & ALMA ERA | LONDON

OTHER EXPERIENCE

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| SCIENCE OUTREACH | I have spent >150 hours engaged in science outreach activities with the general public; including public talks, science fairs, school events, agricultural shows, writing articles for university media, and radio interviews. |
| JAM MAKING | I create my own chilli jams (from home-grown chillies), which I now sell to a small number of local cafes, who feature it in their dishes. |
| SCOUT ASSOCIATION | 5 years volunteering as an assistant leader at 1 st Helston Scout Troop; attained Chief Scout's Award (equivalent to Duke of Edinburgh's Award). |
| UNIVERSITY CHALLENGE | Bested 90% of teams to reach the televised stage of the BBC competition, representing Cardiff University as an undergraduate. |

PUBLICATIONS

FIRST AUTHOR	Clark C. J. R., et al., 2018, <i>DustPedia: Multiwavelength Photometry and Imagery of 875 Nearby Galaxies in 42 Ultraviolet–Microwave Bands</i> , A&A 609 A37 ADS Link
	Clark C. J. R., et al., 2016, <i>An Empirical Determination of the Dust Mass Absorption Coefficient, κ_d, Using the Herschel Reference Survey</i> , MNRAS 459 1646 ADS Link
	Clark C. J. R., et al., 2015, <i>Herschel-ATLAS: The Surprising Diversity of Dust-Selected Galaxies in the Local Submillimetre Universe</i> , MNRAS 452 397 ADS Link
	Clark C. J. R., 2015, <i>On the Origins of Cosmic Dust and the Evolution of Nearby Galaxies with the Herschel Space Observatory</i> , PhD Thesis ADS Link
	Clark C. J. R., et al., 2014, <i>A Blind Survey of the Local Dusty Universe with Herschel-ATLAS</i> , in proceedings of ‘The Life Cycle of Dust in the Universe’, PoS LCDU2013 073 ADS Link
CO-AUTHOR	Mosenkov A. V., et al., 2018, <i>Emission profiles of DustPedia galaxies</i> , submitted for publication in MNRAS
	Bianchi S., et al., 2018, <i>The fraction of bolometric luminosity absorbed by dust in DustPedia galaxies</i> , accepted for publication in A&A ADS Link
	Saintonge A., et al., 2018, <i>JINGLE, a JCMT Legacy Survey of Dust and Gas for Galaxy Evolution Studies: I. Survey Overview and First Results</i> , accepted for publication in MNRAS ADS Link
	Eales S. A., et al., 2018, <i>The Causes of the Red Sequence, the Blue Cloud, the Green Valley and the Green Mountain</i> , accepted for publication in MNRAS ADS Link
	Mosenkov A. V., et al., 2018, <i>HERschel Observations of Edge-on Spirals (HEROES). IV. Dust energy balance problem</i> , A&A 616 A120 50 ADS Link
	Beeston R. A., et al., 2018, <i>GAMA/Herschel-ATLAS: The Local Dust Mass Function and Cosmic Density as a Function of Galaxy Type – A Benchmark for Models of Galaxy Evolution</i> , MNRAS 479 1077 ADS Link
	Dunne L., et al., 2018, <i>The Unusual ISM in Blue and Dusty Gas Rich Galaxies (BADGRS)</i> , MNRAS 479 1221 ADS Link
	Rigby A. J., et al., 2018, <i>A NIKA view of two star-forming infrared dark clouds: dust opacity variations and mass concentration</i> , A&A 615 A18 19 ADS Link
	Rho J., et al., 2017, <i>A Dust Twin of Cas A: Cool Dust and Pre-Solar Grains of Silica Revealed in the Supernova Remnant G54.1+0.3</i> , MNRAS 479 1077 ADS Link
	Casasola V., et al., 2017, <i>Radial Distribution of dust, stars, gas, and star-formation rate in DustPedia face-on galaxies</i> , A&A 605 A18 33 ADS Link
	de Vis P., et al., 2017, <i>Using dust, gas and stellar mass selected samples to probe dust sources and sinks in low metallicity galaxies</i> , MNRAS 471 1743 ADS Link
	Davies J. I., et al., 2016, <i>DustPedia - A Definitive Study of Cosmic Dust in the Local Universe</i> , PASP 129 044102 ADS Link

- Bianchi S., et al., 2016, *The Herschel Virgo Cluster Survey. XX. Dust and Gas in the Foreground Galactic Cirrus*, A&A 597 A130 25 [ADS Link](#) |
- de Vis P., et al., 2016, *Herschel-ATLAS: Revealing Dust Build-Up and Decline Across Gas-, Dust- and Stellar-Mass Selected Samples: I. Scaling Relations*, MNRAS 464 4680 [ADS Link](#) |
- Eales A., et al., 2015, *H-ATLAS/GAMA: Quantifying the Morphological Evolution of the Galaxy Population using Cosmic Calorimetry*, MNRAS 452 3489 [ADS Link](#) |
- Rowlands K., et al., 2014, *Herschel-ATLAS: Properties of Dusty Massive Galaxies at Low and High Redshifts*, MNRAS 441 1017 [ADS Link](#) |
- Peason E. A., et al., 2013, *Herschel-ATLAS: estimating redshifts of Herschel sources from sub-mm fluxes*, MNRAS 435 2753 [ADS Link](#) |
- Bourne N., et al., 2013, *Herschel-ATLAS: correlations between dust and gas in local submm-selected galaxies*, MNRAS 436 479 [ADS Link](#) |
- Agius N. K., et al., 2013, *GAMA/H-ATLAS: linking the properties of submm detected and undetected early-type galaxies: I. $z \leq 0.06$ sample*, MNRAS 431 1929 [ADS Link](#) |
- López-Caniego M., et al., 2013, *Mining the Herschel-ATLAS: submillimetre-selected blazars in equatorial fields*, MNRAS 430 1566 [ADS Link](#) |
- Gomez H. L., et al., 2012, *A Cool Dust Factory in the Crab Nebula: A Herschel Study of the Filaments*, ApJ 760 96 [ADS Link](#) |
- Gomez H. L. & Clark C. J. R., et al., 2012, *Dust in Historical Galactic Type-Ia Supernova Remnants with Herschel*, MNRAS 420 3557 [ADS Link](#) |