Michael G. Jones

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Education

Cornell University *Ithaca, NY*

PhD – Astronomy *2011-2016*

Supervisors: Martha P. Haynes & Riccardo Giovanelli

University of Cambridge – Fitzwilliam College *Cambridge, United Kingdom*

MSci & BA – Natural Sciences (Astrophysics) *2007-2011*

Employment

University of Arizona *Tucson, AZ, USA*

2020 – present

- Post-doctoral research associate with David Sand (Nov. 2020 – present)

Instituto de Astrofísica de Andalucía *Granada, Spain*

2016 – 2020

- Juan de la Cierva formación post-doctoral fellow (May 2018 – Sep. 2020)
- Post-doctoral researcher with Lourdes Verdes-Montenegro (July 2016 – Apr. 2018)

Observing Time & Experience

2024	**GBT**, PI of 42 h GBT proposal targeting newly discovered "blue blobs."
2023	**VLA+HST**, PI of 3.5 h VLA and 1 HST orbit program targeting newly discovered very low mass galaxy.
2023	**MeerKAT**, PI of DDT project to image the neutral gas in the dwarf galaxy Pavo.
2023	**VLA**, PI of 27 h VLA C-config project following up satellites with ongoing ram pressure stripping.
2023	**ALMA**, PI of an A-rated 70 h ALMA Cycle 10 project to map the molecular gas in known "blue blobs.".
2021-22	**VLA**, PI of 42 & 41 h projects to map HI gas in satellite systems and measure kinematics of UDGs.
2021-23	**HST**, PI of SNAP project to detect globular clusters in field ultra-diffuse galaxies.
2022-23	**GBT+HST**, PI of joint 25 h GBT and 6 orbit HST follow-up program for "blue blob" candidates.
2023	**VLA+HST**, PI of 10 h VLA & 2 orbit HST program targeting ultra-faints at the edge of the Local Group.
2020-23	**CFHT**, Co-I of MegaCam project to observe satellites in MW-like systems in Hα.
2021-23	**GBT**, PI of 4 GBT projects (200 h) to search for HI in low-mass systems.
2021-23	**Kuiper 61"**, Over 10 nights of solo observing with the Mont4K imager.
2018	**GTC**, PI of 25 h of MEGARA IFU project to observe blue, field ultra-diffuse galaxies.
2018	**NOT**, 3 nights of observing with the ALFOSC instrument on the NOT in La Palma.
2014	**WIYN**, 2 nights of observing with the pODI instrument on the 3.5m WIYN telescope at Kitt Peak.
	Arecibo, Over 300 h of time awarded as co-PI of the Arecibo Pisces–Perseus Supercluster Survey.
2012-19	Over 100 h observing experience with the ALFA and LBW instruments as part of the ALFALFA team for the main survey and associated projects.

Funding & Awards

2024	**HST GO program**, HST-GO-17607 grant of $40k.	*STScI*
2023	**HST GO program**, HST-GO-17316 grant of $39k.	*STScI*
2023	**HST GO program**, HST-GO-17267 grant of $56k.	*STScI*
2021	**HST SNAP program**, HST-SNAP-16758 grant of $55k.	*STScI*
2017	**Juan de la Cierva fellowship**, a competitive, national-level post-doctoral fellowship (€50k).	*MCIU (Spain)*
2015	**Eleanor York Prize**, for service to the community and academic achievement.	*Cornell*

Talks & Seminars

Conferences

2024	**Small Galaxies Cosmic Questions II**, Pushing into the semi-resolved regime	*Contributed*
2024	**KICP DGSCS**, Building a statistical sample of extremely low mass galaxies	*Contributed*
2024	**Rare Gems in Big Data**, Galaxies & cosmology discussions summary	*Contributed*
2024	**AAS243**, Gas and star formation in satellites of Milky Way analogs	*Contributed*
2023	**LSST PCW**, Pushing the boundaries of faint galaxies science	*Contributed*
2023	**Sextens**, Ultra-diffuse galaxies in low density environments	*Invited*
2023	**AAS241**, Gas-rich, field ultra-diffuse galaxies host few globular clusters	*Contributed*
2022	**DECam at 10 years**, Gas-rich ultra-diffuse galaxies in the field	*Contributed*
2022	**AAS240**, Young, blue, and isolated stellar systems in the Virgo cluster	*Press Briefing*
2019	**MIAPP**, $\Omega_{\rm HI}$ at $z \approx 0$ from ALFALFA	*Contributed*
2019	**SKA Science Meeting**, Towards a FAIR understanding of compact group evolution	*Contributed*
2018	**Lorentz Center**, Estimating the abundance of gas-bearing UDGs	*Contributed*
2018	**PHISCC**, What drives evolution in compact groups?	*Contributed*
2017	**PHISCC**, HI scaling relations of the most isolated galaxies	*Contributed*
2016	**3GC4**, ALFALFA HIMF: Accounting for uncertainty and bias	*Contributed*
2016	**AAS227**, The effects of environment in ALFALFA & limitations of HI surveys	*Dissertation*
2015	**PHISCC**, Spectroscopic confusion: Its impact on HI surveys and stacking	*Contributed*

Colloquia and Seminars

2024	**ASU**, Low-mass galaxy quenching as a test of cosmological models	*Seminar*
2023	**NOIRLab**, Pavo: Discover of a star-forming galaxy just beyond the Local Group	*Seminar*
2022	**NOIRLab**, Young, blue, and isolated stellar systems in the Virgo cluster	*Seminar*
2022	**STScI**, Young, blue, and isolated stellar systems in the Virgo cluster	*Seminar*
2021	**RIT**, Are they even galaxies? Extreme mass-to-light ratio, gas-rich systems	*Colloquium*
2021	**ASU**, Ultra-diffuse galaxy formation through tidal interaction	*Seminar*
2021	**Steward Observatory**, The cool gas content of galaxies from isolation to dense groups	*Seminar*
2018	**Kapteyn Institute**, HI-bearing ultra-diffuse galaxies and the HI mass function	*Colloquium*
2017	**University of Exeter**, HI galaxy surveys	*Seminar*
2017	**ICRAR**, HI scaling relations of isolated galaxies	*Seminar*
2017	**ICRAR**, ALFALFA 100% HI mass function	*Seminar*
2015	**ASTRON**, The environmental dependence of the HI mass function in α.70	*Seminar*

Service & Leadership

Univeristy of Arizona

HST external panelist, HST external expert reviewer, ALMA distributed reviewer (2 cycles), UKRI Expert Reviewer, session chair at Rare Gems in Big Data conference, AAS CSMA Micro-grant reviewer (3 years), refereeing for AAS journals, refereeing for MNRAS

Instituto de Astrofísica de Andalucía

Led IAA journal club, refereeing for MNRAS

Technical Skills

Languages

Python, IDL, C

Astronomy Tools

astropy, photutils, astroquery, TOPCAT, Aladin, DS9, CASA, Zooniverse, APT, ACS ETC, WFC3 ETC, JWST ETC, DOLPHOT, SoFiA, Stan

Version Control & Reproducibility

git, GitHub, Conda, Zenodo, Bitbucket, CGAT-core

Teaching & Outreach

Research Mentoring

Currently advising UA undergraduates Swapnaneel Dey, Nicolas Mazziotti, and Josué Barceló, who are preparing their first astronomy research papers. In addition, I have mentored Cornell students Jeremy Borden, Johnathan Gomez Barrientos, Johnathan Letai during undergraduate research projects and AP Research high school student Isabel Doty.

Community College Python Course

Prepared lectures and taught part of an astronomy-themed introductory Python course for Pima Community College students.

Teaching Assistant Experience

Two years as a teaching assistant for a large introductory astronomy classes at Cornell. Several guest lectures for 100 and 200-level classes at Cornell and University of Arizona.

Local TV News

Appeared in a KOLD local news interview discussing the discovery of “blue blobs.”

Astronomy on Tap

Public talk at Tucson’s Astronomy on Tap, “Space Drafts.”

Workshop Seminars

Demonstrated observing, lectured and tutored students as part of the Undergratduate ALFALFA Team workshop at Arecibo observatory. Co-wrote and led workshop seminars on Python and TOPCAT for undergraduates working on summer research projects at Cornell.

Journal Club

Created a journal club at the IAA for students and post-docs to discuss recent papers and background for upcoming seminars.

First Author Papers

Corvus A: A low-mass, isolated galaxy at 3.5 Mpc *ApJL 971, 37*
Jones et al. 2024c

Dark no more: The low luminosity stellar counterpart of a dark cloud in the Virgo cluster *ApJL 966, 15*
Jones et al. 2024b

Gas and star formation in satellites of Milky Way analogs *ApJ 966, 93*
Jones et al. 2024a

Pavo: Discovery of a star-forming dwarf galaxy just outside the Local Group *ApJL 957, 5*
Jones et al. 2023c

Disturbed, diffuse, or just missing? A global study of the HI content of Hickson Compact Groups *A&A 670, 21*
Jones et al. 2023b

Gas-rich, field ultra-diffuse galaxies host few globular clusters *ApJL 942, L5*
Jones et al. 2023a

Young, blue, and isolated stellar systems in the Virgo Cluster. II. A new class of stellar system *ApJ 935, 51*
Jones et al. 2022b

AGC 226178 and NGVS 3543: Two deceptive dwarfs towards Virgo *ApJL 926, 15*
Jones et al. 2022a

Evidence for ultra-diffuse galaxy formation through tidal heating of normal dwarfs *ApJ 919, 72*
Jones et al. 2021

The HI mass function of group galaxies in the ALFALFA survey *MNRAS 494, 2090-2108*
Jones et al. 2020

Evolution of compact groups from intermediate to final stages: A case study of the HI content of HCG 16 *A&A 632, A78*
Jones et al. 2019

The ALFALFA HI mass function: A dichotomy in the low-mass slope and a locally suppressed knee mass *MNRAS 477, 2-17*
Jones et al. 2018c

The contribution of HI-bearing ultra-diffuse galaxies to the cosmic number density of galaxies *A&A 614, A21*
Jones et al. 2018b

The AMIGA sample of isolated galaxies XIII. The HI content of an almost "nurture free" sample *A&A 609, A17*
Jones et al. 2018a

The environmental dependence of the HI mass function in ALFALFA 70% *MNRAS 457, 4393-4405*
Jones et al. 2016b

When is stacking confusing?: The impact of confusion in deep HI galaxy surveys *MNRAS 455, 1574-1583*
Jones et al. 2016a

Spectroscopic confusion: Its impact on current and future extragalactic HI surveys *MNRAS 449, 1856-1868*
Jones et al. 2015

The relationship between accretion disc age and stellar age and its consequences for protostellar discs *MNRAS 419, 925-935*
Jones et al. 2012

Co-author Papers

All Puffed Up: Tidal Heating as an Ultra Diffuse Galaxy Formation Pathway *Accepted to ApJ*
Fielder et al. 2024

The Faint Satellite System of NGC 253: Insights into Low-density Environments and No Satellite Plane *ApJ 966, 188*
Mutlu-Pakdil et al. 2024

The AMIGA sample of isolated galaxies - effects of environment on angular momentum *MNRAS 528, 1630*
Sorgho et al. 2024

Parameterized Asymmetric Neutral Hydrogen Disk Integrated Spectrum Characterization (PANDISC). I. Introduction to a Physically Motivated H I Model *ApJ 950, 163*
Peng et al. 2023

A Generalist, Automated ALFALFA Baryonic Tully-Fisher Relation *ApJ 950, 87*
Ball et al. 2023

The quenched satellite population around Milky Way analogues *MNRAS 524, 5314*
Karunakaran et al. 2023

The Disturbed and Globular-cluster-rich Ultradiffuse Galaxy UGC 9050-Dw1 *ApJL 954, 39*
Fielder et al. 2023

NeutralUniverseMachine: An Empirical Model for the Evolution of HI and H2 Gas in the Universe *ApJ 955, 57*
Guo et al. 2023

MIGHTEE-HI: The first MeerKAT HI mass function from an untargeted interferometric survey *MNRAS 522, 5308*
Ponomareva et al. 2023

Effects of Active Galactic Nucleus Feedback on Cold Gas Depletion and Quenching of Central Galaxies *ApJ 941, 205*
Ma et al. 2022

HI properties of satellite galaxies around local volume hosts *MNRAS 516, 1741*
Karunakaran et al. 2022

Infall Profiles for Supercluster-Scale Filaments *ApJ 935, 130*
Crone Odekon et al. 2022

Young, blue, and isolated stellar systems in the Virgo Cluster. I. 2-D Optical spectroscopy *ApJ 935, 50*
Bellazzini et al. 2022

Tucana B: An Isolated and Quenched Ultra-faint Dwarf Galaxy at D=1.4 Mpc *ApJL 935, 17*
Sand et al. 2022

Cold Gas Reservoirs of Low and High Mass Central Galaxies Differ in Response to AGN Feedback *ApJL 933, 12*
Guo et al. 2022

Decoding the star forming properties of gas-rich galaxy pairs *MNRAS 513, 2581*
Bok et al. 2022

Hubble Space Telescope Observations of NGC 253 Dwarf Satellites: Three Ultra-faint Dwarf Galaxies *ApJ 926, 77*
Mutlu-Pakdil et al. 2022

Satellites around Milky Way Analogs: Tension in the number and fraction of quiescent satellites seen in observations versus simulations *ApJL 916, 19*
Karunakaran et al. 2021

Star formation and quenching of central galaxies from stacked HI measurements *ApJ 918, 53*
Guo et al. 2021

The dependence of subhalo abundance matching on galaxy photometry and selection criteria *MNRAS 506, 3205-3223*
Stiskalek et al. 2021

MeerKAT-64 discovers wide-spread tidal debris in the nearby NGC 7232 galaxy group *MNRAS 505, 3795-3809*
Namumba et al. 2021

A diffuse tidal dwarf galaxy destined to fade out as a “dark galaxy” *A&A 649, L14*
Román et al. 2021

HI study of isolated and paired galaxies: the MIR SFR-M* sequence *MNRAS 499, 3193-3213*
Bok et al. 2020

WALLABY – An SKA Pathfinder HI Survey *ApSS 365, 118*
Koribalski et al. 2020

Morphology and surface photometry of a sample of isolated early-type galaxies from deep imaging *A&A 640, A38*
Rampazzo et al. 2020

Direct Measurement of the HI-halo Mass Relation through Stacking *ApJ 894, 92*
Guo et al. 2020

A Comprehensive Examination of the Optical Morphologies of 719 Isolated Galaxies in the AMIGA Sample *MNRAS 488, 2175-2189*
Buta et al. 2019

The environment of HI-bearing ultra diffuse galaxies in the ALFALFA survey *MNRAS 490, 566-577*
Janowiecki et al. 2019

The HI content of dark matter haloes at z≈0 from ALFALFA *MNRAS 486, 5124-5138*
Obuljen et al. 2019

The Arecibo Pisces-Perseus Supercluster Survey. I. Harvesting ALFALFA *ApJ 157, 81*
O'Donoghue et al. 2019

Unveiling the environment and faint features of the isolated galaxy CIG 96 with deep optical and HI observations *A&A 619, A163*
Ramírez-Moreta et al. 2018

The Arecibo Legacy Fast ALFA Survey: The ALFALFA Extragalactic HI Source Catalog *ApJ 861, 49*
Haynes et al. 2018

The Enigmatic (Almost) Dark Galaxy Coma P: The Atomic Interstellar Medium *AJ 155, 65*
Ball et al. 2018

The ALFALFA "Almost Darks" Campaign: Pilot VLA HI Observations of Five High Mass-To-Light Ratio Systems *ApJ 149, 72*
Cannon et al. 2015

HIghMass-High HI Mass, HI-rich Galaxies at z~0 Sample Definition, Optical and Hα Imaging, and Star Formation Properties *ApJ 793, 40*
Huang et al. 2015

The Clustering of ALFALFA Galaxies: Dependence on H I Mass, Relationship with Optical Samples, and Clues of Host Halo Properties *ApJ 776, 43*
Papastergis et al. 2013